

FEA

MONTHLY BULLETIN

MARCH 2026



AI

MARCH 18



COMMEMORATING THE
VICTORY OF ÇANAKKALE



ISTANBUL GELİŞİM UNIVERSITY'S ACADEMIC SUCCESS IN ENGINEERING IS REFLECTED IN SCIMAGO 2026 DATA

The SCImago Institutions Rankings (SIR) 2026 results, which evaluate universities based on research performance, innovation, and societal impact using the Scopus database, have been announced. Istanbul Gelisim University (IGU) stood out in the released results for its strong momentum in research performance and academic excellence in the field of engineering.

According to the evaluation, IGU achieved 11th place nationwide in the engineering category. This overall success in engineering was reinforced by high rankings in subfields: the university ranked 1st in Turkey for mechanical engineering and 2nd for building and construction. In the 2026 SCImago data, IGU ranked 29th nationwide and maintained its 6th place among foundation universities from the previous year. Notably, with consistent growth in research performance, the university rose from 4th to 3rd place among foundation universities in this area and ranked 11th nationwide in the overall evaluation based on research performance.

Beyond academic research, Istanbul Gelisim University also demonstrated a steady performance in societal impact, ranking 36th nationwide and 5th among foundation universities.



CONTENTS

1 NEWS FROM THE FACULTY

Visit to Department of Industrial Engineering from the Institute of Graduate Studies	1
Information Meeting Held for END498 Graduation Design Project Students	2
A Technical Visit to Sirkeci was conducted by Dr. İlknur Türkoğlu	3
Res. Asst. Özlem Yalçın's Erasmus Experience at IPSA Paris	4

2 CURRENT TOPICS IN ENGINEERING AND ARCHITECTURE

Monitoring and Reliability in Artificial Intelligence Systems	6
Industrial Engineering: The Key to Efficiency and Innovation	7
The Rise of Autonomous Software Development In 2026	8

3 ACADEMIC AND SCIENTIFIC ACTIVITIES

The Patent of Asst. Prof. Mert Yıldırım Has Been Registered by TÜRKPATENT	10
Asst. Prof. Mert YILDIRIM Joins EU COST Working Group	11
Prof. Dr. Bayram ÜNAL's Article	12
Prof. Dr. Bayram ÜNAL's Article	13
Asst. Prof. Khalid Yahya Appointed as Special Issue Editor for Energy Engineering	14
Asst. Prof. Banafsheh Alizadeh ARASLOO's Article	15
Asst. Prof. Khalid YAHYA's Article	16
Asst. Prof. Khalid YAHYA's Article	17
Asst. Prof. Khalid YAHYA's Article	18
Assoc. Prof. Ahmad Reshad NOORI's Article	19
Asst. Prof. Sajedah Norozpour SIGAROODI's Article	20
Asst. Prof. Sajedah Norozpour SIGAROODI Appointed Committee Member at International Conference	21
Asst. Prof. Oluwagbemiga Paul Agboola, Assoc. Prof. Türkan İrgin Uzun and Assoc. Prof. Hülya Soydaş Çakır's Article	22

ARTIFICIAL
INTELLIGENCE

NEWS FROM THE FACULTY

INNOVATION

TECHNOLOGY

SCIENCE

Powering the Future with Technology

INDUSTRIAL ENGINEERING

VISIT TO DEPARTMENT OF INDUSTRIAL ENGINEERING FROM THE INSTITUTE OF GRADUATE STUDIES

The Director of the Institute of Graduate Studies at Istanbul Gelisim University, Prof. Dr. İzzet Gümüő, and the Vice Director, Lecturer Anıl etin, visited Department of Industrial Engineering and provided information about the Master's Program in Engineering Management.

During the visit, the purpose, scope, and the academic and sectoral contributions of the Master's Program in Engineering Management were discussed. It was emphasized that the program aims to equip individuals with an engineering background with competencies in management, strategy, decision-making, and project management. Furthermore, it was stated that the program structure, which integrates engineering and management sciences through an interdisciplinary approach, offers significant opportunities for both academic development and career planning.

Within the scope of the visit, information was also shared regarding graduate education processes, application requirements, and the research and practical opportunities provided by the program. The meeting, held through mutual exchange of ideas, was productive in terms of strengthening the academic bridge between undergraduate and graduate education.



INDUSTRIAL ENGINEERING

INFORMATION MEETING HELD FOR END498 GRADUATION DESIGN PROJECT STUDENTS

An information meeting was held by the Department of Industrial Engineering at Istanbul Gelişim University for students taking the END498 Graduation Design Project course.

The meeting, held on Wednesday, March 25, 2026, at 11:00 AM in the J-287 Ergonomics Laboratory, shared important information regarding the graduation design project process with the students. The meeting provided information on the points to be considered during the project process and the roadmap to be followed throughout the semester.

During the meeting, conducted by Asst. Prof. Didem Yılmaz, explanations were given to help students taking the END498 Graduation Design Project course to carry out the process more effectively and efficiently. It was emphasized that such information meetings are important for supporting the academic development of students during the graduation project process.

We wish all our students success in their Graduation Design Projects.



ARCHITECTURE

A TECHNICAL VISIT TO SİRKECİ WAS CONDUCTED BY ASST. PROF. İLKNUR TÜRKÖĞLU, A FACULTY MEMBER OF THE DEPARTMENT OF ARCHITECTURE

Asst. Prof. İlknur Türkoğlu, a faculty member in the Department of Architecture, organized a field trip to Sirkeci with her English-language graduate students as part of their Cultural Heritage Management course. During the trip, Türkoğlu provided information on Sirkeci's importance to Istanbul's history and its architectural heritage. The group visited Sirkeci Train Station, the Post Office Building, Vloro Han, the Orient Bank building, Han Hotel, and the Spice Bazaar. Finally, they visited Beta Han, examining it as a successful example of restoration and reuse.

The students who participated in the Sirkeci field trip will prepare posters on the preservation and evaluation of the region's architectural heritage, and an exhibition is planned for the end of the semester.



