American International University-Bangladesh (AIUB)

SDG Activity Report 2023

SDG 4: Quality Education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

American International University-Bangladesh (AIUB) demonstrates its commitment to Sustainable Development Goal 4 by offering lifelong learning opportunities and fostering inclusive education. AIUB provides free access to educational resources, including public events and workshops like the Content Writing Workshop and Skill Development Workshop on Microsoft Excel, which equip participants with essential skills. Additionally, AIUB hosts training events such as the AIUB Inter College Engineering Quiz Contest, promoting STEM education for students beyond its campus.

AIUB extends its outreach through community programs, conducting tailored lectures in local schools and other institutions. Public seminars like Exploring the Gothic in Literature and Voices from the Root: Celebration of Language and Mother Tongue further enrich cultural and academic knowledge, ensuring lifelong learning for all.

The university maintains a lifelong learning access policy, ensuring inclusive participation regardless of ethnicity, religion, or background. AIUB also focuses on producing qualified educators by supporting graduates in obtaining teaching credentials. Additionally, research initiatives, such as studies on blended learning and digital education tools, reflect AIUB's innovative approach to enhancing learning experiences.

These initiatives highlight AIUB's dedication to accessible, high-quality education, fostering lifelong learning, and contributing to SDG-4 by promoting equitable and inclusive educational practices for all.

#AIUB #SDG4 #QualityEducation #LifelongLearning

Contents

University Activities towards SDG 4

Content Writing workshop by AIUB Computer Club

On November 26, 2023, AIUB Computer Club organized a workshop named "Roadmaps of Content Writing: Become a Content Wizard" at 8.00 PM via Google meet. The speaker of the workshop was Mintajur Rahman Emon (Former Assistant General Secretary of Media and Publication, AIUB Computer Club).

The main purpose of the workshop was to provide students with the opportunity to learn the fundamental skills they need to write well both in academic and day-to-day life. The speaker began the session by showing the agendas of the workshop and started with the introduction of the content writing, pillars of content writing, examples and structures, brainstorming, feedback approach, summary, and action items. He explained the importance of effective communication and dynamic content to make sure the message is delivered to the audience clearly. He encouraged everyone to think out of the box to create modern versions of old use cases. Additionally, Abhijit Bhowmik (Associate Professor of CSE at AIUB and Special Assistant, Office of Student Affairs) joined the meeting and inspired the audience to focus more on content writing skills and appreciated the workshop for its purpose. Mr. Mintajur then highlighted four considerable pillars of content writing. He continued by talking about the examples of contents and their structure. Then he briefly discussed how to write social media captions, reports, press releases, article, thesis and explained how the content should be structured. The speaker also talked about how a writer might use digital brainstorming to collect fresh, impactful ideas that will appeal to a certain audience. Later, he discussed how the feedback strategy will connect the audience with the work and aid in understanding their needs. He then inquired about the platform that the audience used to compose their articles.

There was a question answer session at the end. Mr. Mintajur Rahman took a while to answer all the questions asked by the attendees, which helped them to clear their confusion and get a clear view on the overall session. Lastly, Ms. Tunaj and Ms. Lamyea concluded the session at 9:30 PM and conveyed their appreciation to the speaker and former executive committee members who attended, as well as to the participants. The workshop was a great success with nearly 60 participants and motivated the attendees to consider pursuing further skills in content writing.

https://www.aiub.edu/content-writing-workshop-by-aiub-computer-club
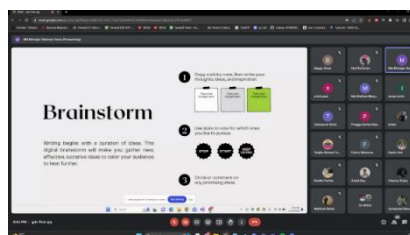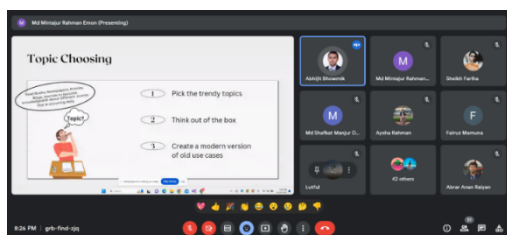
AOC Crea-Tion - Spring 2022-2023

On 23 February 2023, the AIUB Oratory Club (AOC) Organized a recruitment process for Spring 2022-23 and an intra-university event titled 'AOC Crea-Tion Spring 2022-2023' to enable AIUB students to discover their eloquence in creative oration.

The event was divided into two parts: the competitions and the membership viva. Approximately 100 inquisitive students of AIUB joined the event. The event was elevated more by the presence of dignified faculty members who also judged the contestants who participated in various categories - Public Speaking (both in Bangla and English), Content Writing, and Graphics Designing.

The prize-giving ceremony, along with the orientation program for the newly recruited members, was held on 15 March 2023. The program started with a poetry recitation, followed by two public speeches promoting awareness of Bengali literature and mental health and another recitation for welcoming newcomers. Earlier, Mr. Sajid Mahbub, the Chief Operating Officer and Executive Editor at Bangladesh Brand Forum (BBF), an AIUB Alumnus and former General Secretary of AOC, conducted a grooming session for the club members.

Members of the AIUB Performing Arts Club (APAC) staged a musical performance at the end of the program, and the AIUB Photography Club (AIUBPC) captured the moments of the event.

https://www.aiub.edu/aoc-crea-tion---spring-2022-2023

Voices from the Root: Celebration of Language and Mother Tongue

An enchanting cultural event with songs, dance, skit, fun-debate, poetry recitation and poetry performance took place on 21 March 2023 at 3pm in Multi-purpose Hall (D building) of AIUB campus. The event was organized by the Department of English, AIUB. It was titled "Voices from the Root: Celebration of Language and Mother Tongue". In this event, all the students of AIUB were invited as audience. The event was participated by the students of English Department and AOC. The performers had gone through a rigorous rehearsal process before the final event under the supervision of English department teachers as mentors. The Dean of the Faculty of Arts and Social Sciences (FASS) Prof. Dr. Tazul Islam, the Associate Dean of the Faculty Dr. ABM Rahmatullah and the Head of the Department of English, Mr. M Hamidul Haque were present on the occasion. All the faculties of the Department of English were also present among the audience. The head of the department inaugurated the cultural program. The program ended with certificate distribution among the performers and the speeches by the Dean and Associate Dean of FASS.

https://www.aiub.edu/voices-from-the-root-celebration-of-language-and-mother-tongue

Ishtiaque Abedin Chairman of AIUB was honored with the "World Education Award 2023"

Mr. Ishtiaque Abedin, the Founding Member and Chairman of the Board of Trustees of American International University-Bangladesh (AIUB), was honored with the "World Education Award 2023" in the 25th Elets World Education Summit held on 20-21 March, 2023 in Dubai, United Arab Emirates, for his outstanding contributions to higher education in Bangladesh. A memento and certificate have been given in recognition of award. Mr. Ishtiaque Abedin is the first Bangladeshi to receive this award in the category of outstanding contribution to higher education. The 25th Elets World Education Summit, which was organized by the Elets Technomedia, the premier technology and media research organization of Asia and the Middle East. Mr. Ishtiaque Abedin has been contributing to the higher education sector in Bangladesh for 28 years now.

https://www.aiub.edu/ishtiaque-abedin-chairman-of-aiub-was-honored-with-the-world-education-award-2023-

Exploring the Gothic in Literature

The Audience who had gathered at multi-purpose hall in Annex 7 of American International University-Bangladesh were certainly somewhat surprised as Bram Stoker's immortal creation the frightening vampire Count Dracula welcomed them to an afternoon of exploration of 'The Gothic' in literature. From his shadow emerged the co-host of the event, another figure from the realms of popular culture, the creepy and mysterious Wednesday Adams.

The faculties and students of the Department of English were busy planning this intriguing afternoon since the beginning of fall 2023-24 semester. After weeks of hard work and rehearsals finally on October 11, Wednesday (a happy accident) the stage was set. Audience started gathering from 3:15 pm and soon the event was inaugurated by Prof. Dr. Tazul Islam, Dean of the Faculty of Arts & Social Sciences.

As the title suggested the focus of the program was not only literature identified as 'gothic romance' of the Victorian period (1837-1901) but also works that are thematically similar across literary history and culture. The event began with creative presentations from the greats such as Edgar Allan Poe, Mary Shelley, Emily Dickinson, and Charlotte Bronte's canonical works. This was soon followed by gothic interpretation of a segment from modernist poet T.S. Eliot's haunting poem The Waste Land, and stage adaptation of contemporary popular fantasy and horror fiction author Stephen King's novel Secret Window, Secret Garden. The humorous chemistry between Dracula and Wednesday was triggering the audience into bursts of laughter and several performances received applaud and ovation, notably Bertha Mason's role played by Tasnia Elahi Proma a final semester student of the Department.

Among the audience, the Dean Prof. Dr. Tazul Islam, Associate Dean Prof Dr. Rahmatullah, Head of the English Department Hamidul Haque and faculties of various departments were present. The hearts of the gathering, however, were the booming and cheering students of the university who crowded the Multi-purpose Hall to its brim.

After a surprise faculty performance and a very interactive mock-tarot card reading session, the curtain dropped. However, the student enthusiasm seemed to have lingered as an ecstatic echo soon could be traced on social media.

https://www.aiub.edu/exploring-the-gothic-in-literature

Skill Development Workshop on Microsoft Excel

AIUB Community of Engineering Students (ACES) organized a Skill Development Workshop on Microsoft Excel on February 23, 2023 (Thursday). The workshop started at 10 AM with 25 pre-registered participants in DN0209, Building D, AIUB. The purpose of this workshop was to develop skill on Microsoft Excel to be able to pre-process and analyze data in a professional or academic field. Mr. Abir Ahmed (Assistant Professor & Special Assistant, EEE, Faculty of Engineering, AIUB & Motivator, ACES) began the workshop by emphasizing the significance of acknowledging Microsoft Excel in our day-to-day activities. After that he conducted a 3-hour long hands-on practice session from basic to advance level Microsoft Excel features. The instructor took feedback from participants and end the workshop with Q/A session. Following that, Dr. Md. Saniat Rahman Zishan (Associate Professor & Head, Dept. of CoE, AIUB & Mentor, ACES.) thanked the speaker and presented a token of appreciation to the instructor. The workshop ended at 1:00 PM with a group photo.

https://www.aiub.edu/skill-development-workshop-on-microsoft-excel

AIUB Library received books from IGCC

AIUB Library received generous donation of 101 new books from the Indira Gandhi Cultural Centre (IGCC), High Commission of India on 30 August 2023. On behalf of the IGCC and High Commission of India, the Director of IGCC Mr. Mrinmoy Chakraborty and Mr. Sanjay Kumar Bihani, Second Secretary (Consular) handed over the books to Gp. Capt. (retd) Dr. Mohammad Zahidul Islam Khan (acsc, psc), Registrar and Mr. Manzur H Khan, Proctor, AIUB. The selection and quality of the books are varied, impressive and rich. They are now on display at the India Corder of the AIUB library and are open for the students, faculty, and officials to read. AIUB Management expresses deep appreciation and gratitude for such noble donation.

https://www.aiub.edu/aiub-library-received-books-from-igcc
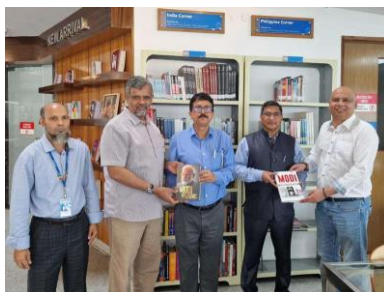
Timeless Stages: A Visual Journey through Dramatic Legacies

As part of the "Appreciation of Drama" course, a captivating Pictorial Presentation brightened the halls of the American International University - Bangladesh (AIUB). The event, organized by Farhat Tasannum Farah, Assistant Professor in the Department of English at AIUB, held on December 14, 2023.

Collaborating with two distinguished senior students from the department, a panel of judges was formed to evaluate the creative expressions of fellow students. The focal point of the event was seven groups, each consisting of 4-5 students, tasked with visually portraying the essence of specific theatrical genres through stunning posters.

The presentations offered a journey through diverse themes and epochs of dramatic history, showcasing the rich tapestry of dramatic evolution. From the intricate performances of Greek Theatre to the thought-provoking absurdity of modern plays, the exhibition illustrated the brilliance of various dramatic forms.

https://www.aiub.edu/timeless-stages-a-visual-journey-through-dramatic-legacies

Workshop on Video Editing by AIUB Computer Club

On November 29, 2023, AIUB Computer Club organized a workshop titled "Video Editing with After Effects and Template Customization" at 8.00 PM via Google meet. The speaker of the workshop was Maliha Tasnuva (Former Assistant General Secretary of Event Coverage and Post Production, AIUB Computer Club).

The workshop's primary goal was to give students the chance to acquire the foundational knowledge and abilities needed to edit videos daily. The workshop agendas were displayed by the speaker, who then introduced video editing, basic After Effects understanding, what template customization is, picture sorting, and action items. She discussed the value of having strong video editing abilities as well as the fundamental After Effects tools, such as the pen tool, Shape layer, and Adjustment layer. She explained how to use After Effects' zoom in and out functions. The two most crucial topics she covered were selecting a solid template for video editing and organizing images in a new folder. She urged everyone to utilize their imaginations to reimagine classic use cases in contemporary ways. In addition, Abhijit Bhowmik (special assistant for the office of student affairs and associate professor of computer science at AIUB) attended the session and encouraged the participants to concentrate more on their video editing abilities. He also praised the workshop for its intended use.

Subsequently, Ms. Maliha conducted a Q&A session where she discussed frequent mistakes and shared insights from her past work. She also provided a brief template that could be customized for individuals interested in using After Effects in the future. She gave some crucial information regarding the advancement of video editing at the conclusion of the meeting. At 9:40 PM, Abrar Anan Raiyan and Azmayeet Hammad called the meeting to a close and thanked both the speaker and the attendees. With almost 70 participants, the session was a huge success and inspired the attendees to think about developing their video editing abilities.

https://www.aiub.edu/workshop-on-video-editing-by-aiub-computer-club
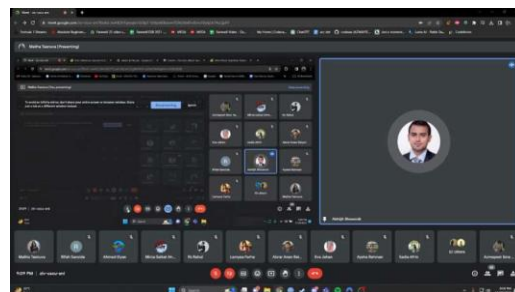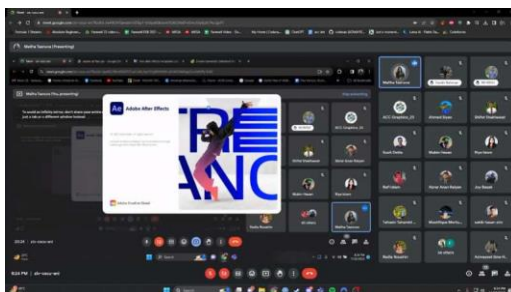
Faculty of Engineering Organized "AIUB Inter College Engineering Quiz Contest 2023."

On May 20, 2023, the Faculty of Engineering of American International University-Bangladesh (AIUB) organized the event titled "AIUB Inter College Engineering Quiz Contest 2023". The event was held at the university premises. It started at 9:30 AM with more than 180 participants of 30 different colleges from Dhaka and concluded at 3:00 PM. This was an initiative by the faculty of engineering to encourage the higher school students towards STEM education.

The event began with participants completing the registration process, where they were provided with souvenirs and served refreshments. At 10:30 AM, the quiz contest officially started, and following that, the participants were given a guided tour of the beautiful AIUB campus. This tour included visits to notable locations such as engineering laboratories, classrooms, library, field, sports complex, gym, and other places. The guided campus tour concluded at 12:30 PM, and the participants were taken to the Multipurpose Hall for the prize-giving ceremony. During the ceremony, the Faculty of Business Administration (FBA) organized another engaging informative quiz session and discussed the future prospects of education. Later, the members of AIUB Performing Arts Club (APAC) performed cultural activities which were lively enjoyed by all the participants. After the performance of APAC, Prof. Dr. A.B.M Siddique Hossain (Dean, Faculty of Engineering, AIUB) shared his lifelong experiences as a renowned academician for over 3 decades. His informative and inspiring words enlightened the young participants. After the speech from honorable Dean, token of appreciation from AIUB were handed over to the College teachers from Birshreshtha Noor Mohammad Public College (BNMPC) and South Point School & College, who supported the students from their colleges and visited the campus. They also expressed their sincere gratitude to AIUB and exchanged valuable feedback with the other faculty members.

The quiz contest winners were announced, and prizes were awarded by Prof. Dr. A.B.M Siddique Hossain (Dean, Faculty of Engineering, AIUB), Prof. Dr. Mohammad Abdul Mannan (Associate Dean, Faculty of Engineering, AIUB), and Dr. Md. Saniat Rahman Zishan (Director, Faculty of Engineering, AIUB). Among the contestants Mr. Fardin Hasan Dhruba from Notre Dame College, Dhaka secured the first position, Mr. Ahnaf Hameed Rauf from South Point School & College secured the second position and Mr. Farhan Mashuk Tanim from ELC Inspires secured the third position. Faculty of Engineering, AIUB extends appreciation to all the participants for their whole-hearted participation and appreciated their involvement in various activities.

https://www.aiub.edu/faculty-of-engineering-organized--aiub-inter-college-engineering-quiz-contest-2023

Freshman Student Orientation for the Fall 2023-2024 Semester

The American International University-Bangladesh (AIUB) conducted its freshman student orientation for the Fall 2023-2024 semester both Thursday and Saturday, 14 and 16 September 2023. The orientation sessions were organized separately for undergraduate and graduate students across various faculties in the AIUB Auditorium, Multipurpose Halls and the Media Studio. Representatives from the Office of Student Affairs (OSA) provided the new students with essential information regarding university policies and regulations. They also outlined the procedures for effectively utilizing the university's resources and tools to support their academic journey.

Mr. Ishtiaque Abedin, the Founder Member and Chairman of the AIUB Board of Trustees, graced the orientation sessions as the chief guest. He extended a warm welcome to the students and their parents, expressing his appreciation for their enthusiastic participation. The event also saw the presence of the Registrar, Deans, Associate Deans, Directors, Heads of Departments, faculty members, key officials, as well as students and their parents.

