

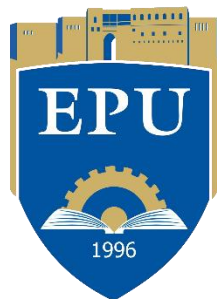
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BOOK OF ABSTRACT



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Foreword:

The ninth International Conference on Engineering (IEC 2023) was hosted between the period 15th - 16th of February 2023. This year's conference is titled under the theme "A new Trend for Research and Development in Engineering" and is jointly co-sponsored by the Faculty of Engineering, Tishk International University (TIU) and Erbil Polytechnic University (EPU) in collaboration with IEEE and IEEE Iraq section as technical partners.

The 9th International Engineering Conference (IEC 2023) is an interdisciplinary forum providing platforms to present new advances and state-of-the-art research in the fields and sub-domains of Engineering applications. The conference scope included, but not limited, to the following research topics: Construction Engineering, Structural Materials, Structural Engineering, Earthquake Engineering, Sustainable Construction, Composite Materials, Construction Management, Environmental Engineering, Green Buildings, Smart Buildings, Restoration and Rehabilitation of Historical Buildings, Renewable Energy, Hydraulic Engineering, Sustainable Materials and Waste Management, Transportation Engineering, Geo technical Engineering, Surveying and Geomatics Engineering, Highway Engineering, Pavement Engineering, Computer Engineering, Information Technology, Data Science & Big Data, Big Data Analytics, Computer & Information Security, Artificial & Computational Intelligence, Control and Robotics, Communications - Networking & Protocols, Parallel & Distributed Processing, Signal & Multimedia Processing, Biomedical & Health Informatics, Mobile & Smartphone Applications, Cloud Computing, Soft Computing, Data Mining, Business Intelligence, Information Systems, Information Technology, Bioinformatics, Electrical & Electronics Engineering, Robotics -Automation & Control Systems, Embedded Systems, Mechanical Energy, Petroleum & Mining Engineering, Software Engineering & Applications, Green Computing for Sustainable Energy, Mechatronics, Mechanical Engineering & Technology, Power & Energy Engineering, Digital Communication.

The program committee members comprised of 90 members, out of which 85% of them hold Ph.D. in various fields of engineering, relevant to one or more conference topics mentioned above. The Conference adhered to the international conference standards in accordance with the guidelines agreed upon with our IEEE technical partners and in-line with the regulations laid out by Kurdistan ministry of higher education. All paper submissions were double-blind peer-reviewed by minimum of three program committee members to ensure that submissions comply to certain quality measures. The quality measures include several criteria such as Relevance and Timeliness, Novelty and Originality, Technical Content and Correctness, Quality of Presentation, References used in the paper, Written Language, Reviewer Expertise and Overall Recommendation.

This year, the total number of submitted manuscripts stood at 53 with authors participating from several countries including Iraq, Oman, France, Jordan, Cyprus, Syria, Malaysia, Jordan, Philippines, Poland, USA. The conference has 6 tracks which include: 1. Computer Engineering and Information Technology, 2. General Engineering and Applications, 3. Digital and wireless Communication, 4. Construction Engineering 5. Environmental and Hydraulic Engineering and 6. Geotechnical and Transportation Engineering. In order to engage more

experts in the review and evaluation processes. The Computer Engineering & Information Technology received a total of 16 papers and 12 got accepted. In General Engineering and Applications 8 papers got accepted out of 12. Elsewhere in Digital & Wireless Communication 5 papers were accepted out of 2. Construction Engineering, on the other hand, 19 papers got accepted out of 9. Whereas Environmental and Hydraulic Engineering 6 were accepted out of the 8 papers received. Lastly, the Geotechnical and Transportation Engineering track 6 papers were accepted out of 10. Some papers were either rejected after the review process or withdrawn due the inability of the paper to pass basic pre-review checks e.g., plagiarism, outside of conference scope and so on.

A total of 53 papers were accepted from all conference tracks out of the 86 submitted papers. In this year's conference, 76.5% article acceptance rate has been recorded after a thorough and exhaustive reviewing process. The authors of manuscripts exceeding certain plagiarism percentage were notified to adjust their manuscripts or otherwise their submissions are either withdrawn or rejected. Each submitted manuscript was subjected to plagiarism check using iThenticate plagiarism detection software and are only allowed to proceed to review if the plagiarism percentage is below 25%. Compliance with IEEE template format was also checked by our technical program committee (TCP) members. At the end of the review process, papers recommended for acceptance by reviewers but with minor or major reviews were marked as "pre-accepted" and authors of those submissions were given the chance to revise their manuscripts considering the reviewers' professional feedback. These revised manuscripts were checked again, and a decision was made by the track chairs and other TCP members if the authors apply the modification recommended by the reviewers and the final decision is made to accept or decline the paper based on the level of compliance. Some other manuscripts were rejected due to low quality and research presentation or withdrawn because they were not within the conference scope.

In this year, the conference had the opportunity to host distinguished keynote speakers in different fields. Firstly, Dr. Raad Azzawi, an Associate Professor at the Department of Civil Engineering, University of Texas, Arlington, Texas, USA, who gave a keynote speech on the topic "*Green Construction and Sustainability using modified Expanded Polystyrene (EPS) insulation*", the second keynote speaker was Dr. Hakem Beitollahi, an Assistant Professor at Iran University of Science and Technology, Tehran, Iran, whose topic was "*Two Partially Reconfigurable Architectures for Efficient Implementation of Convolutional Neural Networks (CNNs)*", the third keynote speaker was Dr. Rafah Rasheed Abdulmajeed, a lecturer at Erbil Technical Engineering College, Erbil Polytechnic University with the topic "*Previous Concrete Pavement*", and lastly, a keynote speech was given by Dr. Qahhar Muhammed Qadir, an assistant Professor in Computer Engineering at University of Kurdistan Hawler (UKH), on the topic entitled "*Low power wide area networks; promising technologies for IoT applications*".



Dr. Abubakar M. Ashir

Chair of IEC-2023

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