AERONAUTICAL ENGINEERING

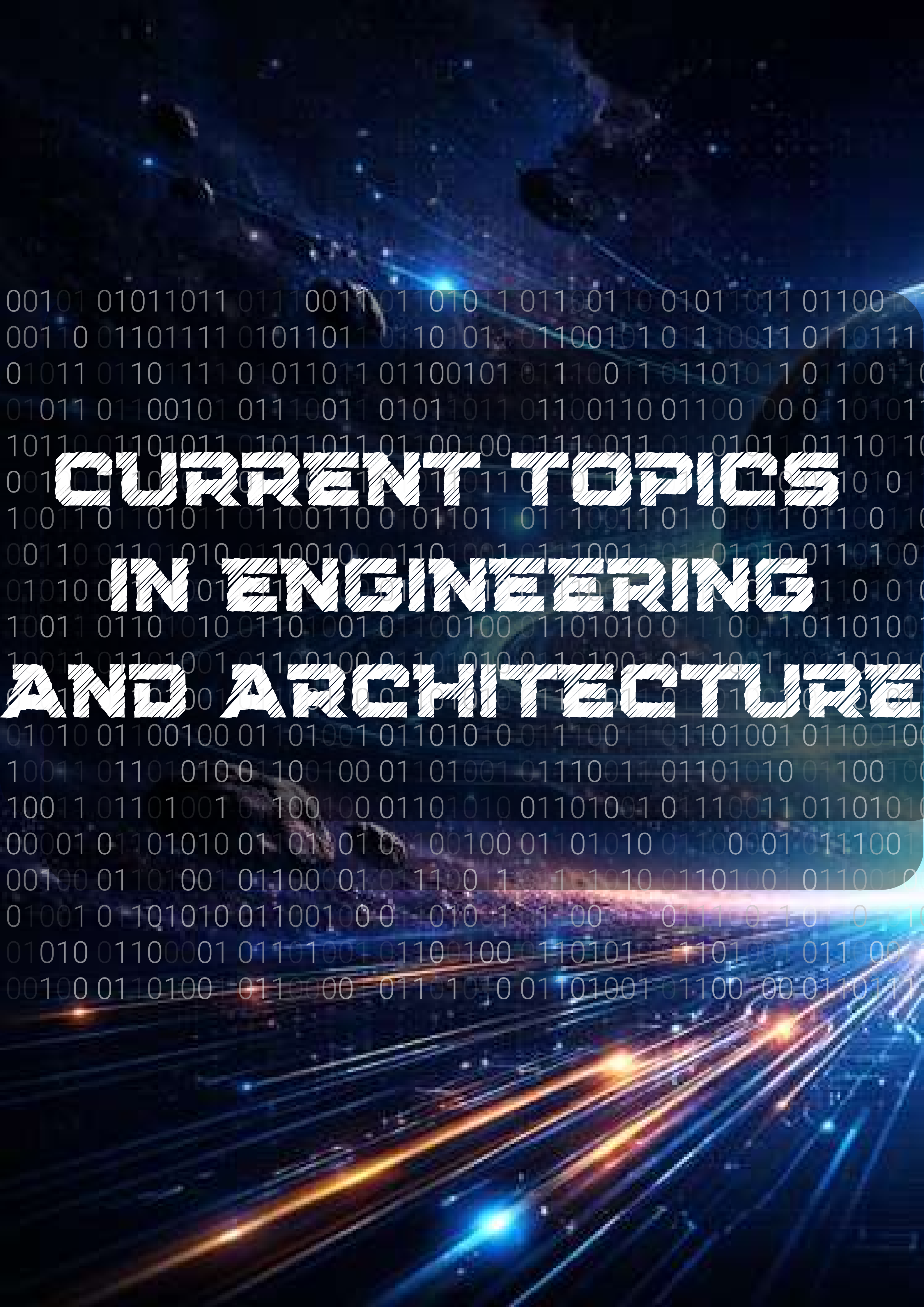
RES. ASST. ÖZLEM YALÇIN'S ERASMUS EXPERIENCE AT IPSA PARIS

Res. Asst. Özlem Yalçın from the Faculty of Engineering and Architecture at Istanbul Gelişim University completed her Erasmus mobility program at IPSA (Institut Polytechnique des Sciences Avancées) in Paris between March 13 and 20, 2026.

During her time in the Department of Aerospace Engineering, Yalçın conducted on-site examinations of academic studies in aerodynamics, flight mechanics, and propulsion systems. She also observed the practical applications of wind tunnel experiments and numerical analysis methods, such as FEA and CFD, within the curriculum.

Aligned with Istanbul Gelişim University's vision of fostering international academic interaction and knowledge sharing, this visit facilitated the integration of global engineering approaches into our faculty's academic perspective and contributed to the evaluation of new opportunities for collaboration.





**CURRENT TOPICS
IN ENGINEERING
AND ARCHITECTURE**

COMPUTER ENGINEERING

Res. Asst. Hasan YILDIRIM

MONITORING AND RELIABILITY IN ARTIFICIAL INTELLIGENCE SYSTEMS

A newly published technical report has revealed that artificial intelligence systems deployed in real-world environments need to be monitored regularly not only during the development stage but also after deployment. The report stated that systems appearing successful under controlled test conditions may, over time, produce unexpected outcomes due to changes in real-world data and different patterns of user interaction. It emphasized that this situation makes not only model development but also the continuous observation of the system and the preservation of its reliability a fundamental requirement in the field of computer engineering. For this reason, experts point out that in AI-based systems, not only the initial test results but also error signals during operation, user feedback, and system logs must be monitored carefully to ensure stable performance.

Another prominent point in the evaluation was that identifying the source of errors becomes more difficult in AI systems that lack a strong monitoring infrastructure. When input data, model outputs, version changes, and user interactions are not tracked regularly, understanding why the system made an incorrect decision becomes far more difficult. Therefore, the current approach shows that success in computer engineering should be measured not only by developing high-performance systems but also by building systems that are monitorable, auditable, and sustainable. This highlights the critical importance of system observability, maintenance practices, and the integration of robust monitoring mechanisms throughout the AI lifecycle.