AIUB Student Clubs also extended a hearty welcome to the incoming students of the Fall 2023-24 semester by setting up booths to provide information about their club activities. The AIUB Performing Arts Club (APAC) added to the vibrant atmosphere by their performances in the Amphitheater.

https://www.aiub.edu/freshman-student-orientation-for-the-fall-2023-2024-semester

Alumni Career Talk – Department of Economics

A career talk session titled "ALUMNI CAREER TALK" was held on Tuesday, October 10, 2023, organized by the AIUB Economics Club. The session featured Mrs. Nadia Neheli Mostafa, a Lecturer in Economics at HURDCO International School and a freelance content writer, and Mr. Maimun Ur Rashid Mustafa, Managing Partner and Group CEO at RENBOE Enterprises.

The primary aim of this talk show was to motivate and provide guidance to current students from the Economics department and students from the Business faculty specializing in Economics, helping them navigate a promising and rewarding career path.

During the session, the alumni speakers shared their personal experiences, highlighting the challenges they faced. In addition to showcasing the practical applications of their academic knowledge, they emphasized the importance of networking, ongoing learning, CV preparation, soft

skills, general knowledge, teamwork, extracurricular activities, effective communication skills, the value of professional degrees, and the expectations placed on recent graduates. Their experiences, insights, and achievements served as valuable sources of inspiration and guidance for the next generation of graduates.

The event was graced by Prof. Dr. Tazul Islam, Dean of the Faculty of Arts and Social Sciences (FASS), and Prof. Dr. ABM Rahmatullah, Associate Dean. Dr. Faria Sultana, Head of the Economics department and all other esteemed faculty members of the Economics department were in attendance.

https://www.aiub.edu/alumni-career-talk--department-of-economics

Unlocking Your Potentials and Pushing Your Boundaries with IEEEXtreme 17.0

On Sunday, May 28th, 2023, the IEEE AIUB Student Branch successfully organized a webinar titled "Unlocking Your Potentials and Pushing Your Boundaries with IEEEXtreme 17.0". The webinar was held with the purpose of helping participants better prepare for the upcoming IEEEXtreme 17.0 by providing relevant and productive information. It highlighted the importance of teamwork, creativity, time management, a healthy lifestyle along with having skills for instant challenges and problem solving.

Dr. Mohammad Hasan Imam, Associate Professor, Faculty of Engineering, AIUB; Counselor, IEEE AIUB Student Branch, Advisor, IEEE EMBS AIUB SB Chapter, inaugurated the event by discussing briefly about IEEEXtreme and its significance. He further went on to emphasize about the need for problem solving, before handing over the stage to the honorable speaker. Md. Jamil Istiaq, Information Technology Officer, Semiotify; Former chairperson, IEEE Computer Society AIUB SB Chapter, took the floor as the speaker of the session. His session focused on IEEEXtreme, its benefits, the opportunity it provides, and its recognition. He inquired about topics such as how the competition is conducted, methods for hosting, participating, organizing and highlighted the various activities involved in IEEEXtreme. The webinar aimed to inspire IEEE members to participate in IEEEXtreme 17.0 and showcase their abilities on this platform.

The discussion continued to explore the importance of teamwork and creativity along with the need for proper health and rest. Md. Jamil mentioned that problem-solving is a key aspect of the competition and described different types of problem-solving approaches. Furthermore, he provided tips for practicing, managing time, using programming languages and tools, demonstrating problem analysis, implementation, testing, and solution submission. Lastly, he gave an idea for the IEEEXtreme Portal and CS Academy Website and provided a guideline for the activities on the day of IEEEXtreme. Following the completion of the speaker's session, an engaging Q&A session took place, allowing participants to further delve into the topics discussed. Dr.

Shameem Ahmad, Assistant Professor, Department of EEE, Faculty of Engineering, AIUB; Motivator, IEEE AIUB Student Branch, concluded the session by expressing gratitude to the honorable speaker and presenting a token of appreciation on behalf of the IEEE AIUB Student Branch. Overall, the webinar served as an educational platform, noting the importance and benefits of IEEEXtreme while signifying the necessity of different types of skills required for the competition. The webinar's objective aligned with United Nations Sustainable Development Goals (SDGs) 4 which aims to ensure access to quality education for all. The webinar started at 7:00 PM and ended at 8:30 PM. A total of 95+ participants attended the webinar.

https://www.aiub.edu/unlocking-your-potentials-and-pushing-your-boundaries-with-ieeextreme-170
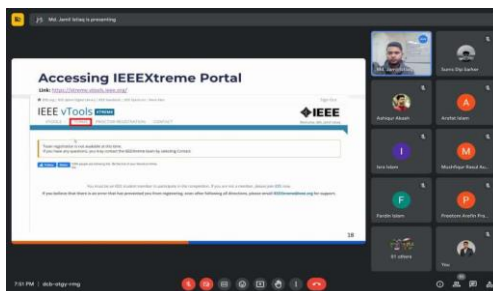
Meet & Greet with Popeye Bangladesh

Popeye (Bangladesh), also known as Raffan Imam, a glorious AIUB Alumnus, reunited with his homeland after a decade and performed live for the first time in Bangladesh. He visited the permanent campus of the American International University-Bangladesh (AIUB) on 2nd March 2023 for a brief meet and greet.

Despite his busy schedule, he took the time to visit the new campus and interact with the students to inspire them and share his own experiences. A mass of eager crowds gathered to experience his music live in the AIUB Amphitheatre.

Arriving on stage, he took a moment to introduce himself and speak with the students. As well as this, he took the time to take photos and give autographs to his dear fans. Upon request from the extremely enthusiastic crowd, he performed one of his most renowned songs 'Bhalobasha Baki' alongside AIUB Performing Arts Club (APAC).

https://www.aiub.edu/meet--greet-with-popeye-bangladesh

Faculty Research and Publication on SDG 4

Information Dissemination During the COVID-19 Outbreak Among the Students at the Tertiary Level

MD. JOYNAL ABEDIN et el.

People deserve credible information from responsible government units and authentic news from various sources, including online, social media and other networks, to learn and prepare for any epidemic and pandemic. Social media and online news portals are the main sources for the public to explore news on the coronavirus disease (COVID-19). This research aims to investigate the relationship between news and social media, awareness about, attitude and the action of the youths towards the spread of COVID-19 in Bangladesh. This research followed a structured survey method to investigate responses towards COVID-19 of Bangladeshi tertiary-level students of different disciplines. The study analysed students' access to information through electronic and paper versions of Facebook and newspapers. Factor analysis was conducted for a sample of 705. A five-factor solution has been proposed. Access to information is critical in developing a diverse and effective strategy for combating COVID-19. Besides, awareness about the disease, Facebook access, attitude and reliance on local media were identified as key factors.

https://link.springer.com/chapter/10.1007/978-981-19-7299-7_18

Information Dissemination During the COVID-19 Outbreak Among the Students at the Tertiary Level

DR. REZBIN NAHAR et el.

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https://link.springer.com/book/10.1007/978-981-19-7299-7#:~:text=About%20this%20book,after%20the%20COVID%2D19%20Pandemic.

Nudging Motivation to Learn English Through a ChatGPT Smartphone-Based Hybrid Model

DR. PRODHAN MAHBUB IBNA SERAJ et el.

The artificial intelligence revolution as a medium and learning technology is increasingly popular in EFL. The trend of using ChatGPT is increasing. ChatGPT is a media and technology that helps in accelerating learning to help write, becomes teaching materials, learning resources with a conversation system. The purpose of this research is to find out the motivation to learn by developing the ChatGPT function as a teaching material in EFL classes among undergraduate students at universities. As an AI-based teaching material, ChatGPT was chosen with consideration of the ease of accessing fast information.

https://www.igi-global.com/book/advanced-applications-generative-natural-language/322787

AI-aided teaching model in education 5.0

DR. PRODHAN MAHBUB IBNA SERAJ et el.

In the educational setting, artificial intelligence (AI) technology, notably chatbots, has made substantial improvements in English learning. This study aims to determine the effectiveness of using the Artificial Intelligence Virtual Dream Friend and John English Boot applications on learning English in the 5.0 revolution era in English courses for first-semester students at university. The assessment method used is a quantitative research method and research design (quasi-experiment design). Based on the results of the study, it can be concluded that the results of the comparison test showed that My Virtual Dream Friend and John English Bot were both effective for use as computer tutoring in English courses and also increased interest in learning English in the 5.0 revolution era compared to previous conventional methods. The outcomes of this study might be used to direct future research into utilizing chatbots outside of the classroom as learning companions, and educators could use them to adapt evaluation and feedback procedures.

https://www.igi-global.com/book/handbook-research-based-technologies-applications/316141

Enhancing Academic Integrity: A Multi-model Deep Learning Approach for Reliable Test Supervision and Dishonesty Detection

DR. AFROZA NAHAR et el.

Academic evaluations hold substantial importance within global educational establishments, constituting a dependable avenue for gauging students' proficiencies and competencies. However, the widespread occurrence of academic dishonesty presents an extensive hurdle to the credibility and reliability of these appraisal processes. To tackle this issue, we propose a deep learning model that has been particularly designed to ensure dependable test supervision. This system utilizes computer vision, audio analysis, and deep reinforcement learning approaches is to provide

educational institutions with a viable and sustainable alternative. This computational model has been devised to enhance computing efficiency and scalability. Successful implementation of such model will increase the accuracy of identifying academic misconduct by evaluating many cheating indications at once.

ConvoWaste: An Automatic Waste Segregation Machine Using Deep Learning

PROF. DR. DIP NANDI et el.

Nowadays, proper urban waste management is one the biggest concerns for maintaining a green and clean environment. An automatic waste segregation system can be a viable solution to improve the sustainability of the country and to boost up the circular economy. This paper proposes a machine to segregate the waste into the different parts with the help of smart object detection algorithm using ConvoWaste in the field of Deep Convolutional Neural Network (DCNN), and image processing technique. In this paper, the deep learning and image processing techniques are applied to classify the waste precisely and the detected waste is placed inside the corresponding bins with the help of a servo motor-based system. This machine has the provision to notify the responsible authority regarding the waste level of the bins and the time to trash out the bins filled with garbage by using the ultrasonic sensors placed in each bin and the dual-band GSM-based communication technology. The entire system is controlled remotely through an android app in order to dump the separated waste in a desired place by its automation properties. The use of this system can aid the process of recycling resources that were initially destined to become waste, utilizing natural resources and turning these resources back into the usable products. Thus, the system helps to fulfill the criteria of circular economy through the resource optimization and extraction. Finally, the system is made to provide the services at a low cost with higher accuracy level in terms of the technological advancement in the field of Artificial Intelligence (AI). We have got 98% accuracy for our ConvoWaste deep learning model.

https://ieeexplore.ieee.org/xpl/conhome/10068861/proceeding

Impacts of GA and PSO on Loss Minimization in Distribution Networks with DG Incorporation: A Comparative Study

DR. MOHAMMAD ABDUL MANNAN et el.

In electrical power systems, efficient power transfer between the high-voltage transmission lines to low-voltage distribution lines is crucial. Nevertheless, the distribution system often suffers significant I2R losses due to high R/X ratios, high current levels, and low voltage. Distribution businesses (DISCOM) are motivated to reduce losses in their networks in order to reap financial rewards. The financial penalties or gains for DISCOM are based on the discrepancy between actual losses and standard losses. As a result, experts have investigated minimising losses in distribution networks in great detail. Many strategies have been investigated and put into practice in the past to

deal with the loss reduction issue. These approaches vary in methodologies, problem formulations, methods used, and solutions produced. The strategies utilised for loss reduction include feeder grading, distributed generation (DG) allocation, network reconfiguration, capacitor allocation, and high voltage distribution system approaches. The primary goal of this work is to employ GA and PSO to identify the best distribution of Photovoltaic (PV) generation based on a multi-objective function with various constraints. MATLAB R2021a assessed the algorithms' efficacy in the IEEE-33 and IEEE-69 bus systems.

https://www.nmit.ac.in/nmitcon.php

DESIGN AND IMPLEMENTATION OF A DRIVING ASSISTANCE DEVICE FOR VEHICLES

DR. MOHAMMAD ABDUL MANNAN et el.

Vehicles for business or personal use are becoming more affordable as civilization advances. Although additional safety features are being created, accidents still occur due to people's carelessness. A lot of effort has gone into improving the safety and automation of vehicles. However, little effort has been put into supporting the driver while driving. In this paper, a driving assistant device is proposed for minimizing road accidents to save lives. The proposed device was designed and implemented by incorporating lane detection, object detection, warning, and automatic emergency braking techniques. Various algorithms/techniques were evaluated through simulation over the work's lifetime, including Canny edge detection, HSV lane identification, Yolo V3, and SSD MobileNet V3 approaches. Based on simulation works, these algorithms/techniques are analyzed, and a prototype is developed to verify the performance of different algorithms in real-life applications. The performance of the prototype indicates that a driver can be assisted successfully in reducing accidents.

Exploring Uncharted Architectural Territories through Generative Adversarial Networks with Human Collaboration

ASHIK MANNAN VASKOR et el.

We live in the age of Artificial Intelligence (AI) which permeates all aspects of our lives, from spam filtering to image classification on social media. While it is already well-established in industries ranging from heavy manufacturing to the IT field, its impact on the design professions remains relatively unexplored. This essay explores the use of neural networks in architecture, which is arguably the first genuinely 21st-century design technique and discusses experiments with Generative Adversarial Networks (GANs) to generate unexplored futuristic possible noble forms in architecture. In this way this paper also raises the question if machine can generate noble forms through its creative data optimization process. In this process one of the most famous heritages building of Bangladesh 60 dome mosque (Shat Gombuj Moshjid) has been examined to get expected result.

Furthermore, this paper discusses how AI can be used as a personalized tool for architects to generate and express design ideas. It evaluates popular datasets for architectural purposes and considers the potential outcomes of experiments. The input of AI in the design process could usher in a new era of architectural design. As data continues to grow, it is shaping our collective future. Therefore, this paper concludes that it is essential to prepare our trained datasets to accept the future which might open up an extraordinary new chapter in the architectural realm.

https://horacongress.com/?go=sessions

A comparative study on Bangladeshi undergraduate learners' attitude towards online and on-campus English language classes: A case study from a private university

DR. MD. ASIF KAMAL et el.

Learners' attitude towards any modes and methods of teaching and learning influences the performance of the learners. Although the direct impact of Covid-19 pandemic on life and education has faded away, its sporadic influence persists in Bangladeshi academia as many Higher Educational Institutions are occasionally continuing the online mode of teaching and learning parallel to the on-campus mode. This study aims to discover the Bangladeshi undergraduate learners' attitude and perspective towards this mixed mode of teaching and learning of English language. A concurrent mixed-method design using questionnaire and focus group discussions was employed in this research to collect the data. Findings reveal that the learners who had the experience of both the online and on-campus classes had mixed feelings towards both the modes of learning regarding their motivation, interest, internet connectivity, physical and mental stress, and financial condition. The implication of this study is significant to get a direction for sustaining online mode of education as regular or contingent plan; it also provides future directives on whether to persist online or on-campus or blended learning in Bangladeshi educational institutions for effective teaching of the English language to undergraduate students.

Teaching English fiction through Content and Language Integrated Learning (CLIL) to foster cross-cultural awareness and communication among Bangladeshi undergraduate learners in a foreign/ second language context

DR. MD. ASIF KAMAL et el.

English literature occupies a substantial space in Bachelor of Arts in English programs in Bangladeshi private universities. To teach literature in EFL/ESL classrooms, three different models such as (1) Cultural Model, (2) Language Model, and (3) Personal Growth Model (Carter & Long, 1996) are seen

to be used. Traditionally these models are practiced basically using lecture-based approach to deliver lessons in class. However, the cultural model corresponds to the fourth aspect of 4Cs framework of Language and Content Integrated Learning (CLIL) approach, where Cs refer to the content, cognition, communication and culture (Coyle, Hood & Marsh, 2010). This research is based on 4Cs framework of CLIL approach. A mixed method approach is used to collect both quantitative and qualitative data. Interviews and secondary research materials are used for qualitative data and for quantitative data a questionnaire is conducted on CLIL learners in undergraduate English literature classes. Though cultural model, a literature teaching approach, is already in practice, it is found that integration of CLIL approach in literature classes accelerates the building of cultural awareness as CLIL uses a task-based approach where learners learn better by tasks and activities in class (Kamal, 2021).

Fostering Learner Autonomy in Bangladesh: Teachers' Perspectives and Obstacles in ESL/EFL Classroom

DR. MD. ASIF KAMAL et el.

This paper intends to bring out the hurdles experienced by teachers as well as gather their valuable insights regarding the integration of learner autonomy principles in tertiary level EFL classes in Bangladesh. For attaining this goal, a mixed method approach was adopted. First, a survey with structured questionnaire was administered among teachers to systematically learn about their challenges and experiences. Additionally, a qualitative interview of the tertiary level language teachers in Bangladesh was conducted to gather teachers' insights related to their personal experiences in pedagogical practices in their EFL classrooms. The teachers revealed mixed feelings towards implementing learner autonomy in Bangladeshi context as they believe it to be essential to ensure students' continuous learning but not feasible in terms of teachers' preparedness and learners' acceptance of this approach.

Understanding the Necessity of Updated Syllabus of Physics for Undergraduate Students ----- Establishing Academy and Industry Collaboration in Bangladesh

DR. HUMAYRA FERDOUS et el.

Physics is one of the most fundamental subjects, that is taught when a student is enrolled in "Science" group in Bangladesh. Prior to that, several topics of Physical Science are learned by the students in Secondary and Primary Schools. However, at undergraduate level, when a student is enrolled in any field of Engineering such as Electrical & Electronic Engineering (EEE), Mechanical Engineering (ME) or Industrial and Production Engineering (IPE) and Architecture etc., they also study Physics for a significant amount of time, where focus is mainly given on the theoretical part of the subject with some laboratory experiments in current context. However, these are the applied fields which have direct link to the fundamental subjects such as Physics and Mathematics. These subjects play very

crucial role for their future career paths [1]. Though not much attention has been given in developing updated syllabus and linking it to the industry of Bangladesh so far. Therefore, student who study Physics courses as minor, will not be able to connect it to the real world due to non-existent nature of such links. Studies shows that understanding of Physics topics depends upon socio and demographic context also [2]. In this current research work efforts are made on how we can establish such links through updating syllabus and accommodating real world case studies associated with different Engineering and Architectural problem of Bangladesh. Nonetheless, it is an important act in the direction of achieving SDG's (SDG: 4, SDG: 9, SDG: 17) as Bangladesh plans to achieve SDG's by 2030, declared by UN.

