ICAEBT
19 - 20 June 2025 | Baku, Azerbaijan

International Conference on

Interdisciplinary Innovations: Arts, Education, Business and Technology (ICAEBT-2025)

19th-20th June, 2025 | Baku, Azerbaijan

Organized by:

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IFERP Academy

International Conference on Interdisciplinary Innovations: Arts, Education, Business and Technology (ICAEBT-2025)

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Conference Theme

Interdisciplinary Innovations for Sustainable Development: Bridging Arts, Education, Business, and Technology

PREFACE

We cordially invite you to attend the International Conference on Interdisciplinary Innovations: Arts, Education, Business and Technology (ICAEBT-2025) on 19th-20th June, 2025. The main objective of ICAEBT-2025 is to provide a platform for researchers, students, academicians as well as industrial professionals from all over the world to present their research results and development activities in relevant fields of Arts, Education, Business and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in the review process, and to the authors for contributing their research result to the conference.

Since April 2025, the Organizing Committees have received more than 50 manuscript papers, and the papers cover all the aspects in Arts, Education, Business and Technology. Finally, after review, about 15+ papers were included to the proceedings of ICAEBT-2025.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of ICAEBT-2025. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank the organizing committee for their hard work.

ABOUT ICAEBT

The International Conference on Interdisciplinary Innovations: Arts, Education, Business, and Technology (ICAEBT), scheduled for June 19th & 20th, 2025, is an essential platform organized by IFERP that aims to explore the dynamic intersections of arts, education, business, and technology in addressing global challenges. Under the theme "Interdisciplinary Innovations for Sustainable Development: Bridging Arts, Education, Business, and Technology," the conference will gather researchers, educators, practitioners, and policymakers to share innovative ideas, best practices, and collaborative solutions. Participants will engage in insightful discussions and networking opportunities, fostering partnerships that drive sustainable development through interdisciplinary approaches. Join us in shaping the future where creativity, knowledge, and technology converge for a sustainable world.

Multidisciplinary Confluence

- ICAEBT-2025 stands as a melting pot of ideas, where the boundaries between engineering disciplines blur, giving rise to innovative solutions that address global challenges. The conference embraces the multidisciplinary nature of contemporary research, recognizing that true breakthroughs often occur at the intersections of different fields.
- This theme encapsulates the conference's focus on fostering innovation and collaboration across diverse disciplines within engineering and technology. It encourages participants to explore and present cutting-edge solutions that contribute to the sustainable development of industries, addressing challenges and advancing knowledge for a better future. The multidisciplinary perspective highlights the interconnectedness of various fields in creating holistic and impactful solutions.

Benefits of Conference

- Currently, multidisciplinary research has become the most viable and efficient way to solve the problem. In this era of rapidly changing society, many kinds of socio-economic problems, related to other disciplines such as politics, anthropology, psychology, have arisen which require a holistic approach to find their solution.
- When we speak of a multidisciplinary, transdisciplinary or interdisciplinary research team, we imply collaboration between people from different disciplines. Thus, the concept of a multidisciplinary research team can be considered as a subset of the concept of collaborative research.

Objective of the ICAEBT

The objective of ICAEBT is to enhance the quality and impact of interdisciplinary research by integrating innovations in arts, education, business, and technology. The conference aims to foster collaboration, promote skill development, and drive transformative innovation. The following are key objectives that we seek to achieve:

- **Facilitate Knowledge Sharing and Exchange:** To provide a dynamic platform for researchers, educators, and professionals to present their findings, share knowledge, and discuss contemporary trends and advancements across multiple fields.
- **Support Sustainable Development Goals:** To align research and discussions with the United Nations Sustainable Development Goals (SDGs), addressing issues such as quality education, economic growth, technological innovation, and social well-being through interdisciplinary approaches.
- **Enhance Educational Practices and Policies:** To explore new pedagogical methods and educational policies that leverage technology, business acumen, and creative arts to improve learning outcomes and educational systems globally.

- **Encourage Collaborative Partnerships:** To facilitate the formation of collaborative partnerships among academia, industry, and governmental organizations, fostering joint ventures and research initiatives that drive interdisciplinary advancements.
- **Promote Creativity and Technological Integration:** To highlight the role of creativity and technological integration in business and educational practices, encouraging participants to think beyond conventional boundaries and adopt new perspectives.
- **Address Contemporary and Future Challenges:** To identify and address contemporary and future challenges in society, such as digital transformation, cultural shifts, and economic development, through interdisciplinary dialogues and problem-solving strategies.
- **Support Professional Development:** To offer opportunities for professional development by sharing best practices, case studies, and theoretical frameworks that can be applied in academic, business, and technological domains.

These objectives aim to ensure that the ICAEBT - 2025 conference serves as a catalyst for interdisciplinary innovation and transformative research. Let me know if you need any further modifications or additions!