INDUSTRIAL ENGINEERING

Res. Asst. Duygu TÜYLÜ



INDUSTRIAL ENGINEERING: THE KEY TO EFFICIENCY AND INNOVATION

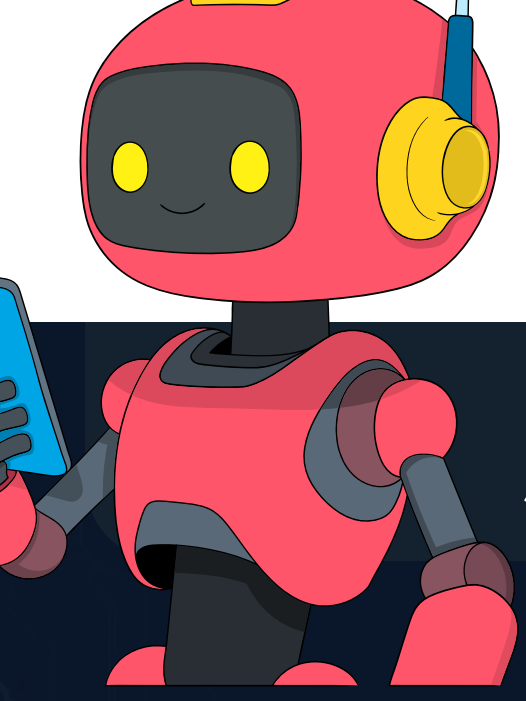
Today, one of the most important goals of businesses and organizations is to produce higher value by using their resources in the most efficient way. Industrial Engineering is a branch of engineering that plays a significant role in achieving this goal; it brings together people, time, materials, information, and technology to ensure that systems operate more efficiently, quickly, and effectively.

Industrial engineers can work not only in manufacturing plants but also in many different fields such as logistics, healthcare, finance, energy, the service sector, and information technology. The main purpose of this department is to analyze existing processes, identify shortcomings, and develop more efficient solutions. Production planning, quality management, supply chain, business analysis, cost control, and data analytics are among the main areas of study in Industrial Engineering.

Especially in today's rapidly developing technological world, digital transformation has further increased the importance of Industrial Engineering. Innovations such as artificial intelligence, big data, automation, and smart manufacturing systems are changing the way organizations work; the correct planning and effective management of these systems fall within the expertise of industrial engineers. In this respect, Industrial Engineering not only provides solutions to today's problems but also shapes the working systems of the future.

In conclusion, Industrial Engineering, with its focus on efficiency, innovation, and sustainability, is a multifaceted discipline that creates value for both businesses and society. With its broad scope and analytical perspective, it continues to be one of the most important professional fields of the future.





