UMT | ORIC

Office of Research Innovation and Commercialization

NEWSLETTER

Research Innovation and Knowledge Impact

VOLUME 1 ISSUE 4

July – August 2026



MESSAGE FROM VICE PROVOST RESEARCH



The fourth edition of the UMT Research Newsletter showcases significant achievements across multiple dimensions. Key highlights include UMT's participation in a four-day training programme on Strategic Planning for Institutional Growth and Excellence, the expansion of industry–academia engagement and strategic partnerships, and the securing of a research grant from China to support advanced research laboratories and Chinese language initiatives. The edition also features internationally recognized scholarly publications that reflect the growing visibility and influence of UMT's research community. Together, these accomplishments demonstrate the University's sustained commitment to advancing knowledge, addressing national priorities, responding to global challenges, and translating research into meaningful impact. I invite you to explore the achievements presented in this edition and celebrate the dedication, creativity, and collective efforts of our faculty, researchers, students, and partners who continue to strengthen UMT's culture of research, innovation, knowledge impact, and commercialization.

PROF. DR. SAMMIA SHAHID
Vice Provost Research

ORIC-UMT ACTIVELY PARTICIPATES IN FOUR-DAY LEADERSHIP TRAINING ON STRATEGIES FOR INSTITUTIONAL GROWTH AT LCWU

The Office of Research, Innovation and Commercialization (ORIC), University of Management and Technology (UMT) actively participated in the four-day leadership development programme titled "Strategic Planning for Institutional Growth and Excellence," organized by Lahore College for Women University (LCWU) through its Faculty Development Centre (FDC) and Directorate of Faculty Development & Internationalization (DFDI), from 24 to 28 August 2026. The programme was designed for Deans, Directors, Heads of Departments, and other academic leaders to strengthen leadership capacity, institutional excellence, and collaborative growth within Pakistan's higher education sector.

The training featured a series of insightful sessions led by distinguished Vice Chancellors, covering key areas including Leading for Research, Developing ORIC for University Growth, Developing Organizational Policies and Procedures at University Level, and Managing and Leading Organizational Change. The sessions focused on strengthening research culture, enhancing research productivity and innovation, developing effective ORIC frameworks, promoting university–industry collaboration, improving institutional governance, and effectively managing organizational transformation.

Through its active participation, ORIC-UMT engaged in valuable knowledge exchange with academic and research leaders from universities across Pakistan. The training provided an important platform to share institutional best practices, explore strategies for strengthening research and innovation ecosystems, and identify opportunities for future academic and institutional collaborations.

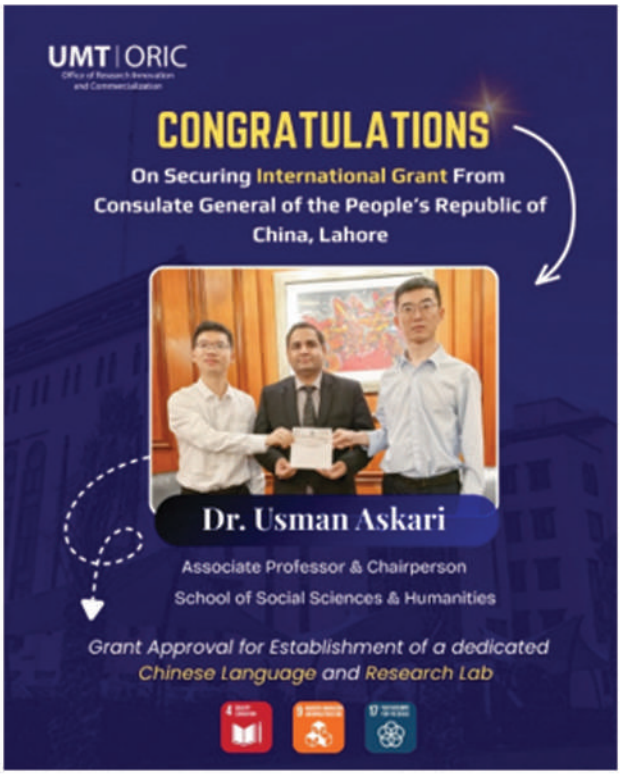


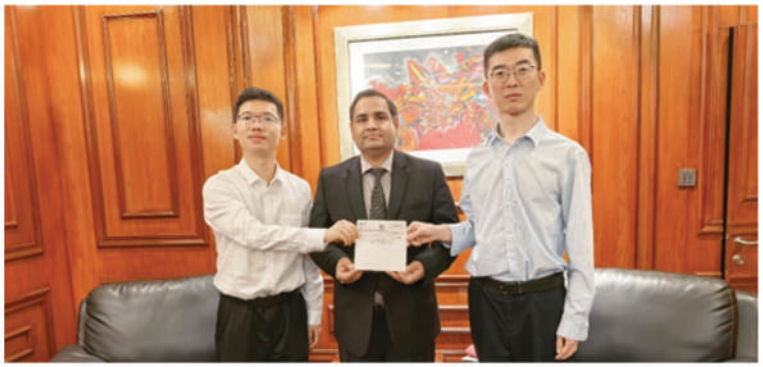


UMT FACULTY MEMBER DR. USMAN ASKARI SECURES INTERNATIONAL GRANT TO ADVANCE CHINESE LANGUAGE AND RESEARCH

The Office of Research, Innovation and Commercialization (ORIC), University of Management and Technology (UMT), proudly congratulates **Dr. Usman Askari, Associate Professor and Chairperson, School of Social Sciences & Humanities**, Department of Political Science & International Relations (DPSIR), on securing an **international grant from the Consulate General of the People's Republic of China, Lahore.** The grant supports the **establishment of a dedicated Chinese Language and Research Lab at UMT**, strengthening academic collaboration, Chinese language education, research capacity, and Pakistan–China knowledge partnerships.