ABOUT IFERP

The IFERP Academy is a professional association devoted to the advancement of the fields of engineering, science, and technology through the funding of research activities, propagation of the latest research insights, furtherance of industry trends, and other related ventures. IFERP aims to digitalize this entire process of innovation, collaboration, and knowledge-sharing through the fostering of a unified virtual scientific community worldwide. Everything from networking and joint ventures to learning, research assistance, publication, and more, will be carried out as part of this objective.

IFERP has established robust scientific, academic, and industry networks throughout Asia, the Middle East, and Europe. Some of the countries that IFERP has its presence in, include Iraq, Maldives, Thailand, Malaysia, Singapore, Philippines, Indonesia, Taiwan, Vietnam, UAE, Australia, Japan, Sri Lanka, Nepal, Ghana, and Africa.

Mission & Vision

Mission : "Upskilling the knowledge hub through technological innovation and excellence for the benefit of humanity"

Vision : "A Digitally equipped robust, dynamic & swift professional community integrating academics & industry for upgraded technical knowledge implementation."

What We Do

IFERP believes that there is always a better way to treat the professionals by providing them a world class stage by organizing conferences. We are committed to doing the following activities:

- We encourage convenient access to academic resources and support for all the aspirants and research scholars in urban and rural areas.
- IFERP organizes Public Education Programs, Workshops, Conferences, Webinars, Seminars, Guest Lectures, Short Term Training Programs, Faculty Development programme in the field of Engineering, Science & Technology.
- IFERP is dedicated to inquisitiveness, innovations and recent trends and developments in the field of Engineering & Technology.
- IFERP believes in knowledge sharing by collaborating with other Universities, organizations/Associations, to bring a better tomorrow.

DIRECTOR'S MESSAGE, IFERP

Mr. A. Siddth Kumar Chhajer

Managing Director & Founder, IFERP
Technoarete Group, India

MESSAGE

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers.

The goal of the International Conference on Interdisciplinary Innovations: Arts, Education, Business and Technology (ICAEBT-2025) is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in various fields of academics. This conference creates solutions in different ways and to share innovative ideas in the field of Arts, Education, Business and Technology. ICAEBT 2025 provides a world class stage to the Researchers, Professionals, Scientists, Academicians, and students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

ICAEBT 2025 will explore the new horizons of innovations from distinguished researchers, scientists and eminent authors in academia and industry working for the advancements in Arts, Education, Business and Technology from all over the world. ICAEBT 2025 hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in various fields of Academics.

CEO'S MESSAGE, IFERP

Mr. Rudra Bhanu Satpathy

Chief Executive Officer & Founder, IFERP
Technoarete Group, India

MESSAGE

IFERP is hosting the International Conference on Interdisciplinary Innovations: Arts, Education, Business and Technology (ICAEBT-2025) this year in month of June. The main objective of ICAEBT-2025 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, Staff, Professors, Reviewers and Members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their painstaking effort to make this conference successful.

Keynote Speaker

Ts. Dr. Nur Azaliah BT Abu Bakar

Associate Director
UTM International Kuala Lumpur, Malaysia
Associate Professor
Faculty of Artificial Intelligence,
Universiti Teknologi Malaysia,
Kuala Lumpur, Malaysia

BIOGRAPHY

Assoc. Prof. Ts. Dr. Nur Azaliah Abu Bakar is the Associate Director at UTM International Kuala Lumpur and a faculty member at the Faculty of Artificial Intelligence, Universiti Teknologi Malaysia (UTM). With 25 years of experience spanning academia, government, and industry, she specialises in enterprise architecture, artificial intelligence, business analytics, and cybersecurity. She is a consultant in enterprise architecture and digital transformation initiatives, actively shaping research, policy development, and innovation strategies. A member of the IEEE Society, the Malaysian Board of Technology (MBOT), and several international associations, she is also a sought-after speaker at global forums. Passionate about student engagement and leadership, she drives international collaboration and mobility programs in higher education.

Keynote Speaker

Dr. L. Arun Raj

Associate Director
Department of CSE,
B.S. Crescent Institute of Science and Technology,
Chennai, India

BIOGRAPHY

Dr. L. Arun Raj is an Associate Professor in Department of CSE at B.S. Crescent Institute of Science and Technology, Chennai, India. He has 15 years of experience in teaching, research and administration. He has published more than 50 publications in highly cited Journals and Conferences and 3 book chapters. His research interests are machine Learning, Health Care, Multimedia Applications, Next Gen. of Wireless Networks and IoT. He has delivered several guest lectures, seminars and chaired a session for various International and Conferences. He is serving as a Reviewer and Editorial Board Member of many reputed Journals and acted as Session chair and Technical Program Committee member of National conferences and International Conferences at Thailand, Singapore and China.