SOFTWARE ENGINEERING

Res. Asst. Saim HATİPOĞLU

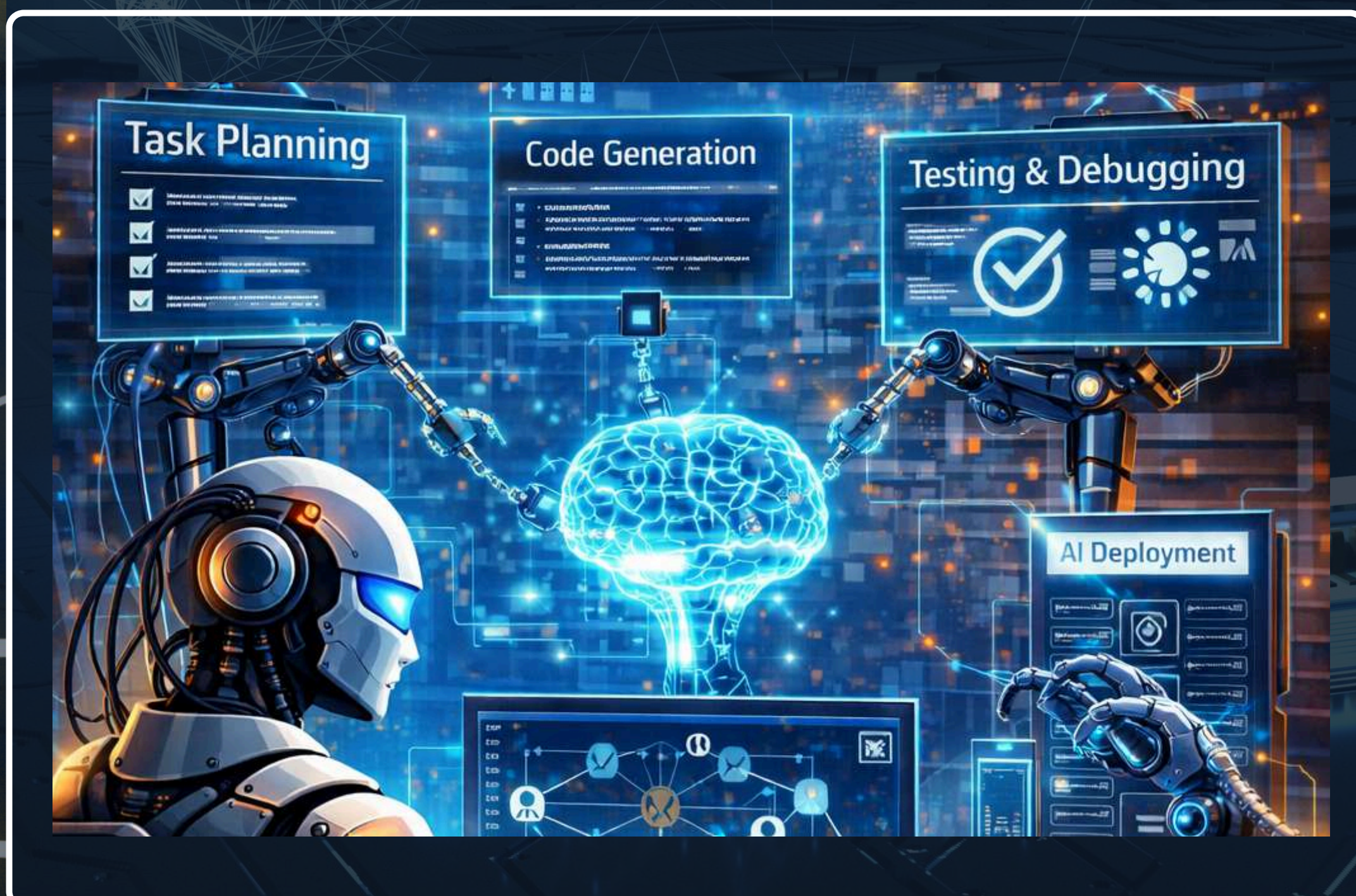
THE RISE OF AUTONOMOUS SOFTWARE DEVELOPMENT IN 2026

Autonomous software development, one of the key transformations in software engineering during the 2025–2026 period, refers to a development process that is not limited to code production alone, but rather involves stages such as task planning, testing, debugging, and deployment being partially executed by AI agents. This approach represents a shift from a developer-centric production model to an AI-supported and increasingly agent-based model. Stack Overflow's 2025 Developer Survey reveals that 84% of developers use or plan to use AI tools, while the use of autonomous agents remains limited, with only 14.1% using these systems on a daily basis (Stack Overflow, 2025).

Industry reports indicate that this transformation is progressing rapidly but has not yet fully matured. According to the Google Cloud-supported DORA study, approximately 90% of software teams have adopted AI tools, and over 80% of participants reported increased productivity. Similarly, a study conducted by GitHub in the U.S., India, Brazil, and Germany shows that over 97% of developers have used an AI coding tool at least once. When examining country-specific data, it is evident that corporate support and adoption rates are higher in the U.S., while this transformation is progressing more cautiously in Germany (GitHub, 2024).

Autonomous software development systems currently face technical limitations. According to Stack Overflow data, 87% of developers express concerns about accuracy, while 81% cite security and privacy as major issues. Benchmark studies like SWE-bench indicate that AI agents can solve only a specific portion of real-world software problems and that performance drops significantly in complex tasks. Therefore, the current approach is viewed as a hybrid model where humans assume a supervisory role in the process, rather than fully autonomous systems.

In conclusion, while autonomous software development represents a fundamental paradigm shift in software engineering, it has not yet reached full automation. Current findings indicate that the developer's role is shifting from direct code production to a position where they manage and validate AI agents. Accordingly, one of the core competencies of software engineering in the future will be ensuring the effective, safe, and controllable orchestration of autonomous systems.





**ACADEMIC AND
SCIENTIFIC
ACTIVITIES**

INDUSTRIAL ENGINEERING

The Patent of Asst. Prof. Mert Yildirim Has Been Registered by TÜRKPATENT

The invention titled "A method for producing plywood enhanced with nanocellulose and boron compounds," developed by Asst. Prof. Mert Yildirim, a faculty member of the Department of Industrial Engineering at the Faculty of Engineering and Architecture of Istanbul Gelişim University, has been registered by the Turkish Patent and Trademark Office (TÜRKPATENT) as an examined patent for a period of 20 years.

The wood-based panel sector and the wood composite industry are under significant transformation pressure due to increasing health concerns over carcinogenic formaldehyde emissions resulting from the use of conventional synthetic thermoset adhesives, as well as increasingly stringent global regulations. In this context, there is a strong industrial trend toward developing bio-based adhesives and sustainable solutions derived from renewable raw materials, aligned with circular economy principles, without compromising mechanical and physical performance.

Within the scope of this invention, plywood with reduced formaldehyde emissions, enhanced mechanical performance and dimensional stability, and improved fire resistance has been developed by utilizing the synergistic effect of nanocellulose and boron compounds.

We congratulate our faculty member and wish him continued success in his work.



INDUSTRIAL ENGINEERING

Asst. Prof. Mert Yildirim Elected to the EU COST Working Group

Asst. Prof. Mert Yildirim from the Department of Industrial Engineering at the Faculty of Engineering and Architecture, Istanbul Gelişim University, has been accepted as a Working Group Member of COST Action CA24110 – Resource-Inclusive Renewable Materials: Leveraging Global Biomass for Sustainable Innovations (ReInvent).

The European Cooperation in Science and Technology (COST Association) aims to bring together leading scientists from various disciplines across Europe under international scientific networks called COST Actions. Through these networks, it seeks to support researchers in expanding their nationally conducted research into the international arena and advancing their work on a global scale. Within the framework of COST Actions funded by the European Union, various scientific activities are supported, including working group meetings, workshops, scientific conferences, training programs, and short-term scientific missions.

The CA24110 – ReInvent Action is an international research and collaboration network that aims to reduce dependence on fossil-based raw materials and accelerate the development of biomass-based sustainable materials.

This membership will enable Asst. Prof. Mert Yildirim's academic work to be represented within an interdisciplinary research network at the European level. Furthermore, through international meetings, workshops, training programs, and research visits, he is expected to make significant contributions both to his academic work and to the international visibility of Istanbul Gelişim University.

We congratulate our esteemed faculty member and wish him continued success in his work.



**CA24110 - Resource-Inclusive Renewable Materials:
Leveraging Global Biomass for Sustainable Innovations (ReInvent)**



**Funded by
the European Union**

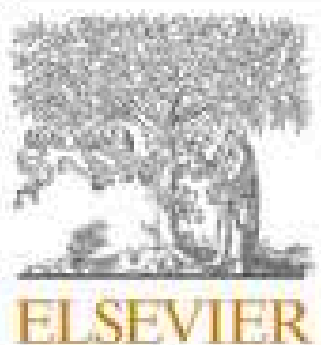
ELECTRICAL AND ELECTRONICS ENGINEERING

Significant Research from Prof. Dr. Bayram ÜNAL on High-Frequency Applications

The article titled “Investigation of hopping conduction and dielectric relaxation in Pt-substituted CuZnCoNi spinel ferrites for high-frequency applications,” co-authored by Prof. Dr. Bayram ÜNAL—faculty member of the Department of Electrical and Electronics Engineering at Istanbul Gelisim University—along with A. Baykal, M.A. Almessiere, A. Demir Korkmaz, and S.E. Shirsath, has been published in the prestigious journal Nano-Structures & Nano-Objects (Elsevier).