Challenges for Improving the Status of Women in Physics: Insights from Bangladesh

DR. HUMAYRA FERDOUS et el.

The country report highlights the urgent need to address the challenges faced by women in physics related fields and careers in Bangladesh. Despite their ability to compete on merit, women's participation in physics career remains lower than men's, though student enrolment is higher than before. The report aims to provide a greater understanding of the underrepresentation of women in physics-related fields and careers, shedding light on the societal biases and stereotypes that impact women's engagement in physics, as well as the difficulties they face in balancing personal and professional obligations. Implicit gender biases and an unfriendly work environment further hinder women's careers in physics. Our recent study reveals that men have more opportunities than women in physics-related fields, adding to the complexity of the situation. Therefore, there is an urgent need for initiatives to address the challenges faced by women in physics.

The paper presents data on female faculty, scientists, and student enrolments in physics-related subjects at the country's few academic and research institutions. The study emphasizes the significance of empowering women and encouraging their participation in physics-related fields to assure their presence in the Fourth Industrial Revolution by creating mentorship and networking programs with successful female physicists and professionals [1]. By promoting gender equality and creating a more inclusive work environment, the field of physics can benefit from a more diverse and talented workforce. The paper concludes with a call to action for policymakers, educators, and professionals to work together towards the common goal of increasing women's participation in physics and related fields.

https://icwip2023.hbcse.tifr.res.in/

Asia Pacific Quality Network

RISALA AHMED et el.

This research paper delves into the multifaceted landscape of implementing learner autonomy in English language classes in Bangladesh, with a specific focus on teachers' perspectives and the challenges they encounter. The central objective of this paper is to bring out the hurdles experienced by teachers as well as gather their valuable insights regarding the integration of learner autonomy principles in the classes. For attaining this goal, a mixed method approach was adopted. First, a survey with structured questionnaires was administered among teachers to systematically learn about their challenges and experiences. Additionally, a qualitative interview of the tertiary level language teachers in Bangladesh was conducted to gather teachers' insights related to their personal experiences in pedagogical practices in their English as a second language (ESL) and English as a foreign language (EFL) classroom. The teachers revealed mixed feelings towards implementing learner autonomy in Bangladeshi classroom context as they found it effective in most cases as well as faced challenges in terms of teachers' preparedness and learners' acceptance of this approach.

https://apqn.aiub.edu/

PEDAGOGICAL INNOVATIONS IN BUSINESS ADMINISTRATION: EVALUATING THE EFFECTIVENESS OF PROJECT-BASED LEARNING (PBL) AND FLIPPED CLASSROOMS IN BLENDED LEARNING FOR HIGHER EDUCATION IN BANGLADESH

MD. MEHZABUL HOQUE NAHID et el.

Project-Based Learning(PBL) and flipped classrooms to assess the effectiveness of blended learning for higher education in Bangladesh will be an excellent way to sustain quality education, and pedagogical innovations in business administration are decisive. The primary aim of business administration in higher education institutions is to evaluate the efficacy of these novel pedagogical methods in augmenting the learning outcomes, engagement, and comprehensive educational experience of business students. The adoption of PBL and flipped classrooms is a dual approach that facilitates a thorough assessment of the many effects brought about by these pedagogical advancements. Furthermore, this dual approach has the potential to make a valuable contribution to the wider discussion around contemporary pedagogical methods. The purpose of this study is to examine the applicability and efficacy of PBL and flipped classrooms in the context of higher education in Bangladesh, specifically in the field of business administration. By combining these two approaches, the study aim to gain insights into their suitability and effectiveness within the educational landscape of Bangladesh. By providing insights, it can serve as a valuable resource for shaping educational policies and practices within the region. As Bangladesh seeks to enhance the

quality of its higher education system, this approach aims to provide valuable recommendations for the adoption and adaptation of innovative teaching methods, ultimately fostering a more engaging and effective learning environment for students in Business Administration programs

https://apqn.aiub.edu/

Adoption of Metaverse in Education Sector: Identifying the Enablers and Barriers for a Developing Country

MD. MEHZABUL HOQUE NAHID et el.

The next iteration of the Internet is Metaverse, that promises to change the way see, feel, and interact with our environment. The promise of the metaverse to transform every aspect of life is putting new expectations on educational systems. The purpose of this article is to explore the enabler and barriers of the adoption of metaverse technologies in tertiary level education from organizational perspectives in developing nation such as Bangladesh. Qualitative research was undertaken for this research purpose, where extensive literature review and focus group discussion with industry experts helped the researchers to construct a semi structed interview questionnaire. This questionnaire was administered to academicians from universities in Bangladesh to identify the Technological, Organizational and Environmental factors important for the adoption of Metaverse or immersive teaching in academia. The main contribution of this article is to present both educators' and tech-experts' perspective on adoption of metaverse in industry 4.0.

https://apqn.aiub.edu/

Features of web-based AI-technologies for Researchers

MD. MEHZABUL HOQUE NAHID et el.

The objective of this study is to explore, ascertain, extract, and summarize the disruptive characteristics provided by AI-driven web-based technologies used in facilitating tasks for academic and industrial research. This research used a qualitative research approach, using firsthand observations of websites that provide services driven by artificial intelligence crafted for researchers. Additionally, the study included an analysis of peer-reviewed research publications sourced from reputable journals, as well as conducting in-depth interviews with academic researchers. By using well specified search and inclusion criteria. Thematic analysis is a method used for detecting recurring themes within a given dataset. The study conducted an analysis of 46 web-based AI-powered service providers and identified a total of 21 distinct qualities that play an essential function in enabling researchers. These service providers have developed their products with the aim of enhancing efficiency in multiple areas of academic research. The study conducted an analysis to determine the Generative AI tools that are both cost-effective and commonly used in academic research. The identified tools include Scite, Trinka, Elicit, ChatGPT, Consensus, ChatPDF, Quillbot, Grammarly, Jasper, Copy.ai, SEO.ai, Sudowrite, Rytr.me, Chibi AI, writefull X, litmaps, humata, scholify AI and Research Rabbit. This study seeks to build a conceptual framework that can be used

to assess the effectiveness of disruptive technologies in this domain. The findings of this study provide valuable insights for academics investigating technology adoption in academia, as well as for practitioners and policy makers interested in formulating policies related to academic integrity and ethical utilization of technologies.

https://bjbio.bioethics.org.bd/index.php/BJBio/article/view/79

Features of web-based AI-technologies for Researchers

DR. REZBIN NAHAR et el.

The objective of this study is to explore, ascertain, extract, and summarize the disruptive characteristics provided by AI-driven web-based technologies used in facilitating tasks for academic and industrial research. This research used a qualitative research approach, using firsthand observations of websites that provide services driven by artificial intelligence crafted for researchers. Additionally, the study included an analysis of peer-reviewed research publications sourced from reputable journals, as well as conducting in-depth interviews with academic researchers. By using well specified search and inclusion criteria. Thematic analysis is a method used for detecting recurring themes within a given dataset. The study conducted an analysis of 46 web-based AI-powered service providers and identified a total of 21 distinct qualities that play an essential function in enabling researchers. These service providers have developed their products with the aim of enhancing efficiency in multiple areas of academic research. The study conducted an analysis to determine the Generative AI tools that are both cost-effective and commonly used in academic research. The identified tools include Scite, Trinka, Elicit, ChatGPT, Consensus, ChatPDF, Quillbot, Grammarly, Jasper, Copy.ai, SEO.ai, Sudowrite, Rytr.me, Chibi AI, writefull X, litmaps, humata, scholify AI and Research Rabbit. This study seeks to build a conceptual framework that can be used to assess the effectiveness of disruptive technologies in this domain. The findings of this study provide valuable insights for academics investigating technology adoption in academia, as well as for practitioners and policy makers interested in formulating policies related to academic integrity and ethical utilization of technologies.

https://bjbio.bioethics.org.bd/index.php/BJBio/article/view/79

PEDAGOGICAL INNOVATIONS IN BUSINESS ADMINISTRATION: EVALUATING THE EFFECTIVENESS OF PROJECT-BASED LEARNING (PBL) AND FLIPPED CLASSROOMS IN BLENDED LEARNING FOR HIGHER EDUCATION IN BANGLADESH

DR. REZBIN NAHAR et el.

Project-Based Learning(PBL) and flipped classrooms to assess the effectiveness of blended learning for higher education in Bangladesh will be an excellent way to sustain quality education, and pedagogical innovations in business administration are decisive. The primary aim of business

administration in higher education institutions is to evaluate the efficacy of these novel pedagogical methods in augmenting the learning outcomes, engagement, and comprehensive educational experience of business students. The adoption of PBL and flipped classrooms is a dual approach that facilitates a thorough assessment of the many effects brought about by these pedagogical advancements. Furthermore, this dual approach has the potential to make a valuable contribution to the wider discussion around contemporary pedagogical methods. The purpose of this study is to examine the applicability and efficacy of PBL and flipped classrooms in the context of higher education in Bangladesh, specifically in the field of business administration. By combining these two approaches, the study aim to gain insights into their suitability and effectiveness within the educational landscape of Bangladesh. By providing insights, it can serve as a valuable resource for shaping educational policies and practices within the region. As Bangladesh seeks to enhance the quality of its higher education system, this approach aims to provide valuable recommendations for the adoption and adaptation of innovative teaching methods, ultimately fostering a more engaging and effective learning environment for students in Business Administration programs.

https://apqn.aiub.edu/

An Approach to User-Friendly GUI Model Using HCI Principles on University Websites

KAZI SADIA et el.

Universities need websites to communicate successfully with the academic communities of today. This article suggests an HCI and ergonomics-based strategy for university websites. This research investigates student website concerns. User-interaction issues were studied on five university websites. Based on the flaws, a survey was conducted to see how users felt. Based on reviews, a new model and sample website were created. After developing the website, the second survey of five university students was conducted. The new model was well-received in comparison to its predecessors.

https://ieeexplore.ieee.org/xpl/conhome/10187211/proceeding

Pedagogical Innovations in Business Administration: Evaluating the Effectiveness of Project-Based Learning (PBL) And Flipped Classrooms in Blended Learning for Higher Education in Bangladesh

DR. MD. AFTAB ANWAR et el.

Project-Based Learning(PBL) and flipped classrooms to assess the effectiveness of blended learning for higher education in Bangladesh will be an excellent way to sustain quality education, and pedagogical innovations in business administration are decisive. The primary aim of business administration in higher education institutions is to evaluate the efficacy of these novel pedagogical methods in augmenting the learning outcomes, engagement, and comprehensive educational

experience of business students. The adoption of PBL and flipped classrooms is a dual approach that facilitates a thorough assessment of the many effects brought about by these pedagogical advancements. Furthermore, this dual approach has the potential to make a valuable contribution to the wider discussion around contemporary pedagogical methods. The purpose of this study is to examine the applicability and efficacy of PBL and flipped classrooms in the context of higher education in Bangladesh, specifically in the field of business administration. By combining these two approaches, the study aim to gain insights into their suitability and effectiveness within the educational landscape of Bangladesh. By providing insights, it can serve as a valuable resource for shaping educational policies and practices within the region. As Bangladesh seeks to enhance the quality of its higher education system, this approach aims to provide valuable recommendations for the adoption and adaptation of innovative teaching methods, ultimately fostering a more engaging and effective learning environment for students in Business Administration programs.

Numerical Simulation of the Impact of Series Fin on Fluid Flow and Heat Transfer in an Enclosure using Galerkin Finite Element Methods

MD. FAYZ-AL- ASAD et el.

The impact of fins in a square enclosure is scrutinized numerically in the study on free convection heat transfer concerning variations of series fins. The enclosure's upper horizontal surface is insulated; the left wall is kept at a cool temperature, while the right-side wall is heated. The fins are connected to the right wall of the enclosure, having a hot temperature. The appropriate governing equations are solved utilizing finite element methods based on Galerkin weighted residuals. The analyses are carried out for several values of Rayleigh number (Ra) with various numbers of fins in a series for fixed fin thickness while maintaining a Prandtl number of 0.71. In addition, different features like streamlines, isotherms, fin effectiveness, and rate of heat transfer rate in terms of the average Nusselt number and average fluid temperature will be shown for the relevant parameters. Several comparisons have been made between the results of this study and previously published studies. The results of the study suggest that the rate of heat transmission improves as the Rayleigh number increase. According to our knowledge, this topic has never been discussed before. The output of this investigation is expected to be helpful for researchers and experimentalists in the field of solar energy collectors, nuclear reactor temperature control, electrical cooling equipment, etc.

Numerical Study on Natural Convection of Nanofluid Flow and Heat Transfer in a Wavy Enclosure

MD. FAYZ-AL- ASAD et el.

Extensive research has been done for augmenting heat transfer in enclosures. The objective of this study is for investigating the outcome of moving walls on natural convection and thermal performance inside a curvy subjected to a nanofluid. The enclosure used for flow and heat transmission is surrounded by an adiabatic wall on the top, vertical cold walls and a wavy heated wall on the bottom. The relevant governing equations were discretized using a free triangular grid-

based finite element procedure. A numerical investigation is executed for various Rayleigh numbers (Ra), various undulation numbers and the hard-level portion of nanoparticles on the liquid flow and heat transport performance along with a concentration profile. Results are depicted in phases with respect to streamlines, isotherms, various sizes of volume fraction nanofluids, standard Nusselt number as well as regular fluid temperature. Findings are authenticated by comparing them with reported results. The study is expected to suggest measures in treating industrial toxic effluent and thereby could be beneficial in achieving the SDG.

Numerical Study of Heat Generation and Absorption on Magnetohydrodynamic Mixed Convection in an Enclosure with Sinusoidal Bottom Wall

MD. FAYZ-AL- ASAD et el.

Influence of internal heat absorption and generation on magnetohydrodynamic mixed convection inside an enclosure is numerically investigated. The cavity used for flow and heat transference is bounded by adiabatic upper wall, cold perpendicular walls and sinusoidal bottom wall. Finite element process is used to resolve the developed governing equation of the physical model. Flow pattern and rate of heat transfer owing to the variation of parameters like as Hartmann number, Richardson number and influence of inner heat generation and absorption will be studied in details. Our numerical results show that the heat transfer rate increase with the augmentation of heat generation parameter and Richardson number. The results are validated against with the previous published work.

Internet of things: Digital footprints carry a device identity

DR. RAJARSHI ROY CHOWDHURY et el.

The usage of technologically advanced devices has seen a boom in many domains, including education, automation, and healthcare; with most of the services requiring Internet-connectivity. To secure a network, device identification plays key role. In this paper, a device fingerprinting (DFP) model, which is able to distinguish between Internet of Things (IoT) and non-IoT devices, as well as uniquely identify individual devices, has been proposed. Four statistical features have been extracted from the consecutive five device-originated packets, to generate individual device fingerprints. The method has been evaluated using the Random Forest (RF) classifier and different datasets. Experimental results have shown that the proposed method achieves up to 99.8% accuracy in distinguishing between IoT and non-IoT devices and over 97.6% in classifying individual devices. These signify that the proposed method is useful in assisting operators in making their networks more secure and robust to security breaches and unauthorised access.

https://www.utb.edu.bn/bicet2021/index.html

Item recommendation using user feedback data and item profile

DR. RAJARSHI ROY CHOWDHURY et el.

Matrix factorization (MS) is a collaborative filtering (CF) based approach, which is widely used for recommendation systems (RS). In this research work, we deal with the content recommendation problem for users in a content management system (CMS) based on users' feedback data. The CMS is applied for publishing and pushing curated content to the employees of a company or an organization. Here, we have used the users' feedback data and content data to solve the content recommendation problem. We prepare individual user-profiles and then generate recommendation results based on different categories, including Direct Interaction, Social Share and Reading Statistics, of user's feedback data. Subsequently, we analyze the effect of the different categories on the recommendation results. The results have shown that different categories of feedback data have different impacts on recommendation accuracy. The best performance achieves if we include all types of data for the recommendation task. We also incorporate content similarity as a regularization term into an MF model for designing a hybrid model. Experimental results have shown that the proposed hybrid model demonstrates better performance compared with the traditional MF-based models.

https://www.utb.edu.bn/bicet2021/index.html

Microcontroller-Based Embedded System Design and Implementation towards Sustainable Development Goals

DR. MUHIBUL HAQUE BHUYAN et el.

This was an invited talk. The conference was organized online on the Zoom platform by the Oguz Han Engineering and Technology University of Turkmenistan in association with the Academy of Sciences of Turkmenistan

Here is the abstract that was submitted initially:

The United Nations approved the 17 Agenda of the Sustainable Development Goals (SDG) to implement a sustainable world by 2030. It was accepted that poverty and other problems in this world must be resolved jointly in the areas of poverty, health, energy, education, gender inequality, economic growth, environment and climate changes, social issues, collection and preservation of natural resources above and below this earth, etc. The 17 SDGs encompass 169 sub-targets to be attained by 2030. For this purpose, we need a coordinated and concerted effort by all signatory countries. Engineering design research, innovations, development, and commercialization can support us in the venture. In this talk, the emphasis would be given to the recent research and innovative product development of the microcontroller-based embedded system design to realize the 17 SDGs within the stipulated time frame, and as such, we will be able to attain both societal and economic impacts for viable progress. Here, I shall also concentrate on a few goals to demonstrate how the microcontroller-based embedded system design and development can help us in this regard.

These areas are good health and well-being, quality education, clean water and sanitation, affordable and clean energy, sustainable cities and communities, life below water, and life on land. Finally, we are confident that the microcontroller-based embedded system design is very chip and so, electronic engineers find it easy to resolve complex engineering problems to achieve specific SDGs, and hence to realize a sustainable world for humanity.

Early initiation of breastfeeding and its determinants of mothers in Rajshahi district, Bangladesh: A cross-sectional study

DR. UMMAY AYESHA et el.

Early initiation of breastfeeding (EIBF) provides the first immunization for the newborns. This study aimed to identify the factors associated with EIBF among mothers in Rajshahi district, Bangladesh. A number of 421 mothers living in Rajshahi district who had at least one infant aged 6-24 months were considered as sample. Mothers were selected using multistage random sampling. This study was conducted from January 1 to March 31, 2019. The prevalence of EIBF among mothers in Rajshahi district was 88.4%. Eight factors associated with EIBF: (i) husbands' education level, (ii) husbands' occupation, (iii) monthly family income, (iv) mothers' age, (v) mothers' BMI, (vi) place of delivery, (vii) planned pregnancy and (viii) mothers taking advice regarding the benefit of breastfeeding during their pregnancy. This study identified several factors associated with EIBF. These factors could be considered to increase the rate of EIBF among mothers in Bangladesh.