Session Speaker

Dr. Md. Sameeruddin Khan

Professor & Dean & Pro Vice Chancellor
Presidency School of Computer Science &
Presidency School of Information Science,
Presidency University, Kolkata,
West Bengal, India

BIOGRAPHY

Dr. Md. Sameeruddin Khan, a beacon of academic brilliance, his illustrious academic trajectory features a Postdoctoral Fellowship at City, University of London, Ph.D. in Computer Science and Engineering from Rayalaseema University, complemented by an M.Tech from Visvesvaraya Technological University and a B.E. from Gulbarga University—each a testament to his unwavering dedication to the pursuit of excellence. As the Pro Vice Chancellor - Engineering and Dean of the School of Computer Science and Engineering and School of Information Science at Presidency University, Dr. Sameer Khan is at the forefront of academic innovation and excellence. His previous leadership roles as Director at Sree Dattha Institutions and Executive Director at Chandigarh University highlight his proficiency in elevating educational standards and championing research excellence. Dr. Sameer Khan's transformative impact includes securing prestigious accreditations and forming strategic partnerships with global tech giants such as Microsoft and Amazon. His visionary leadership in curriculum development and commitment to fostering a culture of inquiry and innovation reflect his deep dedication to advancing education. Beyond his administrative roles, Dr. Khan contributes to the broader academic community as an Advisory Member of the Academic Leadership Council of uLektz, a Senior Member of the Governing Council for Higher Education at IIHT, and a Member of the Academic Advisory Board of Idealabs, Hyderabad. Dr. Sameer Khan's remarkable achievements include receiving the APJ Kalam Excellence Award, the Teaching Excellence Award, the Eminent Educationist Award and the Technology and Innovation in Education Award. Dr. Sameer Khan exemplifies the belief that 'The best way to predict the future is to create it,' demonstrating a commitment to shaping educational excellence and fostering innovation through visionary leadership and collaborative efforts.

Session Speaker

Dr. Nurshahira Ibrahim

Senior Lecturer
Academy of Contemporary Islamic Studies,
Universiti Teknologi MARA,
Pahang, Malaysia

BIOGRAPHY

Nurshahira Ibrahim has a PhD from Universiti Kebangsaan Malaysia. Currently, she serves as a senior lecturer in the Contemporary Islamic Studies Academy, Universiti Teknologi Mara (Pahang campus), Malaysia. She has spent much time in developing Islamic management program, teaching, supervision, research and publication about human resource development, organizational psychology, and community development issues.

Session Speaker

Dr. Abbas Fadhil Aljuboori

Professor & Head & Deputy Dean
Head of Cyber Security Department,
Deputy Dean for Scientific Affairs
(College of Engineering and Information Technology)
AlShaab University, Baghdad, Iraq

BIOGRAPHY

Prof. Dr. Abbas Fadhil Aljuboori is working currently at College of Engineering and Information Technology- AlShaab University (Deputy Dean for Scientific Affairs and Head of Cyber Security Department). Iraq. He has a Ph.D. in Computer Science from Dongguk University, South Korea. Fulbright Visiting scholar – University of Central Oklahoma – Edmond – USA –2017. International Advisory Board Member for CT University in India. He worked as a Vice President for Administrative Affairs and Head of Smart Cities Center at University of Information Technology and Communications, Baghdad, Iraq. Faculty Staff Member at Al Zahra College for Women, Muscat, Oman. Faculty Staff Member at Media Technology Engineering, College of Engineering, University of Information Technology and Communications, Researcher and Manager in the Advanced Institute of Convergence Information Technology (AICIT) – South Korea, Head of Computer Science Department – University of Kerbala. Vice President of Iraqi Universities Accreditation and Quality Assurance Council for Computer Science and IT. His field of Interest are in Data Mining, Web Applications, Big Data, Data Security, Information Systems, Social Media Analysis, and Smart Applications. He is a Member of several of Academic and Professional Societies. He is an Editor-in-Chief, Editorial Board Member and Reviewer of many eminent International Journals and Conferences worldwide.

Session Speaker

Dr. Aidanazima Abashah

Senior Lecturer and Chairman
Faculty of Business & Communication,
Universiti Malaysia Perlis (UniMAP),
Malaysia