The study comprehensively examines the hopping conduction and dielectric relaxation behaviors of platinum (Pt) substituted CuZnCoNi spinel ferrites. This research highlights the potential of these materials for high-frequency technological applications and provides crucial insights for advanced materials science and engineering.

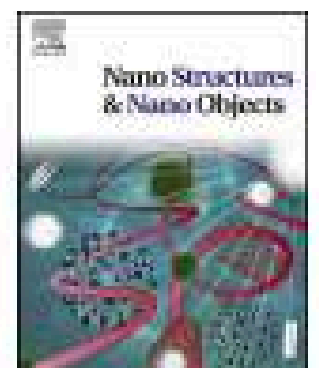
We congratulate our esteemed faculty member and his colleagues on this outstanding academic achievement and wish them continued success in their future endeavors.



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Nano-Structures & Nano-Objects

journal homepage: www.elsevier.com/locate/nanoso



Investigation of hopping conduction and dielectric relaxation in Pt - substituted CuZnCoNi spinel ferrites for high-frequency applications

A. Baykal ^{a,*}, B. Ünal ^b, M.A. Almessiere ^{c,d}, A. Demir Korkmaz ^e, S.E. Shirsath ^f

^a Food Engineering Department, Faculty of Engineering, Istanbul Aydın University, Florya, Istanbul 34295, Türkiye

^b Department of Electrical and Electronics Engineering, Faculty of Engineering and Architecture, Istanbul Gelisim University, Avcılar, Istanbul, Türkiye

^c Department of Biophysics, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia

^d Department of Physics, College of Science, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia



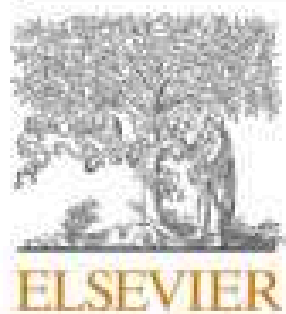
ELECTRICAL AND ELECTRONICS ENGINEERING

Significant Research by Prof. Dr. Bayram ÜNAL on Electrical Transport and Dielectric Relaxation in Nanocomposites

The article titled “Electrical Transport and Dielectric Relaxation in Hard/soft $[\text{Sr}_{0.1}\text{Fe}_{11.9}\text{O}_{19}]_x/[\text{Ni}_{0.5}\text{Co}_{0.5}\text{Fe}_2\text{O}_4]_y$ ($x = 1/2, 2/3, 1/1, 3/2$ and $2/1$) Nanocomposites: Composition-dependent AC/DC Conductivity and Modulus Analysis,” co-authored by Prof. Dr. Bayram ÜNAL from the Department of Electrical and Electronics Engineering along with A. Baykal, M.A. Almessiere, Y. Slimani, and Z. Türk, has been published in the journal Nano-Structures & Nano-Objects.

The study provides a comprehensive investigation of AC and DC electrical conductivity and dielectric relaxation behaviors using various ratios of hard/soft magnetic nanocomposites. The research reveals changes in electrical transport mechanisms and dielectric properties based on the composition of the nanocomposites, offering critical insights for advanced materials design.

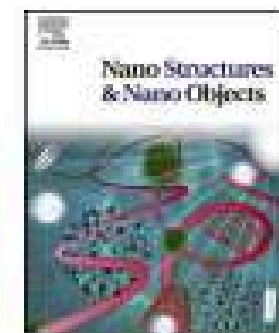
We congratulate our esteemed professor on this successful work and wish him continued success in his academic endeavors.



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Nano-Structures & Nano-Objects

journal homepage: www.elsevier.com/locate/nanoso



Electrical transport and dielectric relaxation in hard/soft $[\text{SrSe}_{0.1}\text{Fe}_{11.9}\text{O}_{19}]_x/[\text{Ni}_{0.5}\text{Co}_{0.5}\text{Fe}_2\text{O}_4]_y$ ($x = 1/2, 2/3, 1/1, 3/2$ and $2/1$) nanocomposites: Composition-dependent AC/DC conductivity and modulus analysis

A. Baykal ^{a,*}, B. Ünal ^b, M.A. Almessiere ^{c,d}, Y. Slimani ^d, Z. Türk ^e

^a Food Engineering Department, Faculty of Engineering, Istanbul Aydın University, Florya, Istanbul 34295, Türkiye

^b Department of Electrical and Electronics Engineering, Faculty of Engineering and Architecture, Istanbul Gelisim University, Avcılar, Istanbul, Türkiye

^c Department of Physics, College of Science, Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia

^d Department of Biophysics, Institute for Research and Medical Consultations (IRMC), Imam Abdulrahman Bin Faisal University, P.O. Box 1982, Dammam 31441, Saudi Arabia



ELECTRICAL AND ELECTRONICS ENGINEERING

Dr. Khalid YAHYA Serves as Guest Editor for International Special Issue

Dr. Khalid YAHYA, faculty member of the Department of Electrical and Electronics Engineering, will serve as a guest editor for the upcoming special issue titled “Advanced EV Charging Technologies: Power Conversion, Wireless Charging, Renewable Integration and Smart Grids” in the journal Energy Engineering.

Researchers working in the fields of electric vehicle charging technologies, wireless power transfer, renewable energy integration, and smart grids are invited to contribute to this special issue.

The submission deadline is 1 June 2027.