The Thermal Absorption/Generation on Ferro-fluid Combined Convective Flow Over Curvilinear Porous Surfaces

PROF. DR. KH. ABDUL MALEQUE et el.

In the influence of fluid buoyancy forces, the ferrofluid combined convective flow in porous curvilinear surfaces is studied with thermal generation/absorption effect. In the ambient flow conditions, the pressure gradient terms and ferrofluid buoyancy forces are replaced by the free steam velocity . The governing equations of the present problem are converted to ODEs by introducing non-dimensional functions and similarity variable. Boundary conditions of first derivative of velocities and temperature of our problem were constructed by the initial value problem, also the unknown initial conditions are found by shooting methods, and then a set of ODEs is solved numerically by the integration scheme of the six-order Range-Kutta method. The results of the solutions are presented graphically of velocity and thermal profiles with the help of MATLAB for different values of suction parameter and heat absorption parameter . Finally, the comparisons of

the results highlight the justification of the numerical calculation accepted in the presence study. The problems in curvilinear surface study of boundary layer flow are complicated in fluid mechanics with applications of natural science and engineering.

https://ajse.aiub.edu/index.php/ajse/article/view/546

Readiness for Blended Education at the Tertiary Level in Bangladesh

PROF. DR. FARHEEN HASSAN et el.

It is evident that the unforeseen consequences of the pandemic forced the HEIs to shift operations online. At the very beginning, only a few institutions were able to manage the shift, but the majority failed to cope with the criteria. Despite several initiatives undertaken by the government and universities, most institutions still have difficulty shifting academic activities online in the future. The study intends to aid the institutions, which were lagging far behind the first movers, policies and plans to cope with the transition. The study underlies several objectives. Two separate instruments were in use to collect data from 106 educators and 326 students from five divisions in Bangladesh. The data collection procedure took place between June 2022 and July 2022 in several divisions. The first objective was centered on measuring institutional capacity in dealing with the said blended education. The results found that a total of 11 types of educational platforms were being used by educators in imparting knowledge during the pandemic. Several cutting-edge facilities or schemes have been offered by the institutions in coping with the transition. The institutions for building a competitive advantage have already put some initiatives forward. In summary, most institutions yield minimal technological infrastructure to deal with the issues of blended education. The management of most institutions is aware of the wave and holds a positive mindset. Most universities have acquired enough resources to support the transition whenever needed. Overall, most institutions are well prepared to embrace the transition. The second objective was set to evaluate the suitability of the existing educational content/materials (subject matter) for advancing the blended approach. The educators were quite positive about the reuse of the existing educational content in techno-mediated settings. Through the third objective, we wanted to identify key influential factors affecting users' (learners) behavioral intention to adopt a techno-mediated learning environment in Bangladesh. The results confirmed that the learners were aware of the benefits of the tech-mediated learning system. They have all the technical support in hand to attend classes online from both home and classroom. The interface of the edu-tech is user-friendly, and they have already become skillful in it. The use of technology in the classroom is widely accepted by society. A minimum support system is available, and all the associated payments are done virtually via mobile wallets. Overall, the learners are also ready to embrace the transition. The second to the last objective was set to find out the appropriate blend or mix for the tertiary level. The respondents were given five blends, which were adopted by countries such as Malaysia, Australia, and China. The study also identified some concrete challenges and counter-policies to deal with the transition. At last, it can be argued that the institutions at the tertiary level in Bangladesh are quite ready to embrace blended education.

Bio-nanoconvective Micropolar Fluid Flow in a Darcy Porous Medium Past a Cone with Second-Order Slips and Stefan Blowing: FEM Solution

DR. MOHAMMED JASHIM UDDIN et el.

The current framework uses a theoretical and computational model based on both second-order momentum and temperature slips to simulate momentum, angular momentum, heat transport, nanoparticle volume fraction transport, and the density of microorganism transport phenomena past a cone located in a Darcy porous medium. These types of flows happen in typical nanodevice components such as nanocapillaries, nanovalves, nanorotors, and nanobearings and in low-pressure environments. With this in mind, the governing highly partial differential equations were converted to similarity ordinary differential equations via invariant transformations developed through Lie symmetry analysis before being simulated using the efficient finite element method. Tables and graphs illustrate the impact of emerging parameters on flow characteristics as well as heat, mass, and microorganism transfer rates. It is found that friction increases, while heat, mass, and microorganism transfer decrease with the micropolar parameter for both isothermal and non-isothermal cones. Friction decreases with the first-order thermal slip parameter in the absence of second-order slip, but it follows reverse behavior in the presence of second-order slip. Heat transfer rate decreases, while mass and microorganism transfer rates increase with the first-order thermal slip parameter when considering the second-order slip parameter. The decrement of 20% in maximum stream function is noticed if micropolar nanofluid (Δ=1) is used instead of Newtonian nanofluid, which further regulates heat transfer significantly.

An Appreciation of the EFL Teacher Model in Bangladesh: A Content Analysis of Job Advertisements

MD. HAMIDUL HAQUE et el.

In keeping with global reformation trends in English language pedagogy, Bangladesh has embraced communicative language teaching (CLT) as a contemporary method. However, it is recognized that methodological changes alone are insufficient for achieving targeted English as a second language (ESL) learning outcomes. English teachers must also possess the requisite personal, educational, and professional qualifications and experiences to effectively address the needs of ESL students. This study aims to elucidate the specific model of an English teacher sought after by private secondary schools (PSS) in Bangladesh. The characteristics and qualifications of an ideal teacher candidate are often reflected in job advertisements. Therefore, a qualitative content analysis approach was employed to scrutinize the job postings of PSS English teachers in Bangladesh. Over a period of six months, a total of 100 job postings were gathered from the two most prominent online

job platforms in Bangladesh. Following Selvi, Mahboob, Golden, Mackenzie, and Anandarajan et al.'s content analysis method, a comprehensive examination of the data was conducted. The analysis ultimately revealed a unique English as a foreign language (EFL) teacher model distinct from the conventional international EFL teacher archetype that is typically sought after for PSS in Bangladesh. The distinct characteristics of this model are expounded upon in this article.

A Comparative Analysis of Algorithms for Heart Disease Prediction Using Data Mining

PROF. DR. DIP NANDI et el.

Heart disease is very common in today's day and age, with death rates climbing up the numbers every year. Prediction of heart disease cases is a topic that has been around in the world of data and medical science for many years. The study conducted in this paper makes comparison of the different algorithms that have been used in pattern analysis and prediction of heart diseases. Among the algorithms that have been used in the past included a combination of machine learning and data mining concepts that essentially are derived from statistical analysis and relevant approaches. There are a lot of factors that can be considered when attempting to analytically predict instances of heart diseases, such as age, gender, resting blood pressure etc. Eight such factors have been taken into consideration for carrying out this qualitative comparison. As this study uses a particular data set for extracting results from, the output may vary when implemented over different data sets. The research includes comparisons of Naive Bayes, Decision Tree, Random Forest and Logistic Regression. After multiple implementations, the accuracy in training and testing are obtained and listed down. The observations from implementation of these algorithms over the same dataset indicates that Random Forest and Decision Tree have the highest accuracy in prediction of heart disease based on the dataset that we have provided. Similarly, Naive Bayes has the least accurate results for this scenario under the given contexts.

Design and Analysis of IoT-Based Battery Management and Monitoring System for Electric Vehicle

DR. MOHAMMAD ABDUL MANNAN et el.

The growing popularity of electric vehicles (EVs) on a worldwide scale led to further research to monitor their performance. The use of internet of things (IoT) technology will make it easier to integrate the automated real-time monitoring system with the current EV technology. The great majority of EVs use rechargeable lithium-ion batteries. Use of lithium-ion batteries creates an overcharging situation in the battery, which significantly decreases battery life. It also increases the possibility of disastrous safety risks due to fire. This paper develops an IoTbased battery management system (BMS) to minimize hazardous situations. The proposed BMS notifies the user about the condition of the battery in real time.

Dynamic analysis of grid-connected hybrid wind farm

DR. MOHAMMAD ABDUL MANNAN et el.

Since the last couple of years, the expansion of grid-connected wind farms (WFs) has increased dramatically. The wind turbine might be a fixed-speed squirrel cage induction generator (FSWT-SCIG) or a variable speed wind turbine with a doubly-fed induction generator (VSWT-DFIG). The main disadvantage of FSWT-SCIG is its lack of ability to adjust power quality. Inversely, the VSWT-DFIG is a competitive wind turbine technology that allows for the effective management of both active and reactive power outputs. Moreover, it has some extraordinary functionaries rather than FSWT-SCIG. However, the major downside to this system is that it only has a partial rating AC/DC/AC power converter, which is extremely expensive. Hence, to reduce the overall cost combining the implementation of VSWTDFIG and FSWT-SCIG in a WF could be a feasible alternative. Therefore, a novel DFIG control technique is proposed in this article, which can keep the connection point voltage of the hybrid WF stable during dynamic analysis. To evaluate the proposed controller responses PSCAD/EMTDC software has been used.

Design and Analysis of IoT-based Remote Load Monitoring and Outage Management System

DR. MOHAMMAD ABDUL MANNAN et el.

Monitoring and analyzing the data to locate the fault and repair it prior to a total system collapse is a crucial tool for the functioning of a Power system. The purpose of this work is to use this concept to design a control system that enables the monitoring of critical parameters governing the distribution of power; the management of outages via fault detection based on variations in Voltage, Frequency, and Current; and the protection of the circuit from significant occurrences through the isolation of the load from the utility and the flagging of information through feedback to the utility authority. The project incorporates cutting-edge technology for IoT applications, which communicates with the microcontroller to gather data at predetermined intervals and then stores that data with relevant timestamps in a cloud service for later retrieval and analysis. This breakthrough can potentially lessen reliance on human intervention and solve the whole outage scenario by facilitating two-way communication in which power and information are transferred between customers and utilities to maximize grid efficiency. The suggested architecture allows for smart, timestamped data monitoring, remote access, and historical data preservation, all contributing to an improved load profile. The proposed system's outage management system is built on intelligent fault detection using Voltage, Frequency, and current variation, followed by isolating the problematic part from the rest of the network, keeping an auto circuit recloser application in place prior to permanent isolation to minimize human intervention, flag outage information, and provide emergency backup during the shutdown time; this prevents the power grid from experiencing a complete blackout or blackouts.

Design optimization of a grid-tied microgrid for a residential community in southern Bangladesh

DR. MOHAMMAD ABDUL MANNAN et el.

Growing energy demand, diminishing fossil fuel reserves and geopolitical tensions are serious concerns for any country's energy strategy and security. These factors have a greater impact on developing countries, as many of them rely largely on traditional energy resources. Cleaner energy generation is the viable alternative for mitigating these problems, as well as achieving energy independence and tackling climate change. The article discusses planning and design optimization of a residential community microgrid based on multiple renewable resources. In particular, the design and techno-economic assessment of a grid-tied hybrid microgrid for meeting the electricity demand of an alluvial region, Urir Char, located in southern Bangladesh, was addressed. Hybrid Optimization of Multiple Energy Resources is used for the evaluation and it is supplemented by a fuzzy-logic-based load profile design strategy. In addition to the analysis, a predictive load-shifting-based demand management is also introduced. Several cases were considered for the studies and, after considering several criteria, a grid-tied system comprising a photovoltaic array, wind turbine and energy storage system was found to be the best fit for powering the loads. The suggested system reduces the life-cycle cost by 18.3%, the levelized cost of energy by 61.9% and emissions by 77.2% when compared with the grid-only option. Along with the microgrid design, cooking emissions and energy categorization were also discussed.

https://academic.oup.com/ce/article/7/6/1300/7429454

Modeling and performance analysis of a transparent multilayer solar cell

DR. MOHAMMAD ABDUL MANNAN et el.

The work that has been presented here aims to simulate a multijunction transparent solar cell and analyze its performance in terms of simulated short-circuit current density, open circuit voltage, efficiency, and fill factor. The model structure is created by COMSOL Multiphysics and consists of five layers of InAs/InSb/AlGaAs/GaN/Si, taking into account the source materials' properties. Its electromagnetic wave is used to report on the optical and electrical properties. It is assumed that the cell is working at room temperature (300K). A maximum conversion of 15.2655% would be achieved for this model's simulation exposures at fill factor (FF)=0.6531 from the I-V curve and for such a combination and transparency.

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Modeling and Economic Assessment of an Agricultural Microgrid: A Comparative Analysis

DR. MOHAMMAD ABDUL MANNAN et el.

Sustainable energy resources are essential to meet the world's growing population and extending energy demands. Among the potential solutions, incorporating renewable energy sources into hybrid energy systems holds a lot of opportunities. This paper presents a design and economic analysis for an off-grid microgrid intending to power agricultural loads. Solar resources and PV-inverter system were modeled using pvlib-python, while the remainder of the microgrid, including the battery energy storage system (BESS) and biogas-based generator (BGG), was modeled and simulated using a custom dispatch method. The same system was modeled in Homer as well, and the outcomes of the designed microgrid were compared. When compared to Homer, the proposed approach reduced life cycle cost (LCC), and levelized cost of energy (LCOE) by 25%, and 20%, and emissions by 85%. In terms of generation, the proposed strategy reduced PV production by 20%, BGG output by 85%, and unmet load and surplus energy by 14% and 65%, respectively. The study additionally addressed an in-depth approach to modeling PV using various data sources and the associated modules and functionalities.

Power of education in economic conflicts: how the Deep South differs from other southern provinces in Thailand?

DR. A. B. M. RAHMATULLAH et el.

Three border provinces in southern Thailand commonly known as the Deep South have a long history of conflicts and insurgency. These chronic conflicts in the Deep South may forcibly hinder educational attainment and its effectiveness in the aggregate economy. This study aimed to analyze the comparative effects of education on the aggregate economy between the Deep South (a region with conflict) and other provinces of the South (a region of harmony) in Thailand. The Thai Labor Force Survey from 1995 to 2015, a large-scale national survey conducted by the National Statistical Office, and data from the Office of National Economic and Social Development Council (NESDC) of Thailand were used for the analysis. Employing a Random Effect Model and pooled regression, this study revealed that if average schooling increases by one percent, overall economic output will increase by 2.62%.

An advanced and secure framework for conducting online examination using blockchain method

DR. MD. HABIB ULLAH et el.

Nowadays, the online platform has been used by many educational institutions, to conduct tests, especially for secondary to tertiary level students. The most popular online test program is run by providing a user id and password to the candidates, and subsequently, they log in to the given web page to answer the questions. However, this system has a lot of bugs, the password can be misused followed by cheating in the test. This shows the importance of a secure system being implemented to avoid such a problem. This paper presents a blockchain framework that secures the online examination system. The proposed framework has been used to secure a data management system that connects to existing educational data. Institutions can simply compile their data history without requiring a copy from the central servers. The proposed blockchain framework improves data security and removes any potential cheating between users or third-party institutions that access applications and services. In this regard, this study provides a secured framework for conducting and evaluating subject tests to ensure consistency between student and server, and secure delivery of questionnaire from the server.

Blended learning pedagogy and its implementation in the tertiary education: Bangladesh perspectives

DR. MD. HABIB ULLAH et el.

This paper reviews the theoretical foundations and components of blended learning (BL) in higher education globally, analyzing six articles from five countries published between January 2016 and December 2020. The study identified challenges faced by instructors, including workload, timeliness, and lack of academic and technical skills to manage BL. Balancing face-to-face and online learning was also challenging. To address these issues, the importance of staff training, support, and networking was emphasized, proposing a modified BL model for tertiary education in Bangladesh, which could be implemented post-pandemic using a machine-learning approach. The mixed BL model was recommended for Bangladeshi institutions, utilizing machine learning algorithms to facilitate outcome-based learning through technological applications. A preliminary survey of 120 students from BGC Trust University in Bangladesh was conducted using statistical data obtained from machine learning algorithms to explore the applicability of the mixed-learning approach. Machine learning proved beneficial for data analysis, drawing valuable insights for educators and policymakers seeking effective teaching strategies that incorporate technology. This research underscores the potential of machine learning in conducting surveys and analyzing data related to blended learning in tertiary education, offering significant contributions to the field.

DFT Studies of the Photocatalytic Properties of MoS2-Doped Boron Nitride Nanotubes for Hydrogen Production

DR. MD. HABIB ULLAH et el.

This study investigated the photocatalytic properties of MoS2-doped boron nitride nanotubes (BNNTs) for overall water splitting using popular density functional theory (DFT). Calculations of the structural, mechanical, electronic, and optical properties of the investigated systems were performed using both the generalized gradient approximation and the GW quasi-particle correction methods. In our calculations, it was observed that only (10, 10) and (12, 12) single-walled BNNTs (SWBNNTs) turned out to be stable toward MoS2 doping. Electronic property calculations revealed metallic behavior of (10, 10)-MoS2-doped SWBNNTs, while the band gap of (12, 12) SWBNNT was narrowed to 2.5 eV after MoS2 doping, which is within the obtained band gaps for other photocatalysts. Hence, MoS2 influences the conduction band of pure BNNT and improves its photocatalytic properties. The water-splitting photocatalytic behavior is found in (12, 12) MoS2-doped SWBNNT, which showed higher water oxidation (OH–/O2) and reduction (H+/H2) potentials. In addition, optical spectral calculations showed that MoS2-doped SWBNNT had an optical absorption edge of 2.6 eV and a higher absorption in the visible region. All of the studied properties confirmed MoS2-doped SWBNNT as a better candidate for next-generation photocatalysts for hydrogen evolution through the overall water-splitting process.

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Tailoring the Properties of Bulk BaTiO3 Based Perovskites by Heteroatom-Doping towards Multifunctional Applications: A Review

DR. MD. HABIB ULLAH et el.

Dielectric barium titanate-based perovskite (BaTiO3) has emerged as one of the most popular multilayer ceramic materials for its versatile properties. However, the intrinsic properties, particularly the dielectric, ferroelectric, piezoelectric, and electrical properties of natural barium titanate perovskite (BTP) are not as attractive as required for its multifunctional applications. In recent years, the doping technique has been widely studied for improving the desirable properties of BTP ceramic to expand its practical applications in various advanced technologies. Considering the latest research and developments, this review aims to discuss the synthesis techniques of hetero-atom doped BTP, together with doping status, such as doping sites, doped content, and surface-to volume ratio. We also critically analyze the effects of co-factors (e.g., sintering temperature, grain size, Curie temperature, and compositions of hetero-atoms) on the structural, and electronic properties of BTP. In addition, optimization of the doping requirements for obtaining the desired improvements of the target properties is also discussed, coupled with providing a comprehensive discussion on the synthesis pathways. Subsequently, diverse applications of the heteroatom-doped BTP are exemplified. Finally, major challenges and future outlooks are highlighted from the perspective of different applications of BTP.

https://iopscience.iop.org/article/10.1149/2162-8777/ad00da

A hybrid metaheuristic method for solving resource constrained project scheduling problem

PROF. DR. MD. RAFIQUL ISLAM et el.