BIOGRAPHY

Dr. Aidanazima Abashah is a Senior Lecturer and Chairman for Industrial Networking & Quality Management at the Faculty of Business & Communication, Universiti Malaysia Perlis (UniMAP). With a distinguished academic career and extensive research expertise, she has made significant contributions in business management, strategic management, quality compliance, entrepreneurship, and social impact studies. Holding a Ph.D. in Business Management from Universiti Utara Malaysia (UUM), Dr. Aidanazima has demonstrated academic excellence, earning accolades such as the Graduate on Time (GOT) recognition award. She is an active researcher with numerous Scopus and Web of Science-indexed publications, contributing valuable insights to global discussions on business strategy, financial literacy, and market feasibility. Beyond academia, Dr. Aidanazima has extensive industry experience in a Multinational Semiconductor Company as an Executive at the Global Service Center Department to serve the global bidding and procurement, bringing practical applications to her research, teaching, and consultation work. She has been an Associate Editor for the International Journal of Business and Technopreneurship. She is also an ISO 9001:2015 Certified Internal Auditor, reinforcing her commitment to quality standards in business operations. Recognised internationally, she has served as a speaker, session chair, and conference committee member for various prestigious events. Today, as the Honorable virtual Session Speaker for ICAEBT-25, she will facilitate an insightful lecture entitled: Strategic Alliances: The Blueprint for Business Success.

Session Speaker

Dr. Pardeep Singh Tiwana

Assistant Professor
Chandigarh Group of Colleges,
Landran Mohali,
India

BIOGRAPHY

Dr. Pardeep Singh Tiwana is an accomplished Assistant Professor with over 8 years of experience in IT education and research. Specializing in Software-Defined Networking (SDN), load optimization, and multimedia applications, he has published over 20 research articles in high-impact journals and conferences. Dr. Tiwana holds a Ph.D. in Computer Science from Chandigarh University, where his thesis focused on load optimization frameworks for multimedia applications in SDN. He is currently associated with Chandigarh Group of Colleges, Landran, where he has been recognized for his excellence in teaching, research, and innovation.

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Abstract's Index

Bio-fabrication of Living Materials for Sustainable Infrastructure

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Abstract

Bio-fabrication, an emerging interdisciplinary field, offers promising strategies for developing sustainable infrastructure by incorporating biological organisms into material production. Living materials - constructed with the help of microbes, fungi, and algae - are capable of dynamic behaviour such as self-growth, repair, and environmental responsiveness. This study explores recent innovations in bio-fabrication methods, including microbial-induced calcite precipitation, mycelium-based composites, and algal-derived bio-polymers, focusing on their mechanical performance, biodegradability, and ecological impact. The integration of these materials into infrastructure supports reduced carbon emissions, energy efficiency, and waste minimization. While the potential of engineered living materials (ELMs) is considerable, challenges such as material consistency, lifespan, and compliance with regulatory standards remain critical. This paper highlights the role of biological systems in redefining building practices and proposes a pathway toward infrastructure that aligns more closely with environmental sustainability.

Keywords

Bio-fabrication, Living Materials, Sustainable Infrastructure, Mycelium, Bio-concrete, Self-Healing Materials.

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Development And Acceptability of Mobile Application eSarakan: A Boarding House Locator for Ilocos Norte

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Abstract

Finding a boarding house is not easy, especially for new boarders who are not familiar with the area, and it requires a lot of effort, money, and time. Searching for the nearest available boarding house in a certain area and the lack of adequate information is still a problem in Ilocos Norte. To give a solution to the problem, the study intended to develop a mobile application eSarakan a boarding house locator for Ilocos Norte and determine the user's acceptability. In the development of the application, Rapid Application Development was used and Android Studio as the platform for development. Maps and navigation features were incorporated utilizing Mapbox API and Firebase as its real-time database. The application was tested by the end-users and answered the questionnaires based on ISO 25010. The application was accepted by the end-users with an overall mean of 4.29 interpreted as Very Satisfactory. The developed application meets the end-user's requirements in finding available boarding houses near the area. With the application's features, it is easier to search for boarding houses and communicate with the owners. The application is a great help to the community, especially to the boarding house seekers and boarding house owners for their business advertisement.

Keywords

Mobile Application, Boarding House, Map, Navigation, Boarders, Lessor, Rent.

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The Impact of Militarization on Democratization in International Relations

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Abstract

Democracy is widely regarded as the most legitimate and stable form of governance. However, its implementation and endurance vary significantly across societies. While Abraham Lincoln famously described democracy as "government of the people, by the people, for the people," modern political realities suggest a more complex picture. Some states successfully establish and maintain democratic institutions, while others struggle with instability, authoritarian tendencies, or incomplete democratization. This raises a fundamental question: What are the key factors influencing the success or failure of democratization?

The process of democratization is shaped by a combination of cultural, economic, and political factors. Culture influences democracy through national identity, religious traditions, and historical experiences, which shape public attitudes toward governance. Economically, some scholars argue that prosperity fosters democracy, while others contend that economic stability must precede political liberalization. In international relations, democratic states are often believed to be more peaceful, yet the process of democratization has sometimes led to conflict, particularly when imposed externally.

This paper examines the multidimensional nature of democratization by exploring its relationship with culture, economic development, and global politics. It also evaluates two major democratic theories—liberal democracy (Locke, Kant) and civil republicanism (Rousseau)—to determine their relevance in contemporary governance. Furthermore, the study incorporates case studies of democratic success and failure, comparing Western democracies, post-Soviet transitions, and non-democratic economic powers such as China and the Gulf states. This paper also argues intersection between democratization and militarization.