Energy Engineering

ISSN:1546-0118(online)

ISSN:0199-8595(print)



CALL FOR PAPERS

Advanced EV Charging Technologies: Power Conversion, Wireless Charging, Renewable Integration and Smart Grids

Guest Editors:

Dr. Khalid Yahya, Department of Electrical and Electronics Engineering, Faculty of Engineering and Architecture, Istanbul Gelişim University, Istanbul, Türkiye

Dr. Mohamed Salem Mohamed Othman, School of Electrical and Electronic Engineering, Engineering Campus, Universiti Sains Malaysia (USM), Nibong Tebal, Malaysia

Submission Deadline:

01 June 2027



Khalid Yahya



Mohamed Salem Mohamed Othman

Special Issue

<https://www.techscience.com/journal/energy>



ELECTRICAL AND ELECTRONICS ENGINEERING

Significant Findings on Quantum Capacitance in Graphene-Based Schottky Junctions by Dr. Banafsheh Alizadeh ARASLOO

The research article titled “Voltage Partition–Driven Modulation of Quantum Capacitance and Ideality Factor in Graphene/Si Schottky Junctions” authored by Dr. Banafsheh Alizadeh ARASLOO, faculty member of the Department of Electrical and Electronics Engineering, has been published in the Q1-indexed journal International Journal of Theoretical Physics (Springer Nature).

This study theoretically investigates how fundamental electronic parameters, such as quantum capacitance and the ideality factor, vary under the effect of voltage partitioning in graphene/silicon (Graphene/Si) Schottky junctions. The research provides a detailed analysis of how the unique electronic properties of graphene influence device performance, highlighting the roles of carrier density, energy band structure, and interface characteristics. The findings offer important insights for nanoelectronics and semiconductor device design, particularly contributing to the development of high-performance and low-power electronic components.

We congratulate Asst. Prof. Banafsheh Alizadeh ARASLOO on this achievement and wish her continued success.

International Journal of Theoretical Physics (2026) 65:100
<https://doi.org/10.1007/s10773-026-06311-7>

RESEARCH



Voltage Partition–Driven Modulation of Quantum Capacitance and Ideality Factor in Graphene/Si Schottky Junctions

Banafsheh Alizadeh Arashloo¹

Received: 27 January 2026 / Accepted: 16 March 2026

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2026



ELECTRICAL AND ELECTRONICS ENGINEERING

Innovative Smart Metasurface-Based Antenna Performance Approach for 5G Systems by Asst. Prof. Khalid YAHYA

The research article titled “Implementation of Smart Metasurfaces for the Sub-6 GHz 5G Wireless Systems: Design, Optimization, and Synthesis for Enhancing Antenna Performance” authored by Dr. Khalid YAHYA, faculty member of the Department of Electrical and Electronics Engineering, has been published in the Q1-indexed journal Scientific Reports (Nature Portfolio).

The study focuses on the design and optimization of smart metasurface structures for Sub-6 GHz 5G wireless communication systems. In this research, innovative surface designs have been developed to enhance antenna performance through electromagnetic wave steering and control capabilities. The proposed approach improves key antenna parameters such as signal gain, directivity, and efficiency, addressing the needs of next-generation communication systems. Additionally, the study provides a detailed evaluation of theoretical modeling alongside numerical analyses and simulation results, highlighting the practical implementation potential of the findings.

We congratulate Asst. Prof. Khalid YAHYA on this significant achievement and wish him continued success.

Scientific Reports

<https://doi.org/10.1038/s41598-026-41436-z>

Article in Press

Implementation of smart metasurfaces for the Sub-6 GHz 5G wireless systems: design, optimization, and its synthesis for enhancing antenna's performance

Received: 5 May 2025

Accepted: 19 February 2026

Published online: 25 February 2026

Bikash Ranjan Behera, Harikrishna Paik, J. Arun Kumar, Mohammed H. Alsharif, Sabri Saeed & Khalid Yahya



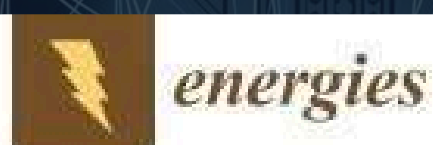
ELECTRICAL AND ELECTRONICS ENGINEERING

Asst. Prof. Khalid YAHYA Develops Hybrid Optimization Algorithm for Photovoltaic Parameter Identification

The research article titled “A Hybrid Shuffled Frog Leaping–Shuffled Complex Evolution Algorithm for Photovoltaic Parameter Identification” authored by Dr. Khalid YAHYA, faculty member of the Department of Electrical and Electronics Engineering, has been published in the Q1-indexed journal *Energies* (MDPI).

This study addresses the critical problem of parameter identification, which is essential for accurate modeling and performance analysis of photovoltaic (PV) systems. In the research, two powerful optimization techniques—the Shuffled Frog Leaping Algorithm (SFLA) and Shuffled Complex Evolution (SCE)—are combined to propose a hybrid algorithm. This approach aims to estimate unknown parameters of PV cells and modules with higher accuracy and faster convergence. Various test scenarios and comparative analyses were conducted, demonstrating that the proposed algorithm offers lower error rates and stronger convergence performance compared to classical methods. The findings provide significant contributions to the efficient design and monitoring of renewable energy systems.

We congratulate Asst. Prof. Khalid YAHYA on this achievement and wish him continued success.



Article

A Hybrid Shuffled Frog Leaping–Shuffled Complex Evolution Algorithm for Photovoltaic Parameter Identification

Hajer Faris ¹, Musaria Karim Mahmood ¹, Nawal Rai ², Saleh Al Dawsari ^{3,4,*} and Khalid Yahya ^{5,*}

¹ Department of Energy Systems Engineering, Ankara Yildirim Beyazit University, Ankara 06010, Turkey; hajerf96@gmail.com (H.F.); mkmahmood@aybu.edu.tr (M.K.M.)

² Materials, Energy Systems, Technology and Environment Laboratory (MESTEL), University of Ghardaia, Ghardaia 47000, Algeria; rainawel27@gmail.com

³ School of Engineering, Cardiff University, Cardiff CF24 3AA, UK

⁴ Electrical Engineering Department, College of Engineering, Najran University, Najran P.O. Box 1988, Saudi Arabia

⁵ Department of Electrical & Electronics Engineering, Istanbul Gelisim University, Istanbul 34310, Turkey

* Correspondence: aldawsarisa@cardiff.ac.uk (S.A.D.); hayahya@gelisim.edu.tr (K.Y.)