Resource constrained project scheduling problem (RCPSP) is a renowned variant of the scheduling problem. RCPSP is very important in production and management but computationally hard. It is widely used in many fields like job shop scheduling, flow shop scheduling, transactional planning, wireless communication etc. The objective of solving RCPSP is to obtain minimum makespan maintaining all constraints. There are some exact, approximate, heuristic and metaheuristic algorithms which were proposed to solve this problem. RCPSP is an NP-hard problem. Chemical reaction optimization (CRO) is a population based metaheuristic method to solve such problems and it shows better performance comparing with some other existing algorithms. CRO explores the large search space both locally and globally using its four operators. Genetic algorithm (GA) is also a nature inspired algorithm which is used to solve various optimization problems. In this paper, we are proposing a hybrid metaheuristic approach that integrates chemical reaction optimization (CRO) and genetic algorithm (GA) named CRO-GA to solve RCPSP. We have redesigned the basic operators of CRO and GA to find out the solutions. An additional operator called priority based selection operator is used in CRO to adjust with GA. Our proposed method is compared with other related approaches such as adaptive particle swarm optimization (A-PSO), multi agent optimization algorithm (MAOA), artificial bee colony (ABC), genetic algorithm (GA) which are state of the art for the RCPSP. The experimental results show that our proposed methodology gives better results than other existing algorithms to solve RCPSP with less computational time.

Solving Maximum Clique Problem Using Chemical Reaction Optimization, ,

PROF. DR. MD. RAFIQUL ISLAM et el.

The maximum clique problem (MCP) deals with a given arbitrary graph that finds the maximum clique in the graph. The target is to maximize the size of the clique which means maximizing the size of a complete subgraph. The MCP finds the largest complete subgraph or clique of a given graph. Several metaheuristic approaches were proposed to solve the problem as it is an NP-hard problem. To solve the maximum clique problem we propose a metaheuristic algorithm named chemical reaction optimization (CRO). It is an algorithm that is usually used to solve optimization problems. Solving optimization problems the algorithm gives better results than any other related metaheuristics. It can search the solution space locally as well as globally over a large population with the help of its four reaction operators. We are proposing a method to solve MCP by tuning all the initial parameters and redesigning four reaction operators of CRO. An additional repair operator is also designed to find optimal solutions in less computational time. Three benchmark datasets are used to observe the efficiency of the proposed algorithm. We obtained better results with less average errors in comparison to the state of art methods for the three datasets. For most of the graphs, the

algorithm gives the best-known results mentioned in the datasets. The results are shown with the repair operator for all the datasets to understand the improvement in results clearly.

User Authentication and Access Control to Blockchain based Forensic Log Data,

PROF. DR. MD. RAFIQUL ISLAM et el.

For dispute resolution in daily life, tamper-proof data storage and retrieval of log data are important with the incorporation of trustworthy access control for the related users and devices, while giving access to confidential data to the relevant users and maintaining data persistency are two major challenges in information security. This research uses blockchain data structure to maintain data persistency. On the other hand, we propose protocols for the authentication of users (persons and devices) to edge server and edge server to main server. Our proposed framework also provides access to forensic users according to their relevant roles and privilege attributes. For the access control of forensic users, a hybrid attribute and role-based access control (ARBAC) module added with the framework. The proposed framework is composed of an immutable blockchain-based data storage with endpoint authentication and attribute role-based user access control system. We simulate authentication protocols of the framework in AVISPA. Our result analysis shows that several security issues can efficiently be dealt with by the proposed framework.

Chemical Reaction Optimization for Minimum Weight Dominating Set,

PROF. DR. MD. RAFIQUL ISLAM et el.

Dominating set of a graph can be defined as the set of vertices that can cover all other vertices of the graph. The minimum weight dominating set (MWDS) is the minimum number of vertices in the dominating set with minimum total weight. In recent times, the chemical reaction optimization algorithm (CRO) has shown its supremacy in solving these types of problems. Therefore in this paper, a novel approach based on CRO has been proposed to solve the MWDS problem. The proposed method uses a repair-based technique to generate a molecule. To make the solution feasible by covering all vertices and to get better results, three supporting operators are implemented along with the CRO operators. Besides this, two repair operators are introduced. In the first repair operator, the searching procedure works based on the scaling properties of vertices, and the second one is a unique method for eliminating common neighbors of vertices of the dominating set. The performance of the proposed method is better than any other existing related algorithms. The performance is measured from different graphs of the benchmark datasets. It can be mentioned that

the proposed method takes minimal running time to obtain the minimum weight compared to other benchmark methods.

A solution method to maximal covering location problem based on chemical reaction optimization(CRO) algorithm,

PROF. DR. MD. RAFIQUL ISLAM et el.

The maximal covering location problem refers to the problem of finding an optimal placement of given number of facilities to a network. The objective is to maximize the total demands of the covered population within some constraints. Several metaheuristic approaches were proposed to solve the problem as it is an NP hard problem. In this article, we have proposed a chemical reaction optimization (CRO)-based approach to solve MCLP. CRO is a metaheuristic based on population to solve optimization problems. We are proposing a method to solve MCLP by redesigning four fundamental operators of CRO. Sometimes the solutions get trapped into local maxima, so an additional repair operator is also designed to find optimal solutions. The proposed algorithm is tested for both small and large scales of instances of datasets, which include benchmark as well as random ones. The proposed method gives best percentage of coverage results in 91.60% of instances, and for the remaining 8.40% of instances it produces results with average error value 0.10% which is very close to the optimal value. Nevertheless, the proposed method performs very well in terms of computational time for all test instances (100%) on all datasets compared to state-of-the-art method (Atta_GA). Wilcoxon signed-rank test has been performed on the results of the proposed method to observe the statistical significance. For both real-world and random instances, the results of the statistical test are significant.

Identification of Essential Protein using Chemical Reaction Optimization and Machine Learning Technique,

PROF. DR. MD. RAFIQUL ISLAM et el.

For the survival, development, and reproduction of the organism, understanding the working process of the cell, disease study, design drugs, etc. essential protein plays a crucial role. Due to a large number of biological information, computational methods are becoming popular in recent times to identify the essential protein. Many computational methods used machine learning techniques, metaheuristic algorithms, etc. to solve the problem. The problem with these methods is that the essential protein class prediction rate is still low. Many of these methods have not considered the imbalance characteristics of the dataset. In this paper, we have proposed an approach to identify essential proteins using a metaheuristic algorithm named Chemical Reaction Optimization (CRO) and machine learning method. Both topological and biological features are used here. The

Saccharomyces cerevisiae (S. cerevisiae) and Escherichia coli (E. coli) datasets are used in the experiment. Topological features are calculated from the PPI network data. Composite features are calculated from the collected features. Synthetic Minority Over-sampling Technique and Edited Nearest Neighbor (SMOTE+ENN) technique is applied to balance the dataset and then the CRO algorithm is applied to achieve the optimal number of features. Our experiment shows that the proposed approach gives better results in both accuracy and f-measure than the existing related methods.

A comprehensive dataset for aspect-based sentiment analysis in evaluating teacher performance

ABHIJIT BHOWMIK et el.

Teacher performance evaluation is an essential task in the field of education. In recent years, aspect-based sentiment analysis (ABSA) has emerged as a promising technique for evalu ating teaching performance by providing a more nuanced analysis of student evaluations. This article presents a novel approach for creating a large-scale dataset for ABSA of teacher performance evaluation. The dataset was constructed by collecting student feedback from American International University-Bangladesh and then labeled by undergraduate-level students into three sentiment classes: positive, negative, and neutral. The dataset was carefully cleaned and preprocessed to ensure data quality and consistency. The final dataset contains over 2,000,000 student feedback instances related to teacher performance, making it one of the largest datasets for ABSA of teacher performance evaluation. This dataset can be used to develop and evaluate ABSA models for teacher performance evaluation, ultimately leading to better feedback and improvement for educators. The results of this study demonstrate the usefulness and effectiveness of ABSA in evaluating teacher performance and highlight the importance of creating high-quality datasets for this task.

Aspect-based Sentiment Analysis Model for Evaluating Teachers' Performance from Students' Feedback

ABHIJIT BHOWMIK et el.

Evaluating teachers' performance is a fundamental pillar of educational enhancement, guiding the evolution of pedagogical practices and fostering enriched learning environments. This study pioneers an innovative approach by harnessing sentiment analysis within an aspect-based framework to decipher the intricate emotional nuances embedded within students' feedback. By categorizing sentiments as positive, negative, and neutral, we delve into the diverse perceptions of teaching aspects, offering a multifaceted portrait of educators' contributions. Through meticulous data collection, preprocessing, and a deep learning sentiment analysis model, we dissected student comments into distinct teaching aspects. The subsequent sentiment analysis unearthed positive, negative, and neutral sentiments. Positive sentiments highlighted strengths and effective communication, while negative sentiments illuminated areas for

growth. Neutral sentiments provided contextual equilibrium, forming a holistic tapestry of teachers' performance. The proposed model achieved 86\% F1 score for classifying sentiments into three classes.

https://ajse.aiub.edu/index.php/ajse/article/view/921

Spacio-temporal memory Vs. de/re-construction of identity: A case study of the characters in The Shadow Lines by Amitav Ghosh

DR. MD. ASIF KAMAL et el.

Memory is a complementary component of time. Time as a linear and irreversible phenomenon of the universe has a significant role in the making of someone's or something's identity. Memory provides us with an opportunity to visit the past. The past memory works as the building block of one's identity because identity does not exist without the acknowledgement or testimony by someone else from contemporary or the past. By challenging the linearity of time, The Shadow Lines of Amitav Ghosh attempts to undo the unequivocal and traditional sense of identity and re-do it with the help of memory. The aim of this paper is to substantiate that memory does not only provide provisions for nostalgia, but rather it facilitates the reconstruction of existing identity by manipulating and deconstructing the past one. Only shared experience can help understand the meaning of this identity which exists beyond corporeal belongings where space and time appear to be merely subsidiary phenomena. For this paper, a qualitative methodology is used to collect data from The Shadow Lines as primary source and scholarly criticisms as secondary sources. A thematic analysis of the novel and its characters from a spacio-temporal perspective supports the claim that The Shadow Line acknowledges identity as unsolidified and dependent on memory which is in continuous process of de/reconstructing it.

Blockchain: A Comparative Study of Consensus Algorithms PoW, PoS, PoA, PoV

SHARFUDDIN MAHMOOD et el.

Since the inception of Blockchain, the computer database has been evolving into innovative technologies. Recent technologies emerge, the use of Blockchain is also flourishing. All the technologies from Blockchain use a mutual algorithm to operate. The consensus algorithm is the process that assures mutual agreements and stores information in the decentralized database of the network. Blockchain's biggest drawback is the exposure to scalability. However, using the correct consensus for the relevant work can ensure efficiency in data storage, transaction finality, and data integrity. In this paper, a comparison study has been made among the following consensus algorithms: Proof of Work (PoW), Proof of Stake (PoS), Proof of Authority (PoA), and Proof of Vote (PoV). This study aims to provide readers with elementary knowledge about blockchain, more specifically its consensus protocols. It covers their origins, how they operate, and their strengths and weaknesses. We have made a significant study of these consensus protocols and uncovered some of their advantages and disadvantages in relation to characteristics details such as security, energy efficiency, scalability, and IoT (Internet of Things) compatibility. This information will assist future researchers to understand the characteristics of our selected consensus algorithms.

Impact of Social Media Method for Retake Students of English for Academic Purpose Courses

RISALA AHMED et el.

The growth of social media has made it an ingrained part of today's society. The constant use of different platforms for example: Instagram, Facebook, Twitter, YouTube made it convenient to share individual thoughts, opinions, and to connect with people. These communications can be diverse and complex as it can be conducted through integration of text, graphics, animation, sound, and video. Many teachers have already implemented the practice of social media or multimedia in their classrooms. English as a foreign or second language (EFL/ESL) could be a difficult course to be taught and learned for both ends (teachers and students). In tertiary level many students fail to complete the course in one chance. They need improvement. As a result they need to retake the course. This group of students adds some extra challenge for the teachers .Therefore EFL/ESL requires innovation in the teaching process. One of the techniques to develop this situation could be the usage of the combination of social media and multimedia during the process of teaching and learning in the classroom. This study investigates retake group of students' participation in EAP course using facebook for English language . A survey was conducted for data collection, in which all 40 participants of American International University-Bangladesh (AIUB) were instructed to join a group named 'EAP I Intelligent Mind'. All the tasks were posted in the group and students provided answers in comment box. This paper includes findings which shows that the retake students possessed positive attitudes, motivation, and gain self-confidence in learning English language.

https://www.ijfmr.com/research-paper.php?id=6916

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https://www.ijfmr.com/research-paper.php?id=6916

Sliding Column Model for t-Unit Bar Visibility Representations of Graphs

DR. MD. MANZURUL HASAN et el.

A bar visibility representation of a graph G is an assignment of the vertices of G to distinct horizontal line segments in the plane so that two vertices are adjacent in G if and only if there is an uninterrupted vertical channel of positive width that joins the bars corresponding to those vertices. A bar visibility representation is called a unit bar visibility representation if every bar has the same length. If each vertex is assigned to t distinct bars of the same length in a unit bar visibility representation then the representation is called t-unit bar visibility representation. In this paper, we introduce a "sliding column model" for t-unit bar visibility representation and show that every graph of maximum degree Δ has a t-unit bar visibility representation for $t \leq \lfloor \Delta+12 \rfloor$. We also show that a planar graph of maximum degree 3 having n vertices and m edges has a 2-unit bar visibility representation on 2n−m columns and a 3-connected cubic graph of n vertices admits a 2-unit bar visibility representation on n2 columns.

https://www.worldscientific.com/doi/10.1142/S1793830922501373

Relating planar graph drawings to planar satisfiability problems

DR. MD. MANZURUL HASAN et el.

A SAT graph

of a satisfiability instance Φ consists of a vertex for each clause and a vertex for each variable, where there exists an edge between a clause vertex and a variable vertex if and only if the variable or its negation appears in that clause. Many satisfiability problems, which are NP-hard, become polynomial-time solvable when the SAT graph is restricted to satisfy some graph properties. A rich body of research attempts to narrow down the boundary between the NP-hardness and polynomial-time solvability of various satisfiability problems. In this paper, we examine planar satisfiability problems and leverage planar graph drawing algorithms to improve our understanding of these problems. A rich body of graph drawing algorithms exists to check whether a planar graph admits a drawing that satisfies certain drawing aesthetics. We show how the existing graph drawing knowledge could be used to establish sufficient conditions for a SAT instance to always be satisfiable and give algorithms to efficiently find a satisfying truth assignment. In some cases, our algorithm can find a

truth assignment by setting a small number of variables to true, which relates to the satisfiability variants that seek to minimize the number of ones.

https://www.sciencedirect.com/science/article/abs/pii/S0020019023000893?via%3Dihub

Adoption of AI-Powered Web-Based English Writing Assistance Software: An Exploratory Study

DR. REZBIN NAHAR et el.

Abstract

Purpose of the Study: This research paper examines the usage of web based digital writing assistant software amongst the undergraduate students of private universities in Bangladesh. To examine the effects of different factors in students' adoption and usage of digital writingassistant software, this study applied Unified Theory of Acceptance and Use Technology (UTAUT) model. Methodology: The study used UTAUT model containing 8 latent variables (self-efficacy, performance expectancy, effort expectancy, social influence, facilitating condition, satisfaction, hedonic motivation, price value, adoption intention, and adoption behavior) and a total of 25 items in those variables. Through online questionnaire distribution, this study has collected and analysed 559 data. The research employed deductive approach and structural equation modelling (SEM) method for data analysis.Findings:The results shows that the factors that impact on students' behavior intention to use of digital writing assistant are performance expectancy, price value, hedonic motivation, effort expectancy, and facilitating condition, where as social influence and facilitating conditions does not have significant influence on behavioural intention. This study also found the significant impact of facilitating conditions and behavior intention on actual use of the software. Implication:This study will help to understand students' usage of such software and how academic institutions would be able to incorporate such services for students and academicians. Developers of such software can also identify the necessary features and incorporate them for convenient usages by the students. Authority and faculty members of different institution can identify the factors that enable them to incorporate such technology in the academics that would benefit both the teachers and students. Limitation and Future Direction: This study has several limitations such as time constrains, financial factors, responses of respondents, etc. Some moderating variables such as gender, field of study, etc. can be considered assessing the behavioral intention and actual usages of the software. Future research may also conduct to assess a comparative scenario between public and private universities in Bangladesh.

https://ajbe.aiub.edu/index.php/ajbe/article/view/194/175

"Effect of annealing temperature on the microstructure and tensile properties of copper/aluminum composite thin strip"

DR. MD. MAHADI HASAN et el.

The effect of annealing temperature on the microstructure and tensile properties of copper/aluminum (Cu/Al) composite thin strips was studied to improve the mechanical properties of materials. The change of interface layer, the diffusion of interface elements, and the microstructural evolution of each matrix of Cu and Al were observed and analyzed using scanning electron microscope (SEM), energy dispersive spectroscopy (EDS) and electron back-scatter diffraction (EBSD) techniques. The tensile properties of the Cu/Al composite thin strip were studied by static uniaxial tensile tests. The results show that recrystallization occurs in the Cu/Al matrix during annealing process, and the grains of the Al matrix grow into coarse grains after annealing at 400 °C. The thickness of diffusion layer increases with the increase of annealing temperature, and the thickness of the diffusion layer reaches 12 μm after annealing at 500 °C. The original typical rolling texture is transformed into the typical annealing texture components {001} ⟨100⟩ and {001} ⟨110⟩ after annealing treatment. In general, the annealing treatment reduces the tensile strength and improves the overall plasticity of the material, and the diffusion layer plays a significant role in transmitting tensile stress.

https://www.sciencedirect.com/science/article/pii/S1003632622661399

An Unsupervised Writer Identification Based on Generating Clusterable Embeddings

DR. MUHAMMAD FIROZ MRIDHA et el.