By analyzing these diverse influences, this research aims to provide a comprehensive understanding of democracy's development and resilience in different contexts. Ultimately, it seeks to answer whether democracy is a universally adaptable system or whether its success depends on specific cultural and economic conditions and influence of militarization.

Keywords

Democracy, democratization, international relations, militarization.

Exploring Sustainable Finance Practices Toward Building a Resilient Blue Economy in the MENA Region: Opportunities, Challenges, and Policy Recommendations

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Abstract

The Blue Economy is becoming an essential pillar of sustainable economic growth in the Middle East and North Africa (MENA) region, fostering economic diversification, marine resource conservation, and climate resilience. However, the lack of adequate financial instruments, policy coherence, and investment de-risking mechanisms remains a significant challenge in financing sustainable ocean-based industries. This research explores the role of sustainable finance in developing a resilient Blue Economy across the MENA region, with a focus on case studies from the United Arab Emirates, Saudi Arabia, Oman, Kuwait, Bahrain, Egypt, Morocco, and Algeria, showcasing financial mechanisms, policy innovation, and challenges.

Sustainable finance instruments such as blue bonds, green Sukuk, impact investing, and blended finance models have emerged as crucial tools for mobilizing capital toward ocean-related projects. These financial instruments facilitate investments in marine biodiversity conservation, sustainable fisheries, offshore renewable energy, and climate-resilient maritime infrastructure. The findings from the case studies reveal that while some MENA countries have made significant progress in integrating ESG (Environmental, Social, and Governance) principles into Blue Economy financing, there is still a gap in harmonized policy frameworks and regional financial collaboration. Addressing these gaps requires innovative financial structures, stronger public-private partnerships (PPPs), and regulatory reforms to enhance the bankability of Blue Economy projects and attract institutional investors.

This study employs a mixed-method approach, integrating qualitative insights from these case studies and quantitative analysis of investment trends in ocean-based industries. Findings indicate that while sustainable finance policies are evolving, challenges remain in regulatory harmonization, investor confidence, and scaling financial innovation. The research contributes to interdisciplinary discussions by offering policy recommendations aimed at enhancing financial innovation, de-risking investments, and integrating sustainability considerations into regional economic strategies.

Additionally, the study highlights the role of Higher Education Institutions (HEIs) in capacity building and knowledge transfer for sustainable Blue Economy development in MENA. HEIs can play a pivotal role in bridging the gap between academia, industry, and policymakers by fostering research-driven solutions, capacity-building programs, and innovative financial modeling for ocean-based economies. It provides practical insights for policymakers, financial institutions, investors, and academia in leveraging finance for sustainable ocean resource management, thereby strengthening the Blue Economy as a driver of long-term economic stability and ecological balance in the region.

Keywords

Sustainable Finance, Blue Economy, Impact Investing, MENA Region, Climate Resilience, Marine Conservation, Blended Finance, Financial Innovation, ESG Investment, Ocean-Based Industries, Maritime Logistics.

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Enhancing Healthcare Efficiency with a Multi-Persona Platform: Swaasth

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Abstract

One of the challenges healthcare systems faces is their inability to offer efficient, personalized services due to communication silos, inefficient scheduling, and lack of access for patients and/or providers. For example, patients do not find it easy to schedule their appointment, access their health records, or obtain a prescription. Similarly, the provision for doctors to reschedule appointments online and issue electronic prescriptions for the convenience of patients while working on patient records for excellence in healthcare delivery might involve minor issues. For hospital administrators, the strenuous balancing act of supervising staff, monitoring admissions, and operating analytics contributes to the administrative bottleneck, hindering overall operational efficiency.

In addressing these problems, we have proposed a common healthcare application that can provide real-time services for patients, doctors, and administrators. Patients will be able to book appointments, review health records, and manage a prescription in a secure way that is easy to navigate - all on one platform. Doctors are equipped with options to manage appointments, work with their schedules, and write electronic prescriptions quickly to extend patient care. The admins will also have many features around onboarding staff, analytics, and administration capabilities—again, all in one place. With a truly scalable microservices architecture on the serverless backend, the solution will enable seamless data exchanging and secure access control. This will promote the development of truly connected, efficient, responsive healthcare environments.

Keywords

Digital Prescriptions, Serverless Computing, Data privacy, Data Integrity, Security.