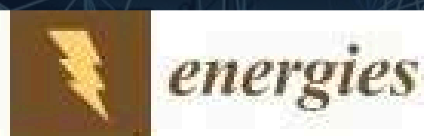
ELECTRICAL AND ELECTRONICS ENGINEERING

Advanced Puma Optimization for Parameter Identification in Fuel Cells by Asst. Prof. Khalid YAHYA

The research article titled “Parameter Identification for Proton Exchange Membrane Fuel Cell Using an Enhanced Puma Optimizer” authored by Dr. Khalid YAHYA, faculty member of the Department of Electrical and Electronics Engineering, has been published in the Q1-indexed journal Energies (MDPI).

This study addresses the parameter identification problem for proton exchange membrane fuel cells (PEMFCs), a key component of clean energy technologies, to enable accurate modeling. In the research, a nature-inspired optimization method, the Puma Optimizer, was enhanced to improve performance. The proposed algorithm allows for more precise and stable determination of unknown parameters in the fuel cell model. Comparative analyses demonstrate that the enhanced approach provides lower error rates, faster convergence, and higher accuracy compared to existing optimization techniques. The findings contribute significantly to performance analysis, model accuracy, and integration of fuel cells into energy systems.

We congratulate Asst. Prof. Khalid YAHYA on this achievement and wish him continued success.



Article

Parameter Identification for Proton Exchange Membrane Fuel Cell Using an Enhanced Puma Optimizer

Nawal Rai ^{1,*}, Badreddine Kanouni ², Abdelbaset Laib ³, Salah Necaibia ⁴, Saleh Al Dawsari ^{5,6,*} and Khalid Yahya ^{7,*}

¹ Materials, Energy Systems Technology and Environment Laboratory, University of Ghardaia, Ghardaia 47000, Algeria

² Automatic and Intelligent Systems Department, University of Setif 1, Sétif 19000, Algeria; badreddine.kanouni@univ-setif.dz

³ Department of Automatic, Faculty of Electrical Engineering, University of Science and Technology Houari Boumediene, Algiers 16111, Algeria; laibabdelbasset42@gmail.com

⁴ Electromechanical Systems Laboratory (LSELM), Electrical Engineering Department, Faculty of Technology, Badji Mokhtar University, Annaba 23000, Algeria; salah.necaibia@univ-annaba.dz

⁵ School of Engineering, Cardiff University, Cardiff CF24 3AA, UK

⁶ Electrical Engineering Department, College of Engineering, Najran University, Najran P.O. Box 1988, Saudi Arabia

⁷ Department of Electrical & Electronics Engineering, Istanbul Gelisim University, Istanbul 34310, Turkey

* Correspondence: rainawel27@gmail.com (N.R.); aldawsarisa@cardiff.ac.uk (S.A.D.); hayahya@gelisim.edu.tr (K.Y.)



CIVIL ENGINEERING

New Article on the Seismic Behavior of Reinforced Concrete Buildings Published by Assoc. Prof. Ahmad Reshad NOORI

The article titled “Comparative Seismic Analysis of Reinforced Concrete Buildings with Varied Geometry of Structural Members,” authored by Assoc. Prof. Ahmad Reshad NOORI, Chair of the Civil Engineering Department, has been published.

The study examines how the geometry of structural members influences the seismic behavior of reinforced concrete buildings. Eight different reinforced concrete building models with varying beam, column, slab, and shear wall configurations were developed and analyzed. The seismic performance of these models was evaluated according to the 2018 Turkish Seismic Code using dynamic analysis procedures implemented in SAP2000.

The analyses focused on key parameters including shear forces, inter-story drift ratios, natural vibration periods, and displacement demands. The findings indicate that even minor geometric modifications in structural elements can significantly affect the stiffness, ductility, and overall seismic response of a building.

We congratulate Assoc. Prof. Ahmad Reshad NOORI on this valuable scientific contribution and wishes him continued success in his academic research.

INTERNATIONAL JOURNAL of ENGINEERING TECHNOLOGIES-IJET
Joseph, Gure and Noori, Vol.10, No.4, 2025

Comparative Seismic Analysis of Reinforced Concrete Buildings with Varied Geometry of Structural Members

Elaudlande Joseph*, Abdulahi Mohamed Gure**, Ahmad Reshad Noori***

* Corresponding Author, Specialist, Department of Civil Engineering, Istanbul Gelisim University, Cihangir Mah. Petrol Ofisi Cad. No:3-5, J Block, 34310 Avcilar, Istanbul, Türkiye. E-mail: elaudlande.jos@gmail.com
ORCID: 0009-0007-4011-2057

** Specialist, Department of Civil Engineering, Istanbul Gelisim University, Cihangir Mah. Petrol Ofisi Cad. No: 3-5, J Block, 34310 Avcilar, Istanbul, Türkiye. E-mail: abduhiguure1122@gmail.com
ORCID: 0009-0003-0447-3550

*** Assoc. Prof. Dr., Department of Civil Engineering, Istanbul Gelisim University, Cihangir Mah. Petrol Ofisi Cad. No: 3-5, J Block, 34310 Avcilar, Istanbul, Türkiye. E-mail: arnoori@gelisim.edu.tr
ORCID: 0000-0001-6232-6303



CIVIL ENGINEERING

New Article by Asst. Prof. Sajedah Norozpour SIGAROODI Has Published

The article titled “A Novel Form of Multiplicative Gamma Function and Its Analytical Properties,” authored by Asst. Prof. Sajedah Norozpour SIGAROODI, a faculty member of the Civil Engineering Department, has been published in the Q2-ranked Journal of Function Spaces.

The study introduces a novel multiplicative gamma function formulated within the framework of multiplicative calculus, serving as a multiplicative analogue of the classical gamma function. The fundamental properties of the function, including convergence, continuity, positivity, and differentiability, are thoroughly examined. In addition, its asymptotic behavior is analyzed, revealing a more controlled growth compared to the classical gamma function.