The writer identification system identifies individuals based on their handwriting is a frequent topic in biometric authentication and verification systems. Due to its importance, numerous studies have been conducted in various languages. Researchers have established several learning methods for writer identification including supervised and unsupervised learning. However, supervised methods require a large amount of annotation data, which is impossible in most scenarios. On the other hand, unsupervised writer identification methods may be limited and dependent on feature extraction that cannot provide the proper objectives to the architecture and be misinterpreted. This paper introduces an unsupervised writer identification system that analyzes the data and recognizes the writer based on the inter-feature relations of the data to resolve the uncertainty of the features. A pairwise architecture-based Autoembedder was applied to generate clusterable embeddings for handwritten text images. Furthermore, the trained baseline architecture generates the embedding of the data image, and the K-means algorithm is used to distinguish the embedding of individual writers. The proposed model utilized the IAM dataset for the experiment as it is inconsistent with contributions from the authors but is easily accessible for writer identification tasks. In addition, traditional evaluation metrics are used in the proposed model. Finally, the proposed model is compared with a few unsupervised models, and it outperformed the state-of-the-art deep convolutional architectures in recognizing writers based on unlabeled data.

Computer Vision-Based IoT Architecture for Post COVID-19 Preventive Measures

DR. MUHAMMAD FIROZ MRIDHA et el.

The COVID-19 pandemic has wreaked havoc on people all across the world. Even though the number of verified COVID-19 cases is steadily decreasing, the danger persists. Only societal awareness and preventative measures can assist to minimize the number of impacted patients in the work environment. People often forget to wear masks before entering the work premises or are not careful enough to wear masks correctly. Keeping this in mind, this paper proposes an IoT-based architecture for taking all essential steps to combat the COVID-19 pandemic. The proposed low-cost architecture is divided into three components: one to detect face masks by using deep learning technologies, another to monitor contactless body temperature and the other to dispense disinfectants to the visitors. At first, we review all the existing state-of-the-art technologies, then we design and develop a working prototype. Here, we present our results with the accuracy of 97.43% using a deep Convolutional Neural Network (CNN) and 99.88% accuracy using MobileNetV2 deep learning architecture for automatic face mask detection.

Privacy-Preserving On-Screen Activity Tracking and Classification in E-Learning Using Federated Learning

DR. MUHAMMAD FIROZ MRIDHA et el.

E-learning, a modern method of education that utilizes electronic technologies such as computers, mobile devices, and the internet, has experienced a significant surge in adoption and usage in recent years. While it has the potential to reach every corner of the world, it also creates an opportunity for time and resource wastage. In almost all cases students use the same device for studying and for entertainment purposes. Being one click away from ever-addicting social media, it is very difficult for students to stay focused on studying using digital devices and not waste time on it. The issue is quite significant as online education will be practised more and more in the future. In spite of that, detecting the on-screen activity of students is an underexplored region of research, and to our best knowledge, no research takes protecting their privacy into consideration. Therefore in this research, a privacy-preserving architecture is proposed to detect whether students are utilizing their time on their computer or wasting it while the user's privacy is protected with federated learning. A dataset containing over 4000 screenshots of different activities of students is used to classify them into categories using several pre-trained models where our proposed FedInceptionV3 achieves a state-of-the-art test accuracy of 99.75%.

G-BERT: An Efficient Method for Identifying Hate Speech in Bengali Texts on Social Media

DR. MUHAMMAD FIROZ MRIDHA et el.

The rapid increase in Internet users has led to increased online concerns such as hate speech, abusive texts, and harassment. In Bangladesh, hate text in Bengali is frequently used on various social media platforms to condemn and abuse individuals. However, Research on recognizing hate speech in Bengali texts is lacking. The pervasive negative impact of hate speech on individuals' well-being and the urgent need for effective measures to address hate speech in Bengali texts have created a significant research gap in the field of Bengali hate speech detection. This study suggests a technique for identifying hate speech in Bengali social media posts that may harm individuals' sentiments. Our approach utilizes the Bidirectional Encoder Representations from Transformers (BERT) architecture to extract Bengali text properties, whereas hate speech is categorized using a Gated Recurrent Units (GRU) model with a Softmax activation function. We propose a new model, G-BERT, that combines both models. We compared our model's performance with several other algorithms and achieved an accuracy, precision, recall, and F1-score of 95.56%, 95.07%, 93.63%, and 92.15%, respectively. Our proposed model outperformed all other classification algorithms tested. Our findings show that the strategy we have suggested is successful in locating hate speech in Bengali texts posted on social media platforms, which can aid in mitigating online hate speech and promoting a more respectful online environment.

Strategies for Enhancing the Performance of News Article Classification in Bangla: Handling Imbalance and Interpretation

DR. MUHAMMAD FIROZ MRIDHA et el.

The rapid increase in obtainable online text data has made text categorization an important tool for data analysts to extract relevant information on the web. However, incorrect or incomplete classification of marginalized groups may result from using biased text data. In order to remedy the disparity in available data, this research suggests a system for classifying and analyzing Bangla news articles. The suggested approach first uses both Random Under-Sampling (RUS) and Synthetic Minority Oversampling Techniques to balance the massive unbalanced Bangla News dataset consisting of 4,37,948 instances (SMOTE). Secondly, the proposed system employs three machine learning models: Logistic Regression, Decision Tree, and Stochastic Gradient Descent along with three deep learning models: Artificial Neural Network (ANN), Convolutional Neural Network (CNN), and Bidirectional Encoder Representations from Transformers (BERT) for Bangla text categorization. The experimental results signify the superior performance of BERT to other classification models of the system as well as other existing methods in this domain. The proposed system achieves the maximum accuracy of 99.04% in balanced dataset and 72.23% in imbalanced dataset using BERT. K-fold cross validation with varied K values is used to determine the performance consistency of BERT. Finally, both LIME (Local Interpretable Model agnostic Explanations and SHAP (SHapley Additive exPlanations) techniques are applied for interpreting each prediction made by BERT.

PlantDet: A Robust Multi-Model Ensemble Method Based on Deep Learning for Plant Disease Detection

DR. MUHAMMAD FIROZ MRIDHA et el.

Plant disease is a significant health concern among all living creatures. Early diagnosis can help farmers take necessary steps to cure the disease and accelerate the production rate efficiently. Our research has been conducted with five most common rice leaf diseases, such as bacterial leaf blight, brown spot, leaf blast,leaf scald, and narrow brown spot, including healthy class, and two categories of betel leaf, such as healthy and unhealthy class. A robust new deep ensemble model, based on InceptionResNetV2, EfficientNetV2L,and Xception, has been proposed, known as PlantDet, in this research. PlantDet solves not only underfitting problems but also leverage nourished performances simultaneously for scarce dataset of the sparse number of different background image dataset. PlantDet integrates efficient data augmentation, preprocessing, Global Average Pooling layer, Dropout mechanism, L2 regularizers, PReLU activation function, Batch Normalization layers, and more Dense layers that make the model more robust compared to all existing models and help to handle underfitting and overfitting problems while maintaining high performance. PlantDet exceeds the previous state-of-art model for the Rice Leaf dataset with an Accuracy of 98.53%, a Precision of 98.50%, a Recall of 98.35%, a F1 of 98.42% and a Specificity of 99.71%. In addition, for the Betel Leaf dataset, PlantDet also surpassed all existing base models, including several robust ensemble models. Finally, Grad-CAM and Score-CAM have been accomplished with the Xception method to explain the model performances particularly to elaborate how the Deep Learning (DL) models works for this complex dataset. Score-CAM slightly outperformed Grad-CAM++ in terms of localizing the predicted area.

An Interpretable Skin Cancer Classification Using Optimized Convolutional Neural Network for a Smart Healthcare System

DR. MUHAMMAD FIROZ MRIDHA et el.

Skin cancer is a prevalent form of malignancy globally, and its early and accurate diagnosis is critical for patient survival. Clinical evaluation of skin lesions is essential, but it faces challenges such as long waiting times and subjective interpretations. Deep learning techniques have been developed to tackle these challenges and assist dermatologists in making more accurate diagnoses. Prompt treatment of skin cancer is vital to prevent its progression and potentially life-threatening consequences. The use of deep learning algorithms can improve the speed and accuracy of diagnosis, leading to earlier detection and treatment. Additionally, it can reduce the workload for healthcare professionals, allowing them to concentrate on more complex cases. The goal of this study was to develop reliable deep learning (DL) prediction models for skin cancer classification; (i) deal with a typical severe class imbalance problem, which arises because the skin-affected patients' class is significantly smaller than the healthy class; and (ii) interpret the model output to better understand the decision-making mechanism (iii) Propose an End-to-End smart healthcare system

through an android application. In a comparison examination with six well-known classifiers, the effectiveness of the proposed DL technique was explored in terms of metrics relating to both generalization capability and classification accuracy. A study used the HAM10000 dataset and an optimized CNN to identify the seven forms of skin cancer. The model was trained using two optimization functions (Adam and RMSprop) and three activation functions (Relu, Swish, and Tanh). Furthermore, an XAI-based skin lesion classification system was developed, incorporating Grad-CAM and Grad-CAM++ to explain the model's decisions. This system can help doctors make informed skin cancer diagnoses in their early stages, with an 82% classification accuracy and 0.47% loss accuracy.

Automated Stroke Prediction Using Machine Learning: An Explainable and Exploratory Study with a Web Application for Early Intervention

DR. MUHAMMAD FIROZ MRIDHA et el.

Stroke is a dangerous medical disorder that occurs when blood flow to the brain is disrupted, resulting in neurological impairment. It is a big worldwide threat with serious health and economic implications. To solve this, researchers are developing automated stroke prediction algorithms, which would allow for early intervention and perhaps save lives. The number of people at risk for stroke is growing as the population ages, making precise and effective prediction systems increasingly critical. wo In a comparison examination with six well-known classifiers, the effectiveness of the proposed ML technique was explored in terms of metrics relating to both generalization capability and prediction accuracy. To give insight into the black-box machine learning models, we also studied two kinds of explainable techniques, namely SHAP and LIME, in this study. SHAP (Shapley Additive Explanations) and LIME (Local Interpretable Model-agnostic Explanations) are well-established and reliable approaches for explaining model decision-making, particularly in the medical industry. The findings of the experiment revealed that more complicated models outperformed simpler ones, with the top model obtaining almost 91% accuracy and the other models achieving 83-91% accuracy. The proposed framework, which includes global and local explainable methodologies, can aid in standardizing complicated models and gaining insight into their decision-making, which can enhance stroke care and treatment.

HQA-Data: A Historical Question Answer Generation Dataset from Previous Multi Perspective Conversation

DR. MUHAMMAD FIROZ MRIDHA et el.

This data article contains a quality assurance dataset for training the chatbot and chat analysis model. This dataset focuses on NLP tasks, as a model that serves and delivers a satisfactory response to a user's query. We obtained data from a well- known dataset known as "The Ubuntu Dialogue Corpus" for the purpose of constructing our dataset. Which consists of about one million multi-turn conversations containing around seven million utterances and one hundred million words. We derived a context for each dialogueID from these lengthy Ubuntu Dialogue Corpus conversations.

We have generated a number of questions and answers based on these contexts. All of these questions and answers are contained within the context. This dataset includes 9364 contexts, 36,438 question-answer pairs. In addition to academic research, the dataset may be used for activities such as constructing this QA for another language, deep learning, language interpretation, reading comprehension, and open-domain question answering. We present the data in raw format; it has been open sourced and publicly available at

https://data.mendeley.com/datasets/p85z3v45xk.

Deep Learning-Based IoT System for Remote Monitoring and Early Detection of Health Issues in Real-Time

DR. MUHAMMAD FIROZ MRIDHA et el.

With an aging population and increased chronic diseases, remote health monitoring has become critical to improving patient care and reducing healthcare costs. The Internet of Things (IoT) has recently drawn much interest as a potential remote health monitoring remedy. IoT-based systems can gather and analyze a wide range of physiological data, including blood oxygen levels, heart rates, body temperatures, and ECG signals, and then provide real-time feedback to medical professionals so they may take appropriate action. This paper proposes an IoT-based system for remote monitoring and early detection of health problems in home clinical settings. The system comprises three sensor types: MAX30100 for measuring blood oxygen level and heart rate; AD8232 ECG sensor module for ECG signal data; and MLX90614 non-contact infrared sensor for body temperature. The collected data is transmitted to a server using the MQTT protocol. A pre-trained deep learning model based on a convolutional neural network with an attention layer is used on the server to classify potential diseases. The system can detect five different categories of heartbeats: Normal Beat, Supraventricular premature beat, Premature ventricular contraction, Fusion of ventricular, and Unclassifiable beat from ECG sensor data and fever or non-fever from body temperature. Furthermore, the system provides a report on the patient's heart rate and oxygen level, indicating whether they are within normal ranges or not. The system automatically connects the user to the nearest doctor for further diagnosis if any critical abnormalities are detected.

Recurrent ALBERT for recommendation: A hybrid architecture for accurate and lightweight restaurant recommendations

DR. MUHAMMAD FIROZ MRIDHA et el.

The online recommendation system has benefited the traditional restaurant business economically. However, finding the best restaurant during rush time and visiting new places is tough. This objective is addressed through a restaurant recommendation approach, which impacts the human decision-making method. With the help of collaborative filtering, some user-based recommendation systems were designed to generate the best recommendation based on user choices. Thus, a user preferences-based method is presented using A Lite Bidirectional Encoder Representations from

Transformers and Simple Recurrent Unit to suggest restaurants based on user preferences. Here, a publicly available dataset from Kaggle called Kzomato is used with 9552 samples and 21 features. And the system obtained an F1-score, precision, and recall of 86%, which will save time and provide the best recommendation based on user preferences easily.

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Toward Trustworthy Metaverse: Advancements and Challenges

DR. MUHAMMAD FIROZ MRIDHA et el.

The Metaverse, a transformative digital realm, holds immense promise for reshaping industries and human interactions while potentially addressing global challenges and democratizing opportunities. However, it also introduces a spectrum of complexities that demand careful navigation. To establish trustworthiness within the Metaverse ecosystem, gaining a deep understanding of its applications, challenges, and existing solutions is imperative. In this comprehensive survey, we first delve into Metaverse applications, drawing insights from existing literature. Subsequently, we explore the diverse challenges the Metaverse presents, analyzing them through the lens of existing research. We then scrutinize the overall trustworthiness of the Metaverse environment and investigate existing solutions to previously identified challenges through a thorough review and analysis of pertinent literature. Lastly, we discussed future research directions aimed at fostering a trustworthy Metaverse environment. This comprehensive review can provide an overview of the Metaverse, its application domains, challenges, existing solutions and research directions for many multidisciplinary studies.

https://ieeexplore.ieee.org/document/10288438

QAmplifyNet: pushing the boundaries of supply chain backorder prediction using interpretable hybrid quantum-classical neural network.

DR. MUHAMMAD FIROZ MRIDHA et el.

Supply chain management relies on accurate backorder prediction for optimizing inventory control, reducing costs, and enhancing customer satisfaction. Traditional machine-learning models struggle with large-scale datasets and complex relationships. This research introduces a novel methodological framework for supply chain backorder prediction, addressing the challenge of collecting large real-world datasets with 90% accuracy. Our proposed model demonstrates remarkable accuracy in predicting backorders on short and imbalanced datasets. We capture intricate patterns and dependencies by leveraging quantum-inspired techniques within the quantum-classical neural network QAmplifyNet. Experimental evaluations on a benchmark dataset establish QAmplifyNet's superiority over eight classical models, three classically stacked quantum ensembles, five quantum neural networks, and a deep reinforcement learning model. Its ability to handle short, imbalanced datasets makes it ideal for supply chain management. We evaluate seven preprocessing techniques, selecting the best one based on logistic regression's performance on each preprocessed dataset. The model's interpretability is enhanced using Explainable artificial

intelligence techniques. Practical implications include improved inventory control, reduced backorders, and enhanced operational efficiency. QAmplifyNet also achieved the highest F1-score of 94% for predicting "Not Backorder" and 75% for predicting "backorder," outperforming all other models. It also exhibited the highest AUC-ROC score of 79.85%, further validating its superior predictive capabilities. QAmplifyNet seamlessly integrates into real-world supply chain management systems, empowering proactive decision-making and efficient resource allocation. Future work involves exploring additional quantum-inspired techniques, expanding the dataset, and investigating other supply chain applications. This research unlocks the potential of quantum computing in supply chain optimization and paves the way for further exploration of quantum-inspired machine learning models in supply chain management. Our framework and QAmplifyNet model offer a breakthrough approach to supply chain backorder prediction, offering superior performance and opening new avenues for leveraging quantum-inspired techniques in supply chain management.

FakeStack: Hierarchical Tri-BERT-CNN-LSTM stacked model for effective fake news detection

DR. MUHAMMAD FIROZ MRIDHA et el.

False news articles pose a serious challenge in today's information landscape, impacting public opinion and decision-making. Efforts to counter this issue have led to research in deep learning and machine learning methods. However, a gap exists in effectively using contextual cues and skip connections within models, limiting the development of comprehensive detection systems that harness contextual information and vital data propagation. Thus, we propose a model of deep learning, FakeStack, in order to identify bogus news accurately. The model combines the power of pre-trained Bidirectional Encoder Representation of Transformers (BERT) embeddings with a deep Convolutional Neural Network (CNN) having skip convolution block and Long Short-Term Memory (LSTM). The model has been trained and tested on English fake news dataset, and various performance metrics were employed to assess its effectiveness. The results showcase the exceptional performance of FakeStack, achieving an accuracy of 99.74%, precision of 99.67%, recall of 99.80%, and F1-score of 99.74%. Our model's performance was extended to two additional datasets. For the LIAR dataset, our accuracy reached 75.58%, while the WELFake dataset showcased an impressive accuracy of 98.25%. Comparative analysis with other baseline models, including CNN, BERT-CNN, and BERT-LSTM, further highlights the superiority of FakeStack, surpassing all models evaluated. This study underscores the potential of advanced techniques in combating the spread of false news and ensuring the dissemination of reliable information.

DFT approach into the physical properties of MTe3 (M= Hf, Zr) superconductors: A comprehensive study

DR. MD. MOZAHAR ALI et el.