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Developing a Risk-Based Work Breakdown Structure for Safety Planning in Change Out Catalyst Projects

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Abstract

The downstream oil and gas sector remains a key contributor to national development in Indonesia. However, the frequency of occupational accidents within these operations remains inconsistent, particularly in high-risk activities such as reactor catalyst replacement. This process poses significant safety risks and calls for the implementation of a structured and sustainable safety management system. This study aims to develop a risk-based safety plan using the Work Breakdown Structure (WBS) framework for reactor catalyst replacement operations. A descriptive qualitative approach was employed through document analysis and structured surveys. The research involved identifying specific work activities, analyzing potential hazards, assessing associated risks, and determining control measures. These elements were integrated into a comprehensive and actionable safety plan. A total of 84 distinct activities were identified, each assessed for its safety implications and corresponding mitigation strategies. By promoting safer work environments and reducing operational risks, this study supports the achievement of Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Consumption and Production). The resulting framework is expected to guide service providers in Indonesia's oil and gas sector in aligning operational safety with long-term sustainability objectives.

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Challenges Faced by Ethnic Minority Children in the Educational Process in Georgia

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Imeri Basiladze
Professor, Department of pedagogics, Akaki Tsereteli State University, Georgia

Abstract

This article examines the challenges faced by ethnic minority students in Georgia within the general education system, focusing on the regions of Imereti, Adjara, Kakheti, and Samtskhe-Javakheti. The study investigates the extent to which high-quality education is accessible to non-Georgian-speaking students attending Georgian-language schools. Despite national and international legal frameworks that affirm the right to education for all, including in one's native language, ethnic minority students frequently encounter systemic barriers. These include insufficient Georgian language instruction, lack of adapted teaching materials, poorly translated textbooks, and inadequate training of educators.

Findings indicate that language remains a major obstacle to academic achievement, particularly for students whose families have limited proficiency in Georgian. Many students rely on private tutors or additional classes, underscoring the education system's failure to provide sufficient language support. Furthermore, dropout rates are disproportionately high among minority students due to socioeconomic hardship, early marriage, and limited transport to schools. Teachers report difficulties in adapting curricula to meet the needs of non-Georgian-speaking students, while parents remain largely uninvolved due to a lack of information or resources.

Although some positive examples of integration and peer support were identified, the study concludes that state educational reforms largely overlook non-Georgian sectors within Georgian-language schools. The current "New School" model, which fails to account for ethnolinguistic diversity, further marginalizes these students. The paper recommends the development of inclusive educational policies, reform of language instruction materials, and the establishment of support systems such as student-parent clubs and municipal assistance offices dedicated to ethnic minority students. Addressing these systemic inequities is essential for ensuring equal access to education and fostering social cohesion in Georgia's multiethnic society.

Keywords

Challenges, ethnic minority, child rights, education system, integrity, inclusion, discrimination.

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Characteristic Features of Electronic Dictionaries. Proposals For Development and Evaluation of Advantages and Limitations

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Abstract

The rapid evolution of information and communication technologies has significantly influenced the development and functionality of electronic dictionaries. This article explores the advantages, limitations, and future perspectives of electronic lexicography, comparing it with traditional print dictionaries. Drawing upon the ideas and suggestions of several notable scholars including Shriver, L. Bowker, H.Bergenholtz, and A.A.Zalevskaya the study analyzes both the current state and the prospective trajectory of electronic dictionary design. A central focus of the article is the enhancement of search functions within digital dictionaries. Researchers argue that the development of complex, multi-level search systems capable of recognizing spelling errors, implementing wildcard searches, and offering semantic-based results represents a significant leap from the rigid, alphabetical constraints of print dictionaries. Hyperlinks connecting entries and dictionaries further increase productivity, allowing users to explore language in a more interconnected manner. Despite these benefits, electronic dictionaries are not without drawbacks. Several scholars, including L.Bowker and H.Bergenholtz, emphasize issues such as limited content in offline dictionaries, inconsistent user interfaces, and poor integration of lexicographic theory. A/B testing involving students revealed that, while electronic dictionaries allow for quicker look-ups, they often lack the depth and nuance found in comprehensive print resources. Additionally, interface complexity and excessive pop-up windows can distract users and hinder effective use, as noted by Zalevskaya. The article proposes five key methods to improve future generations of electronic dictionaries. These include: expanding database capacity to accommodate richer linguistic content; customizing dictionaries for different user groups (e.g., translators, learners, professionals); integrating dictionary functions with real-time text analysis tools; offering grammar and orthographic correction features; and designing user-friendly interfaces without compromising functionality. In addition to these methodological proposals, the article provides a detailed classification of the strengths and weaknesses of electronic dictionaries across various dimensions search capabilities, technical features, user interface, and information presentation. It concludes that while current electronic dictionaries exhibit considerable potential, their full capabilities remain underutilized due to technical and design shortcomings. Nevertheless, when properly developed, electronic dictionaries can become indispensable tools for a wide spectrum of users beyond the field of language studies, including engineers, doctors, and travelers. Ultimately, the article advocates for the compilation of a dedicated glossary of terms used in electronic lexicography to standardize terminology and facilitate further research. With appropriate innovation and interdisciplinary collaboration, the next generation of electronic dictionaries may provide enhanced linguistic insight, intuitive usability, and dynamic interaction between users and language data.