The findings provide new opportunities for applications in fields such as multiplicative number theory, population dynamics, and information systems, where proportional changes are more appropriately modeled than additive processes. The study is expected to contribute to the theory of multiplicative special functions and support interdisciplinary applications.

We congratulate Asst. Prof. Sajedah Norozpour SIGAROODI on this valuable scientific contribution and wishes her continued success in her academic work.

Journal of Function Spaces

WILEY

RESEARCH ARTICLE **OPEN ACCESS**

A Novel Form of Multiplicative Gamma Function and Its Analytical Properties

Sajedah Norozpour¹ | Davron Aslonqulovich Juraev^{2,3,4} | Mohammed Z. Alqarni⁵ | Mohamed Abdalla⁶

¹Faculty of Architecture and Engineering, Department of Basic Sciences, Istanbul Gelisim University, Istanbul, Türkiye | ²Scientific Research Center, Baku Engineering University, Baku, Azerbaijan | ³Scientific Research Center, Institute of Military Aviation of the University of Military Security and Defense of the Republic of Uzbekistan, Qarshi, 180117, Uzbekistan | ⁴Scientific Laboratory of Dynamical Systems and Their Applications, Institute of Mathematics Uzbekistan Academy of Sciences, Tashkent, Uzbekistan | ⁵Department of Mathematics, College of Science, King Khalid University, Abha, Saudi Arabia | ⁶Mathematics Department, Faculty of Science, South Valley University, Qena, Egypt

Correspondence: Mohamed Abdalla (mohamed.abdulah@sci.svu.edu.eg)

Received: 14 October 2025 | **Revised:** 2 December 2025 | **Accepted:** 13 January 2026

Academic Editor: José M. Rodríguez

Keywords: asymptotic analysis | multiplicative calculus | multiplicative gamma function | non-Newtonian calculus | special functions



CIVIL ENGINEERING

Asst. Prof. Sajedah Norozpour SIGAROODI Appointed as Committee Member at an International Conference

Asst. Prof. Sajedah Norozpour SIGAROODI, a faculty member of the Civil Engineering Department, has been appointed as a committee member for the “2nd International Conference on Emerging Trends in Multidisciplinary Research,” which will be held in Malaysia on October 7–8.

In this significant international event that brings together researchers from various disciplines, our faculty member will contribute to the scientific content of the conference with her academic expertise and research experience.

This appointment once again highlights the active role and international visibility of our academic staff in global scientific platforms.

We congratulate Asst. Prof. Sajedah Norozpour SIGAROODI on this achievement and wishes her continued success in her academic endeavors.

**2nd International
Conference on
Emerging Trends in
Multidisciplinary
Research**



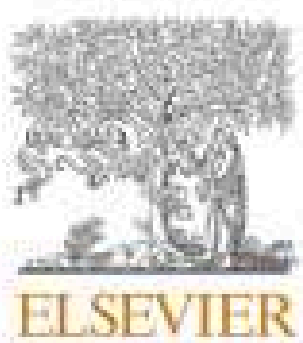
ARCHITECTURE

An article by Dr. Oluwagbemiga Paul Agboola, Assoc. Prof. Dr. Türkan Irgin Uzun, and Assoc. Prof. Dr. Hülya Soydaş Çakır has been published in Sustainable Futures.

The article titled “Harnessing Adaptive Urban Service Frameworks and Smart Technologies for Sustainable Urban Development in Rapidly Urbanising Cities,” authored by Dr. Oluwagbemiga Paul Agboola, Assoc. Prof. Türkan Irgin Uzun, and Assoc. Prof. Dr. Hülya Soydaş Çakır, was published in the Q2, Scopus- and ESCI-indexed journal Sustainable Futures, Volume 11, Issue: 101682, on 20th January 2026.

We congratulate Dr. Oluwagbemiga Paul Agboola, Assoc. Prof. Dr. Türkan Irgin Uzun, and Assoc. Prof. Dr. Hülya Soydaş Çakır on this valuable contribution and wishes them continued academic success.

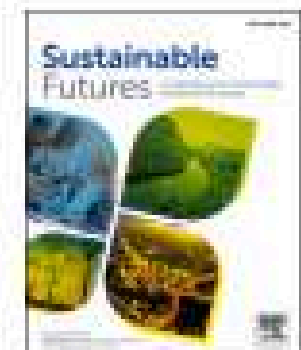
Sustainable Futures 11 (2026) 101682



Contents lists available at ScienceDirect

Sustainable Futures

journal homepage: www.sciencedirect.com/journal/sustainable-futures



Harnessing adaptive urban service frameworks and smart technologies for sustainable urban development in rapidly urbanising cities

Oluwagbemiga Paul Agboola^{a,*}, Türkan Irgin Uzun^a, Hülya Soydaş Çakır^b

^a Department of Architecture, Faculty of Engineering and Architecture, Istanbul Gelisim University, Istanbul 34310, Turkey

^b Department of Architecture, Faculty of Architecture and Design, Fenerbahçe University, Istanbul, Turkey



SHAPE THE FUTURE

IGU FEA

COORDINATORS

Prof. Dr. Bayram ÜNAL
Asst. Prof. Nurdan TÜYSÜZ
Asst. Prof. Seda ERBAYRAK

CONTENT EDITORS

Res. Asst. Betül GÖK
Res. Asst. Elif ÖZTÜRK
Res. Asst. Saim HATİPOĞLU
Res. Asst. Melis Özşahin TOKER
Res. Asst. Muhammed Lütfi TIRABZON
Res. Asst. Duygu TÜYLÜ
Res. Asst. Kemal ERTUNÇ
Res. Asst. Hasan YILDIRIM

DESIGN AND EDITING

Res. Asst. Beray İKİNCİ
Res. Asst. Sude Nur BOZİK

CONTACT

(+90) 212 422 70 00

www.mmf.gelisim.edu.tr/en/