In this article, we investigated the structural, electronic, mechanical, optical, and superconducting state properties of the trichalcogenides, MTe3(M = Hf, Zr) compounds using the density functional theory. Electronic energy dispersion curves demonstrate that the title compounds are metallic in nature, with a significant contribution from the Te atom. The technologically important mechanical properties (stiffness constant, elastic moduli, brittle/ductile behavior, Poisson's ratio, elastic anisotropy, machinability index, and hardness) are thoroughly examined and addressed. The value of Pugh's ratio indicates the ductility (brittleness) of ZrTe3 (HfTe3). The Vickers hardness value is 0.86 and 0.54 GPa for MTe3 (M = Hf, Zr), respectively, which confirms their softness. The value of lattice thermal conductivity (in W m−1 K−1) for HfTe3 (3.64) and ZrTe3 (2.36) is low due to significant phonon scattering as confirmed by the Grüneisen parameter study. The optical constants were computed, which confirmed the strong optical anisotropy of MTe3 (M = Hf, Zr). For ZrTe3, with the electric field polarization along the [100] direction, the highest reflectivity (51.36%) is obtained compared to HfTe3 (45.21%). This shows promise for application as a radiative heat reflector of these two compounds. The superconducting state properties, such as London penetration depth, coherence length, Ginzburg–Landau parameter, and electron–phonon coupling parameters are estimated and discussed. The value of electron–phonon coupling parameters suggests that both compounds are moderately coupled superconductors.

https://pubs.aip.org/aip/adv/article/13/8/085126/2907909

Adoption of AI-Powered Web-Based English Writing Assistance Software: An Exploratory Study

DR. MD. AFTAB ANWAR et el.

Purpose of the Study: This research paper examines the usage of web based digital writing assistant software amongst the undergraduate students of private universities in Bangladesh. To examine the effects of different factors in students' adoption and usage of digital writing assistant software, this study applied Unified Theory of Acceptance and Use Technology (UTAUT) model.

Methodology: The study used UTAUT model containing 8 latent variables (self-efficacy, performance expectancy, effort expectancy, social influence, facilitating condition, satisfaction, hedonic motivation, price value, adoption intention, and adoption behavior) and a total of 25 items in those variables. Through online questionnaire distribution, this study has collected and analysed 559 data. The research employed deductive approach and structural equation modelling (SEM) method for data analysis.

Findings: The results shows that the factors that impact on students' behavior intention to use of digital writing assistant are performance expectancy, price value, hedonic motivation, effort expectancy, and facilitating condition, where as social influence and facilitating conditions does not have significant influence on behavioural intention. This study also found the significant impact of facilitating conditions and behavior intention on actual use of the software.

Implication: This study will help to understand students' usage of such software and how academic institutions would be able to incorporate such services for students and academicians. Developers of such software can also identify the necessary features and incorporate them for convenient usages by the students. Authority and faculty members of different institution can identify the factors that enable them to incorporate such technology in the academics that would benefit both the teachers and students.

Limitation and Future Direction: This study has several limitations such as time constrains, financial factors, responses of respondents, etc. Some moderating variable such as gender, field of study, etc can be considered assessing the behavioral intention and actual usages of the software. Future research may also conduct to assess a comparative scenario between public and private universities in Bangladesh.

Assessing the online teaching readiness of faculty member

DR. BIKASH BARUA et el.

Purpose – This study aims to investigate how online teaching of faculty members is affected by technological readiness (TR) of using online teaching platforms. The study sheds light on how many faculty members were ready to use different online platforms during COVID-19 period.

Design/methodology/approach – This study used TR measures to determine the impact of optimism regarding the perceived usefulness and ease of usage, impact of innovativeness in terms of perceived usability and ease of use, the influence of discomfort on perceived usefulness and ease of usage, the effect of uncertainty on perceived usefulness and ease of use and the influence of perceived usefulness and ease of use on behavior. An online questionnaire survey was conducted among 255 faculty members of different private universities of Bangladesh. The sample was chosen based on a convenience method. The responses were analyzed using partial least square (PLS) approach with the help of software Smart PLS 3.

Findings – The finding supported all of the hypotheses except that discomfort and insecurity have a positive relationship with ease of use and usefulness.

Research limitations/implications – The study will help faculty members in developing their competency in using technologies in their pedagogy. Also, this study will provide some guidelines to the university management in developing adequate technological infrastructure to aid teaching.

Practical implications – The aim of the study was to investigate the faculty members' readiness level with respect to online teaching. The technology assessment model (TAM) was used to determine the readiness index. The study intended to validate the hypotheses regarding the extent to which the faculty members perceived that TAM factors affect Ease of Use and Usefulness of online teaching. Also, this research analyzed the perception of faculty members that Ease of Using online teaching affects its Usefulness. Lastly, the study examined how their perception of Ease of Use and Usefulness affect Intention to Use online as a mode of teaching. It was found from the study that each of the TAM factors, Optimism, Innovativeness, Insecurity and Discomfort has positive and

significant contribution on the Ease of Use. On the other hand, Optimism, Innovativeness, Insecurity and Discomfort have positive and significant contributions on the Usefulness. The study also revealed that Ease of Use has positive and significant contribution on the Usefulness. Lastly, it was found that Ease of Use and Usefulness have positive and significant contribution on the Intention to use. Teaching remotely is still a novel concept, and it is more difficult for people who have not done it before. Many teachers became burned out as a result of trying to adjust to new teaching methods, especially after the lockdown began. They were having a difficult time since there was so much ambiguity. When a teacher is wellversed in communication tools, it can improve learning efficiency. When they are properly trained, deploying engaging features of virtual learning, such as audio-visual lessons, quizzes, and so on, becomes simple, and students become eager to learn more. Teachers can plan their classes, prepare and master technology and create innovative and stimulating discussion topics (Mishra et al., 2020). They need to utilize a variety of technological options. They can rehearse virtual classroom management with colleagues if they face any difficulty. All of the aforementioned abilities can be honed with the assistance of an integrated academic system. Teachers can be trained by educational institutions to ensure a smooth learning process through the use of ICT (information and communication technologies) (Scherer et al., 2021; Mishra et al., 2020). The training will assist teachers in efficiently taking online classes. Institutions should ensure that teachers are well-suited to teach online and are skilled at keeping students engaged during remote learning. To make every chapter engaging, aspects such as videos, slides, images and digital copies of books and workbooks can be used. This allows students to receive personalized support and counseling in order to maintain their motivation (Sahu et al., 2022; Lapitan et al., 2021). Every other day, group doubt resolution classes ensure that there are no gaps in learning (Lapitan et al., 2021). All teachers require is a digital mindset, the appropriate tools and a committed approach (Sahu et al., 2022). If teachers can hold their students' attention, they can easily deliver an effective learning experience (Lapitan et al., 2021).

Originality/value – This study was conducted to identify technological preparedness of faculty members of private universities in Bangladesh during COVID-19 period. Some studies were there to assess such kind of preparedness but none of those used TAM and technology readiness model either in isolation or in combination. Also, this paper focused on teachers' readiness in contrast to students' readiness specific to private universities.

Possibility of Using Jamboard for Interactive Remote EFL Teaching and Learning: A Survey of Students' Perception

SHAHRINA AFRIN SIDDIQUE et el.

Abstract: COVID-19 has forced the world to encounter a new experience which has also brought an unforeseen revolution in the world education system. Traditional norms and practices of classroom teaching are being challenged continually. Chalkboards and whiteboards are now being replaced by multiple technological tools, teachers are delivering class lectures via various video

teleconferencing software programs, and study materials are being publshed as pre-recorded video clips or uploaded on different sites. In such an era, Google Jamboard can be utilized as a significant tool for transforming digital education into infotainment for the tertiary-level EFL learners of Bangladesh. The present study sought to investigate the possibility of using Google Jamboard to create an interactive virtual classroom environment for tertiary-level EFL students. All the data for this study were collected using an electronic questionnaire survey from various departments of a private university in Bangladesh. The study found that EFL learners hold a positive attitude toward the use of Jamboard for remote learning which can play a significant role in helping EFL learners to improve their English language skills. The study also recommends some of the best features of Jamboard for EFL teachers.

http://dspace.daffodilvarsity.edu.bd:8080/handle/123456789/11132

Insight into the Optoelectronic Nature and Mechanical Stability of Binary Chalcogenides: A First-Principles Study

MD. FAYZ-AL- ASAD et el.

The most promising candidates for solar cells and optoelectronic devices are the transition metals dichalcogenides. Here, we employed the well-known density functional theory to examine the structural, optoelectronic, and elastic characteristics of novel binary chalcogenides. A direct band gap for ZrX_2 and an indirect band gap for PtX_2 materials were both confirmed by the band structure features. The valence and conduction band regions are formed by the interaction of the A-d and X-p bands. Both the formation energy and the cohesive energies are calculated. The phonon dispersion plots confirmed the stability of the structures. Furthermore, the significant optical constants are computed and explained for possible employment in the optoelectronic application. Our computed band gaps and refractive index were found to be inversely associated. The vital elastic properties are also calculated to discuss the mechanical stability of these materials. The greater bulk modulus and Young's modulus for ZrS_2 as compared to the studied chalcogenides suggest this material to be harder and more compressible. The B/G values, confirm all the studied dichalcogenides to be ductile. The most ductile of these materials was $ZrSe_2$ with a predicted B/G value of 7.65. The

present work could primarily aid in the creation of diverse and potentially useful semiconducting devices and their applications.

Heat generation/absorption effect on natural convective heat transfer in a wavy triangular cavity filled with nanofuid

MD. FAYZ-AL- ASAD et el.

This study is numerically executed to investigate the influence of heat generation or absorption on free convective flow and temperature transport within a wavy triangular enclosure filled by the nanofluid taking the Brownian effect of nanoparticles. The water (H_2O) is employed as base fluid and copper (Cu) as nanoparticles for making effective $Cu–H_2O$ nanofluids. The perpendicular

sinusoidally wavy wall is cooled at low temperature while the horizontal bottom sidewall is heated non-uniformly (sinusoidal). The inclined wall of the enclosure is insulated. The governing dimensionless non-linear PDEs are executed numerically with the help of the Galerkin weighted residual type finite element technique. The numerically simulated results are displayed through average Nusselt number, isothermal contours, and streamlines for the various model parameters such as Hartmann number, Rayleigh number, heat generation or absorption parameter, nanoparticles volume fraction, and undulation parameter. The outcomes illustrate that the temperature transport rate augments significantly for the enhancement of Rayleigh number as well as nanoparticles volume fraction whereas reduces for the increment of Hartman number. The heat transfer is significantly influenced

by the size, shape, and Brownian motion of the nanoparticles. The rate of heat transport increases by 20.43% considering the Brownian effect for 1% nanoparticle volume. The thermal performance increases by 8.66% for the blade shape instead of the spherical shape of nanoparticles. In addition, heat transfer is impacted by the small size of nanoparticles. The thermal transport rate increases by 35.87% when the size of the nanoparticles reduces from 100 to 10 nm. Moreover, the rate of heat transmission increases efficiently as the undulation parameter rises. It is also seen that a crucial factor in the flow of nanofluids and heat transmission is the heat generation/absorption parameter that influences temperature distribution, heat transfer rates, and overall thermal performance.

Design and Implementation of Arduino Based Star Delta Starting, F/R Direction Control and Fault Protection of Three Phase Induction Motor

NIGAR SULTANA et el.

Three-phase induction motors have varied usage in industrial applications. At 50 Hz the most common reduced voltage starter is Star Delta. The popular applied method to minimize the start current of an induction motor is star to delta conversion. This project is designed to remotely control the starting of the induction motor through the star to delta conversion via mobile message command. The project also enables controlling of the forward and reverses motor direction along with phase fail and overload relay trip monitoring through the mobile communication system. The vital components of this project include a Two-channel relay board, a Magnetic Contactor, an Overload Relay, a Phase fail Relay, Timer Relay, Arduino Uno, and GSM SIM900A. The GSM module connected to the microcontroller sends a start command to the motor and after the system is ready the star to delta conversion happens after a certain time by an automatic timer relay. The user receives the current status of the motor and a call if any fault occurs during operation. This design of remotely Arduino controlled star delta starter, forward/ reverse motor movement, overload, and phase failure protection is safer to be used in factories and industries where the number of induction motors is widely popular.

Identifying SH-IoT devices from network traffic characteristics using random forest classifier

DR. RAJARSHI ROY CHOWDHURY et el.

In the cyberspace, device identification has become one of the most important factors in improving security of a network, containing both Internet of Things (IoT) and non-IoT devices. Resource-constraint IoT devices are generally more vulner able than non-IoT devices, to different kinds of security threats, including Mirai botnet and spoofing attacks. In this paper, a device fingerprinting (DFP) scheme has been proposed based on the analysis of network traffic characteristics. Four statistical features from two device-specific features have been selected using statistical assessment to generate DFP for classification task using a supervised machine learning Random Forest classifier. Experimental results have shown that the proposed DFP scheme is able to classify device type with 99.81% accuracy on the public UNSW dataset, whilst accuracies of 99.50% and 97.10% have been reported for the identification of individual IoT and non-IoT devices, respectively. The proposed DFP scheme has also demonstrated superior performance as compared to other DFP methods in the literature, despite using less number of features and packets for DFP. These signify that the proposed DFP scheme can be used as a network security reinforcement tool in a heterogeneous network environment.

A Deep Learning Approach for Classifying Network Connected IoT Devices Using Communication Traffic Characteristics

DR. RAJARSHI ROY CHOWDHURY et el.

The Internet of Things can be considered a technological revolution and has successfully merged the physical world with the digital world. However, heterogeneous IoT devices with different functionalities impose new security challenges in cyberspace, including node forgery, unauthorized access to data and cyberattacks. It is essential to identify network-connected devices accurately and robustly, as well as their communication behaviours, to improve network security. Whilst necessary for communication, traditional identifiers using internet protocol /medium access control addresses have some constraints as device identifiers due to vulnerabilities against different attacks. To mitigate these issues, a deep learning-based device fingerprinting model has been proposed using these two features for the classification task, with 100 consecutive packets' information utilized to generate fingerprints as graphs. The proposed device fingerprinting model demonstrates over 99% and 95% precisions in distinguishing between known and unknown traffic traces and in identifying IoT and non-IoT traffic traces, respectively. 98.49% precision has also been demonstrated on an individual device classification task. These results are significant as the model can be utilized to effectively secure a resource-constrained IoT network, which despite its rapid growth of usage, is more prone to attack, partly due to its dependence on traditional explicit identification methods.

Device identification using optimized digital footprints

DR. RAJARSHI ROY CHOWDHURY et el.

The rapidly increasing number of internet of things (IoT) and non-IoT devices has imposed new security challenges to network administrators. Accurate device identification in the increasingly complex network structures is necessary. In this paper, a device fingerprinting (DFP) method has been proposed for device identification, based on digital footprints, which devices use for communication over a network. A subset of nine features have been selected from the network and transport layers of a single transmission control protocol/internet protocol packet based on attribute evaluators in Weka, to generate device-specific signatures. The method has been evaluated on two online datasets, and an experimental dataset, using different supervised machine learning (ML) algorithms. Results have shown that the method is able to distinguish device type with up to 100% precision using the random forest (RF) classifier, and classify individual devices with up to 95.7% precision. These results demonstrate the applicability of the proposed DFP method for device identification, in order to provide a more secure and robust network.

SOCIAL, ECONOMIC, AND ENVIRONMENTAL IMPACTS OF THE ONE BELT ONE ROAD INITIATIVES

DR. RAJARSHI ROY CHOWDHURY et el.

The One Belt One Road Initiative (OBOR) by China presents a grand vision to the world that aims to foster cooperation among different countries in various fields such as global trade, international relations, infrastructure development, education, and technology. Also known as the Belt and Road Initiative (BRI), it comprises a network of roads, railways, and sea routes, all geared toward the development of humanity. The purpose of this research is to analyze some of the significant impacts of this massive project in terms of social, economic, and environmental aspects. Through the exchange of culture, sports, education, and international relations on six economic corridors, the BRI has the potential to create substantial economic benefits. The project also prioritizes environmental sustainability through a green BRI approach. All the quantitative and qualitative data are extracted from different research papers/reports, published books, and some online based data portals. It has been shown that the OBOR/BRI seeks to connect the world and foster peace, whilst its implementation may face significant challenges. Nonetheless, it presents new opportunities for people and may usher in a new era of globalization.

Recognizing Stakeholders and Factors Mediating Washback in Language Testing.

DR. PRODHAN MAHBUB IBNA SERAJ et el.

Any test or assessment's effect on teaching and learning is termed as "washback". Empirical studies conducted in this area are relatively recent, starting with the remarkable work of Alderson and Wall in 1993. Studies conducted thereafter inquired into different aspects of washback. In light of these studies, this critical review would explore the stakeholders of washback and the factors outside of the test itself which could affect how it has an impact. It indicates that although a test's washback remains at the core of the complex connection among classroom teaching, learning, and assessment, a test cannot solely lead the classroom teaching and learning; rather, it is intervened by the different overriding agents, e.g., teachers, students, and contexts shaped by them. Notwithstanding that, teachers are the ones who can maintain a leading role in generating positive washback of target tests. In the end, this article draws suggestions from the literature showing what teachers should do to warrant a positive washback.

The use of chatbots in university EFL settings : Research trends and pedagogical implications. , 14(1131506), 1–7.

DR. PRODHAN MAHBUB IBNA SERAJ et el.

This mini-review aims to identify major research trends, models, and theories and provide specific pedagogical implications for teaching when using chatbots in EFL classes. This study follows the guidelines of the PRISMA methodology and searches for open-access empirical studies in two reputable databases, Web of Science and Scopus. The results of this mini-review confirm the findings of other research studies, which show that the present research on the use of chatbots in university EFL settings focuses on their effectiveness, motivation, satisfaction, exposure, and assessment. The key contribution of this study lies in its evaluation of the chatbot's potential in applying and integrating the existing theories and concepts used in EFL teaching and learning, such as CEFR, mind mapping, or self-regulatory learning theory. This will address the gap in the literature because no previous review study has conducted such an analysis. Overall, the findings of this mini-review contribute with their specific pedagogical implications and methods to the effective use of chatbots in the EFL environment, be it formal or informal.

Impact of Metaverse Technology on Student Engagement and Academic Performance: The Mediating Role of Learning Motivation

DR. PRODHAN MAHBUB IBNA SERAJ et el.

Metaverse technology, encompassing virtual reality (VR) and augmented reality (AR), offers immersive and interactive learning environments that can enhance student engagement. The personalized and adaptive nature of metaverse experiences has the potential to spark students' intrinsic motivation and promote active involvement in their learning. In order to evaluate the impact of metaverse technology on academic performance and level of engagement this research was aimed to assess the academic performance with mediating effect of learning motivation. We conducted an empirical research through an online survey that initially utilized to measure the collected data. Data collected from 33 educational

institution located in Dubai UAE. A total of 251 respondent's data were utilized and assessed through structured equation modeling. SmartPLS 4 was used to check the model convergent validity, discriminant validity and hypothesis testing. The findings revealed student involvement can be positively impacted by the employment of metaverse technology, which in turn improves academic performance. However, it's critical to take into account potential access restrictions and the necessity for a well-rounded educational strategy that combines metaverse experiences with other teaching strategies. Future studies should focus on the precise mechanisms by which metaverse technology influences learning motivation, engagement, and performance, as this will give researchers important information for developing efficient metaverse-based educational interventions.

https://journals.gaftim.com/index.php/ijcim/article/view/234

Interrogating higher education's responses to international student mobility in the context of the COVID-19 pandemic.