Keywords

Softcopy, hardcopy, e-dictionary, lexicography, digital information.

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A Secure Cloud-Based Academic File Verification System Using EdDSA Cryptography

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Abstract

In the digital transformation of academic institutions, the secure transmission and verification of documents over cloud-based environments has become paramount. With increased dependency on online platforms for exchanging confidential academic records, ensuring file authenticity is critical. This paper proposes a secure cloud-based academic file verification system leveraging the Edwards-curve Digital Signature Algorithm (EdDSA). The proposed system aims to protect university-generated documents from tampering and unauthorized access by integrating cryptographic principles with digital signature schemes. EdDSA is known for its robust security and efficiency, particularly in key and signature generation, making it an ideal choice for resource-constrained environments such as university intranets. Each authorized user is issued a private key while their corresponding public keys are securely stored in a centralized database. Uploaded files are signed using the user's private key, and recipients can verify authenticity using the associated public key. The implementation includes SHA-256 hashing for generating document digests and integrates seamlessly with cloud infrastructure, specifically Amazon Web Services (AWS), for deployment. The system design ensures resistance against common cryptographic attacks, including side-channel, Pollard's rho, and MOV supersingular attacks. A web-based front end is also presented for ease of use. The result is a lightweight, efficient, and scalable system suitable for academic institutions aiming to adopt secure file sharing practices.

Keywords

EdDSA, Elliptic Curve Cryptography, University Cloud Storage, SHA-256, Digital Signature, Authentication, File Integrity, AWS Deployment, Cryptographic Security.

Optimizing DNS Response Delay in Distributed Cluster Architectures

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Abstract

The Domain Name System (DNS) is a foundational component of the Internet, translating human-readable domain names into IP addresses necessary for communication between devices. As DNS is a critical path in nearly all internet transactions, its performance directly affects overall network efficiency and user experience. However, standard DNS lacks built-in security, making it vulnerable to threats such as cache poisoning, spoofing, and man-in-the-middle attacks. To address these issues, DNS Security Extensions (DNSSEC) were introduced, which provide data origin authentication and integrity verification through digital signatures. While DNSSEC significantly strengthens DNS security, it also introduces performance implications that must be carefully evaluated in distributed systems, especially those relying on low-latency name resolution. DNSSEC adds cryptographic signatures (RRSIG records) and key management records (DNSKEY, DS) to DNS responses. These additional records increase the size of DNS messages and require extra computational effort for signature verification and validation, particularly on the resolver side. This results in increased query processing time and network overhead. This scaling delay is due to the additional cryptographic operations and the need for consistent key validation across nodes. These delays, while seemingly minor on a per-query basis, can significantly affect systems that perform a large volume of DNS lookups or operate in real-time environments. Furthermore, DNSSEC-related performance impact is not only limited to lookup latency but also includes increased memory usage, CPU consumption, and network bandwidth due to larger response sizes. These factors must be taken into account when deploying DNSSEC in high-availability or performance-critical infrastructures. Despite these challenges, DNSSEC remains a vital mechanism for securing DNS infrastructure, and ongoing research continues to explore ways to optimize its implementation to minimize performance trade-offs while maintaining robust security guarantees. Thus, a careful balance must be maintained between enhancing DNS security and preserving efficient system performance, particularly in distributed cluster systems. In communication between nodes within the cluster. DNS is facing performance issues using DNSSEC. This paper addresses this issue by using access control mechanism.

Keywords

DNS, DNSSEC, delay, latency, performance, cryptography, distributed, clusters, query, resolver, signature, validation, overhead, scalability, lookup.

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Combination of Retentive Networks and Visions Transformers for Facial Emotion Recognition in Image and Video

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Abstract

The field of video sentiment analysis has grown significantly with continuous advances in artificial intelligence (AI) and machine learning (ML). In this digital age, understanding and interpreting human emotions in videos is a rapidly developing field that continues to be a matter of deep interest.

The integration of Retentive Network and Vision Transformers has launched a new path in sentiment analysis from videos, showcasing extraordinary capabilities and potential over traditional models. This article discusses the remarkable advantages, groundbreaking results, and promising future that these AI models offer in the field of video sentiment analysis.

An illustrative comparative analysis is presented showing how the combination of Retentive Network and Vision Transformers outperforms other models in terms of accuracy, adaptability and scalability. Although the functionality of these AI models has so far been explored primarily in the context of images, the potential for application to video processing and more nuanced sentiment analysis is vast and exciting.

Keywords

Technological models known for their capabilities, primarily used for natural language processing tasks.