DR. PRODHAN MAHBUB IBNA SERAJ et el.

Since the COVID-19 pandemic, international higher education and student mobility have faced tremendous pressure and challenges. To address COVID-induced challenges and stress, higher education institutions and host governments undertook responses. This article has humanistically looked into the institutional responses of host universities and governments to international higher education and student mobilities during the COVID-19 pandemic. Informed by a systematic literature review of publications released between 2020 and 2021 in a wide range of academic sources, we argue that many of these responses were problematic and did not adequately maintain student well-being and fairness; instead, international students were treated to some extent with poor services in the host countries. To situate our comprehensive overview and propose ideas for forward-thinking conceptualisation, policy, and practice in higher education in the context of the ongoing pandemic, we engage with the literature on ethical and humanistic internationalisation of higher education and (international) student mobilities.

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Textbook and teaching materials evaluation: A Top-down understanding.

DR. PRODHAN MAHBUB IBNA SERAJ et el.

Textbook evaluation and selection is not an easy activity. It asks for time, energy, experience, expertise and many other internal and external things. It involves many people especially those who are in charge of making decision. Textbook evaluation is a very important part of the professional activities of the teachers. The decision is usually made democratically. Autocratic decision is quick but risky. So, the whole process is a team effort. This article shows how a technique can be followed to select textbooks in such a way that everyone involved can contribute. It shows different criteria of selection as well as a structured form of selection and evaluation. It also shows how selection criteria can be established and weighted, and how textbooks can be selected using these criteria. A

meaningful comparison/contrast between explicit and intuitive decision is also presented in this article.

Students' Perception toward Teaching Strategies of Native and Nonnative English-Speaking Teachers: A Case Study in Indonesia

DR. PRODHAN MAHBUB IBNA SERAJ et el.

This study aimed to investigate the students' insights toward native English-speaking teachers' (NESTs) and nonnative English-speaking teachers' (NNEST) teaching strategies and to examine the reasons for their insights. Fifty-eight English students, 30 females, and 20 males, with prior experience of learning from both NESTs and NNESTs in East Java, Indonesia, participated in the study. They were purposively selected. A set of questionnaires was used to elicit quantitative data on students' perceptions and focus group discussion was used to elicit qualitative data on the underlying reasons for their perceptions. Quantitative data were analyzed with descriptive and inferential statistics, whereas qualitative data were analyzed based on themes. The finding revealed that the students perceived NESTs slightly better than NNESTs, with a grand mean of 9.92 and 3.74. Another finding indicates that the perception percentage for NESTs is 75%, while NNESTs achieved 63.8%. However, when the grand means of both groups are tested statistically using a correlated sample t-test, it reveals that there is no significant mean difference (). This means that the mean difference of 3.92 and 3.74 occurred by chance only, and it is not considered different statistically. This suggests that the students perceived NESTs and NNESTs the same. The qualitative data were classified into six themes: explanation, class interaction, teaching strategy, improvization, and ideal teachers. The data indicated that students have more or less similar reasons for these themes. Eventually, the results of qualitative and quantitative data analysis suggest that NESTs and NNESTs are not two distinct groups, one necessarily better or more qualified to be teachers than the other.

Rethinking the Acculturation Model : Implications for Theory

DR. PRODHAN MAHBUB IBNA SERAJ et el.

Over the past five decades, extensive research has generated a multitude of theories, approaches,models, and principles in the realm of Second Language Acquisition (SLA). Within this field,various avenues of investigation have emerged, including the acculturation model, the monitormodel, accommodation theory, the universal hypothesis, discourse theory, neurofunctionaltheory and the variable competence model. Among these, Schumann's acculturation model andits subsequent revisions stand out, yet they have not provided a framework for systematicallyassessing the accuracy of the propositions derived from the model. This paper

seeks to undertakea comprehensive review, assessment, and critique of the acculturation model's validity, with thegoal of examining the accuracy of the statements derived from it.

Navigating the Cyber Threat Landscape: A Comprehensive Analysis of Attacks and Security in the Digital Age

SULTANUL ARIFEEN HAMIM et el.

In this contemporary digital age, cybersecurity stands as a crucial linchpin amid the expanding role of technology in our lives, encountering numerous challenges. This review addresses the imperative need for robust cybersecurity measures as malicious actors continually innovate methods to exploit vulnerabilities in computer systems, networks, and data. The exploration delves into the multifaceted realm of cybersecurity attacks, unveiling the evolving threat landscape and their profound implications. From cybercriminals utilizing phishing attacks to the covert tactics of malware and the disruptive potential of Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks, including Phishing, Zero-Day Exploits, Man-in-the-Middle, and SQL Injection Attacks, the cybersecurity battleground is ever-expanding. The study systematically categorizes cyber threats, scrutinizes their distinctive characteristics, and elucidates the modus operandi of each attack type. Through a meticulous dissection of cybercriminal methods and motivations and a comprehensive evaluation of countermeasure efficacy, this review offers indispensable insights for securing our digital future in an era marked by escalating interconnectivity and technological dependence.

A Study on the Marxist Feminist Philosophy and Patriarchy in Bangladesh Society

DR. ARIFATUL KIBRIA et el.

Marxist feminism is borne out in feminist theory as well as politics which take its theoretical postulations from Marxism, popularized as the criticism of capitalism as a set of structures, practices, institutions, incentives and sensibilities that promote the exploitation of labor, the alienation of human beings, and the debasement of freedom. Concerning the Marxist feminist, empowerment and equality for women cannot be achieved with the framework of capitalism. Marxist feminism thus distinguishes itself from other modes of feminist thought and politics by attending critically and systematically to the economic organization of societies, including stratification along the lines of class; by refusing to accord the category of "women" separate and special status, without regard to class; by its commitment to the overthought of capitalism; and by its allegiance to working-class and impoverishing and marginalizing women.

The Covid-19 and online learning process in Bangladesh

DR. SHIBLI AHMED KHAN et el.

This study investigates the augmentation of students' engagement in the online learning process using the Zoom platform. To engage students more in online classes we have conducted a survey on four university students in the four dimensions. To investigate effective online classes, we have gone through descriptive statistics followed by principal component analysis (PCA) and factor regression model to identify predicted factors that engage students more in Zoom online classes. The results of PCA confirmed that questions answer session, the instructor asks questions to them, break during the class, topic-related examples, experience sharing scope, case studies, using Google Classroom, screen share, screen annotation, video contents share, class recording, raise hand and reactions to topics can enhance students engagement in the Zoom online classes. The regression results validate all four dimensions have a significant influence on effective Zoom online classes that enhance students' learning process. Thus, the findings of this study recommend educating course instructors to ensure all the applications of the online learning process while conducting online classes. We strongly believe this course of action will engage students in the online class to enhance learning activities using the Zoom platform in Bangladesh.

https://www.sciencedirect.com/science/article/pii/S2405844023011192

A Study on The Effectiveness of Online Classes In Bangladesh During the Covid-19 Pandemic

DR. HUMAYRA FERDOUS et el.

Purpose of the study: This paper aims to investigate the effectiveness of COVID-19 pandemic on online education in Bangladesh through a questionnaire-based survey.

Methodology: A survey was done from 310 students from different private and public universities to find their perspectives about online education in Bangladesh. The Linear Regression method was used for data analysis.

Findings: This survey revealed around 60% people are satisfied on online education system in our country due to getting close interaction and enough effort from the teacher. On the contrary, the remaining students are unhappy by considering their health and mental issues as they are attending long time online classes.

Implications: It is recommended to improve the internet speed, and provide sufficient educational materials, technical training on online education to students in Bangladesh to enhance the effectiveness of online education system during the pandemic period.

https://ajbe.aiub.edu/index.php/ajbe/article/view/181/164

COVID-19 pandemic influence on undergraduate female engineering students' performance in Bangladesh

DR. MUHIBUL HAQUE BHUYAN et el.

This paper explores the impact of the online teaching-learning of the Computer Science and Engineering program's female students at the Central Women's University in Bangladesh due to the COVID-19 epidemic. A survey was directed to comprehend the students' perspectives on online engineering education. The performances of the same students under the same course instructor of various courses as well as of different students under the same course instructor of the same courses before the pandemic and during the pandemic were investigated. After that, this paper analyzed students' experiences of the evaluation method before and during the outbreak, and then found out the transformation of the students' concerns regarding online engineering education. The research was based on the student surveys and observations, and their academic performances. All indicators exhibited that the procedure that was implemented had a positive impact on students' achievement. Students' involvement, particularly in the core courses that are essential to fulfilling their degrees, had improved. Furthermore, students gained more precise and constructive knowledge from the course teachers during the pandemic, as such the impact on the students' learning due to the online teaching of Computer Science and Engineering students were positive than before the pandemic.

https://ijere.iaescore.com/index.php/IJERE/article/view/22565

Cyber Security Awareness among Generation Z in Bangladesh

NAZIA FARHANA et el.

This study explores the level of awareness regarding cyber security and cyber threats among generation Z in Bangladesh. Cyber awareness plays a vital role in preventing cybercrimes, which are extremely prevalent these days. This study investigates the threat awareness practices and current knowledge levels among Bangladesh's generation Z. To achieve goals and make it sustainable, it is crucial to know the gap between the number of students with access to technology and those with cybersecurity awareness. This paper will eventually assist in formulating a strong cyber security framework for Bangladesh. A mixed-method approach has been adopted for this case study research to understand the cyber security awareness among business graduates of generation Z in Bangladesh. A thorough literature review helped determine the components of cybersecurity awareness, and a quantitative survey method was used to determine how familiar the graduates were with different cybersecurity practices. Findings indicate that the majority of people are well aware of the cyber threats, yet, most of them are not putting enough effort into avoiding them. In order to manage cybercrime, the study indicates that a model for educating generation Z regarding cyber security is urgently needed. Furthermore, the study portrays an in-depth picture of what generation Z of Bangladesh knows about cybercrime and security measures practices to avoid cyber threats. With the findings of the study, generation Z can get ideas of where they should concentrate more to be more cyber vigilant. As this generation Z is soon to be an integral part of the industry, the policymakers can also develop with frameworks, based on the study findings to educate their employees regarding cyber issues. This research will help outline the gap that needs to be addressed by generation Z and also by others.

A comprehensive dataset for aspect-based sentiment analysis in evaluating teacher performance

DR. MD. SAEF ULLAH MIAH et el.

Teacher performance evaluation is an essential task in the field of education. In recent years, aspect-based sentiment analysis (ABSA) has emerged as a promising technique for evaluating teaching performance by providing a more nuanced analysis of student evaluations. This article presents a novel approach for creating a large-scale dataset for ABSA of teacher performance evaluation. The dataset was constructed by collecting student feedback from American International University-Bangladesh and then labeled by undergraduate-level students into three sentiment classes: positive, negative, and neutral. The dataset was carefully cleaned and preprocessed to ensure data quality and consistency. The final dataset contains over 2,000,000 student feedback instances related to teacher performance, making it one of the largest datasets for ABSA of teacher performance evaluation. This dataset can be used to develop and evaluate ABSA models for teacher performance evaluation, ultimately leading to better feedback and improvement for educators. The results of this study demonstrate the usefulness and effectiveness of ABSA in evaluating teacher performance and highlight the importance of creating high-quality datasets for this task.

Design Process, Simulation, and Analysis of a Common Source MOS Amplifier Circuit in Cadence at 45 nm CMOS Technology Node

DR. MUHIBUL HAQUE BHUYAN et el.

This work describes a design process, simulation, and analysis of a CMOS-based common source amplifier circuit in the Cadence Virtuoso environment at the 45nm technology node. The suggested CMOS circuit may be useful in the op-amplifier or other circuits. The circuit is designed to work with a 1.8V DC power source. The circuit is constructed from two complementary NMOS and PMOS transistors having a 45 nm gate length. The gate widths are chosen as 1 and 2 \mu m, respectively. Transistors are selected from the gpdk045 library of the Cadence. For the simulation purpose, we have used two sources from the AnalogLib library- one is a DC bias source and the other is a pulse source for the input signals. After designing the circuit, the circuit was simulated to test and assess various performance factors, including gain, phase margin, gain bandwidth, power dissipation, etc. Simulation results confirm that the designed circuit works well at this node. This type of design and simulation experience can give confidence to fabrication engineers regarding its functionality and

reliability.

DSC Index: Measuring the Digital Supply Chain Practice among the Higher Education Institutions Community in Least Developed Countries

DR. S. A. M. MANZUR H. KHAN et el.

The 4th Industrial Revolution, more commonly referred to as Industry 4.0, has brought about a wave of multifaceted changes across the industrial spectrum around the world, and it has triggered the digitalisation of supply chains and their management regardless of the type of organisation. With increasing interconnectivity through various sectors, digital supply chain (DSC) practices and intentions have also become integral to higher education institutions. As streamlined, automated administrative processes and virtual classes conducted through online platforms become the norm, digitalisation has been catalysed in the education sector. However, several sociocultural, economic, and psychographic factors influence the adaptation of new technologies, especially in developing countries such as Bangladesh. This study uses the composite index approach to determine the Index derived from the correlation between the factors and their impact on the DSC practices and intentions. The study indicates that Trust (T) is the primary influencer, along with Performance Expectancy (PE), closely followed by Facilitating Value (FV), Facilitating Conditions (FC), and Digital Literacy (DL).

https://ajse.aiub.edu/index.php/ajse/article/view/886

Nisorgo

MST. NASRIN AKTER et el.

This book chapter focuses on the unique filmmaking style of famous French filmmaker Jean Luc Godard by analyzing some of his notable films.

Genocide In Brahmanpara Upazila & Life Struggle of Saheed Family.

TASNOVA JERIN ULFAT et el.

১৯৭১ সালের ২৫ মার্চ রাতে পাকিস্তানিরা তাদের পূর্ব পরিকল্পণা অবলম্বন করে ঘুমন্ত বাঙালির ওপর ঝাঁপিয়ে পড়ে। পাকিস্তানি বাহিনী মুক্তিযুদ্ধের নয় মাসে সারা বাংলাকে একটি বধ্যভূমিতে পরিণত করে। ১৯৭১ সালে তারা কোনো যুদ্ধ ক্ষেত্রে যুদ্ধ করেনি। নিরীহ, নিরস্ত্র মানুষকে হত্যা, নারী নির্যাতন, ধর্ষণ করে মানবতাকে লুণ্ঠিত করেছে। তাই এই মানবতাবিরোধী কর্মকান্ডে জড়িত থাকার দায়ে পাকিস্তানি বাহিনী জেনেভা কনভেনশন অনুযায়ী যুদ্ধাপরাধের দায়ে অভিযুক্ত। মুক্তিযুদ্ধ ছিলো অধিকার আদায়ের সংগ্রাম। শোষণহীন বৈষম্যহীন ক্ষুদা মুক্ত গণতান্ত্রিক দেশ গঠনের সংগ্রাম। ভৌগলিক অবস্থানগত কারণে ১৯৭১ সালের ২৫ শে মার্চ পাকিস্তান বাহিনী কুমিল্লায় অভিযান চালায়। প্রথম রাতের অভিযানে মৃত্যুবরণ করে পুলিশসহ সাধারণ জনগণ। ২৬ মার্চ থেকে কুমিল্লা শহর সম্পূর্ণ পাকিস্তান বাহিনীর নিয়ন্ত্রণে চলে যায়। কুমিল্লা শহরমুখী মানুষ দলে দলে গ্রামের দিকে আসতে থাকে নিরাপদ আশ্রয়ের জন্য। পাকিস্তান বাহিনী কুমিল্লার সীমান্তবর্তী

উপজেলায় ক্যাম্প স্থাপন করে। ব্রাহ্মণপাড়ায় ছিলো তাদের বৃহত্তর ক্যাম্প। কেননা এই রাস্তা ব্যবহার করে অধিকাংশ মানুষ ভারতে প্রবেশ করতো। মুক্তিযোদ্ধারা আশেপাশের গ্রামে আশ্রয় গ্রহণ করতো। অনেক ব্যবসায়ী শরণার্থী ক্যাম্পে খাদ্য সরবরাহ করতো। পাকিস্তানি বাহিনীরা মুক্তিকামী বাঙালীর এইসকল কর্মক্রমকে বাধা প্রদানের জন্য ক্যাম্প গ্রামের লোকজন ধরে এনে কাজ করাতো অথবা লাইনে দাড় করিয়ে হত্যা করতো। মানবতা বিরোধী অপরাধী রাজাকার, আলবদর, শান্তিকমিটি, আলশামসদের সাহায্যে ব্রাহ্মপাড়া উপজেলায় পাকিস্তান বাহিনী ব্যাপক গণহত্যা, অগ্নিসংযোগ, লুটপাঠ পরিচালনা করে। উপজেলার নাগাইশ, বড়ধুশিয়া, চান্দলা, সিদলাই গ্রামের গণহত্যায় অনেক গ্রামবাসী মৃত্যুবরণ করে। এর মধ্যে বেশির ভাগই ছিলো পরিবারের উপার্জনক্ষম ব্যাক্তি। যার ফলে গণহত্যার পরবর্তীতে সেই গ্রামের অর্থ ও সামাজিক অবস্থায় নেমে আসে বিপর্যয়। গ্রামের মানুষ নিজ বাড়ি ঘর ছেড়ে অন্য গ্রামে বসবাস করতে শুরু করে। আবার কিছু লোক ভারতে শরণার্থী হয়ে দেশ ত্যাগ করে। গবেষণা কর্মিটি মাঠ পর্যায়ে তথ্য উপাত্ত সংগ্রহের মাধ্যমে বিশ্লেষণ করা হবে। গবেষণা কর্মিটির মাধ্যমে উপজেলায় ঘটে যাওয়া গণহত্যার বিবরণ ও স্বাধীন বাংলাদেশে তাদের অর্থ ও সামাজিক অবস্থান তুলে ধরা হবে। এই গবেষণা কর্মিটির লক্ষ্য হচ্ছে গণহত্যার ভয়াবহতা ও শহীদ পরিবারের জীবন সংগ্রাম তুলে ধরা।