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Factors for Enhancing the Employability of University Graduates in Myanmar

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Abstract

In today's rapidly evolving labor market, graduate employability has become a pressing concern, particularly in developing countries like Myanmar. This study investigates the key factors influencing graduate employability in Myanmar, focusing on academic performance, technical skills, communication skills, leadership and motivational skills, teamwork, and problem-solving skills. A quantitative research approach was adopted, using a structured questionnaire to collect primary data from the employers, HR managers, and general managers. A total of 198 respondents actively participated in the research, and the data were analyzed using SmartPLS. The findings reveal that academic performance and technical skills significantly and positively influence graduate employability, followed by leadership, motivational, teamwork, and problem-solving skills. However, communication skills have no significant effect on graduate employability. The results highlight the fresh graduates' requirements for entry into the labor market and employment.

Keywords

University Graduates, Skills, Employability, Myanmar.

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College Timetable Generation Using Graph Neural Networks and Reinforcement Learning

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Abstract

Academic timetable generation in large educational institutions is a multi-faceted optimization problem involving complex constraints, resource availability, and institutional policies. We present a hybrid, web-based solution integrating PHP, MySQL, Python, Genetic Algorithms, Graph Neural Networks (GNN), and Google OR-Tools. The system enables department-wise, year-wise, batch-wise scheduling; captures teacher preferences and priorities; logs constraint violations; and offers a modern, editable dashboard interface. All violations are logged and visible to users for rapid iteration and compliance. Results show significant efficiency and usability improvements over manual and legacy software methods.

Keywords

Academic Timetable Generation, Genetic Algorithms, Graph Neural Networks, Constraint Satisfaction, OR-Tools, Automated Scheduling, Multi-Department Timetabling, Faculty Preferences, Artificial Intelligence, Optimization.

Problems and Perspectives Facing Computer Lexicography: Machine Translation

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Abstract

The article addresses the challenges encountered in the field of computer lexicography and explores potential solutions to these issues. One of the key factors contributing to the relevance of the topic is the rapid growth of Internet resources and the need to analyze their contemporary features, particularly in relation to the increasing demand for electronic dictionaries. In this context, the article outlines the principles governing the representation and interpretation of lexical units in modern electronic dictionaries. It draws upon theoretical literature on lexicography and electronic lexicographic resources, thereby strengthening the academic foundation and significance of the topic.

Moreover, the article examines machine translation as a branch of computational linguistics, with a focus on recent innovations in the field. It references several historical dictionaries and discusses the digitization of some of these works. The differences between them are analyzed based on the perspectives of linguists who have conducted research in this domain.

The transition from traditional to electronic dictionaries in Azerbaijan has also influenced Azerbaijani lexicography, a development that is highlighted in the article. Additionally, it draws attention to various challenges that may arise in the translation process. While electronic translation, as a product of artificial intelligence, is regarded as a draft version, the article emphasizes that human involvement remains essential to ensure accuracy and contextual appropriateness.

The aim of the study is to identify and evaluate the current problems and future prospects of computer lexicography. The theoretical and practical significance of the research lies in its potential to guide the compilation of electronic dictionaries.

Based on an analysis of existing electronic dictionaries, the article also presents several suggestions regarding the development of next-generation digital dictionaries, which may be considered a scientific innovation of the study.

Keywords

Word, explanation, electronic dictionary, softcopy, hardcopy

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Biogas Production from Household Organic Waste Using a Fiberglass Anaerobic Digester: Toward Circular Economy at the Community Scale

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Abstract

The uncontrolled accumulation of household organic waste contributes significantly to environmental degradation and greenhouse gas emissions in many urban and peri-urban areas of developing countries. This study aimed to evaluate the technical feasibility and environmental benefits of a fiberglass anaerobic biodigester in processing household kitchen waste and cow manure under tropical mesophilic conditions. A 4000-liter digester was operated in batch mode for 40 days using a substrate mixture consisting of 35% kitchen waste, 35% cow manure, and 30% dilution water.

The system maintained stable pH (6.8–7.3) and temperature (30–35°C), supporting microbial activity without the need for mechanical stirring or heating. Total biogas production reached 30.85 cubic meters, with methane content peaking at 70% during the most active phase. The average specific methane yield was calculated at 0.1 cubic meters per kilogram of volatile solids, confirming the system's capacity for energy recovery. Approximately 2700 liters of digestate were recovered, indicating high potential for nutrient recycling in agriculture.

These findings demonstrate that fiberglass-based anaerobic digestion is a viable, low-cost solution for decentralized organic waste treatment. The system supports the principles of circular economy and contributes to multiple sustainable development goals by reducing landfill dependency, producing clean energy, and providing organic fertilizer. The study also provides a foundation for the development of a semi-continuous model to enhance performance and scalability for community-level implementation.

Keywords

Fiberglass biodigester; anaerobic digestion; household organic waste; biogas production; circular economy; renewable energy; nutrient recovery.