The initiative aims to enhance students' **language and cross-cultural competencies**, and improve the **global competitiveness and employability of UMT graduates**. Equipped with modern technology, multimedia resources, interactive learning tools, and research materials, the lab will create new opportunities for **language learning, international research, and academic exchange.**







STRENGTHENING INDUSTRY–ACADEMIA LINKAGES THROUGH UMT REPRESENTATION IN LCCI COMMITTEES

ORIC continued strengthening university–industry linkages by facilitating UMT faculty participation in relevant committees of the Lahore Chamber of Commerce & Industry (LCCI). These forums provide opportunities for engagement with industry, academia, research organizations, and professional bodies on collaborative research, commercialization, innovation, policy reform, and industry needs.

Dr. Muhammad Ali, Associate Professor, Department of Life Sciences, School of Science, UMT, represented UMT in the LCCI Standing Committee on Industry & Universities Relations and the Standing Committee on Industry–Academia Linkage. During July and August 2026, UMT participated in four committee meetings, covering areas including alternative energy, commercialization of university research, policy reforms, and due-diligence and KYC guidelines for sensitive dual-use equipment and reagents. Discussions also focused on preparations for the Vice Chancellors' Conference and a national workshop.

Through these engagements, ORIC is enhancing UMT's connectivity with the business and industrial community, creating opportunities for joint research, industry-funded projects, consultancy, technology transfer, commercialization, professional networking, and collaborative capacity building, while aligning university research and innovation with emerging industry needs.



The list of LCCI committee engagements are as follows:

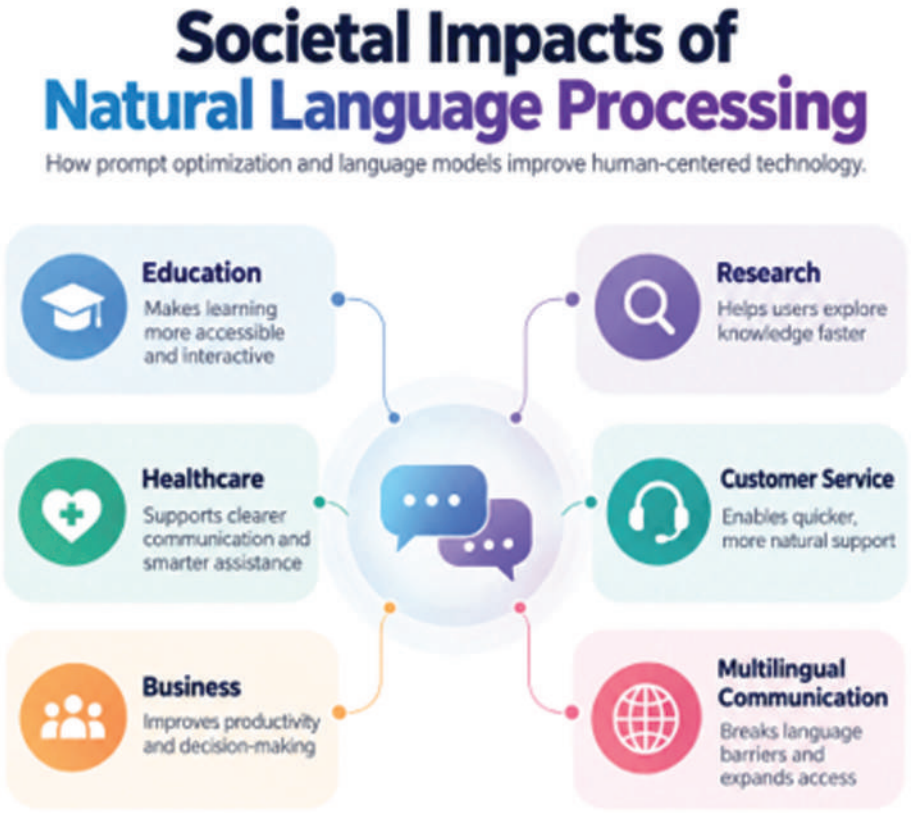
Sr. No.	LCCI Committee	Date	Key Areas Discussed
1	Standing Committee on Industry–Academia Linkage	8 July 2026	Alternative energy collaboration, commercialization of university research and innovation, policy reform for higher education
2	Standing Committee on Industry and Universities Relations	11 July 2026	Committee plan of action, training/awareness on sensitive dual-use equipment and due-diligence practices
3	Standing Committee on Industry and Universities Relations	8 August 2026	KYC and due-diligence guidelines for dual-use equipment/reagents; Vice Chancellors' Conference arrangements
4	Standing Committee on Industry and Universities Relations	29 August 2026	Planning of Vice Chancellors' Conference and national workshop on KYC and due-diligence practices

PUBLICATION SPOTLIGHT: UMT FACULTY PUBLISH HIGH-IMPACT RESEARCH IN LEADING INTERNATIONAL JOURNALS



The evolution of natural language processing: How prompt optimization and language models are shaping the future

(IMPACT FACTOR: 17.5)

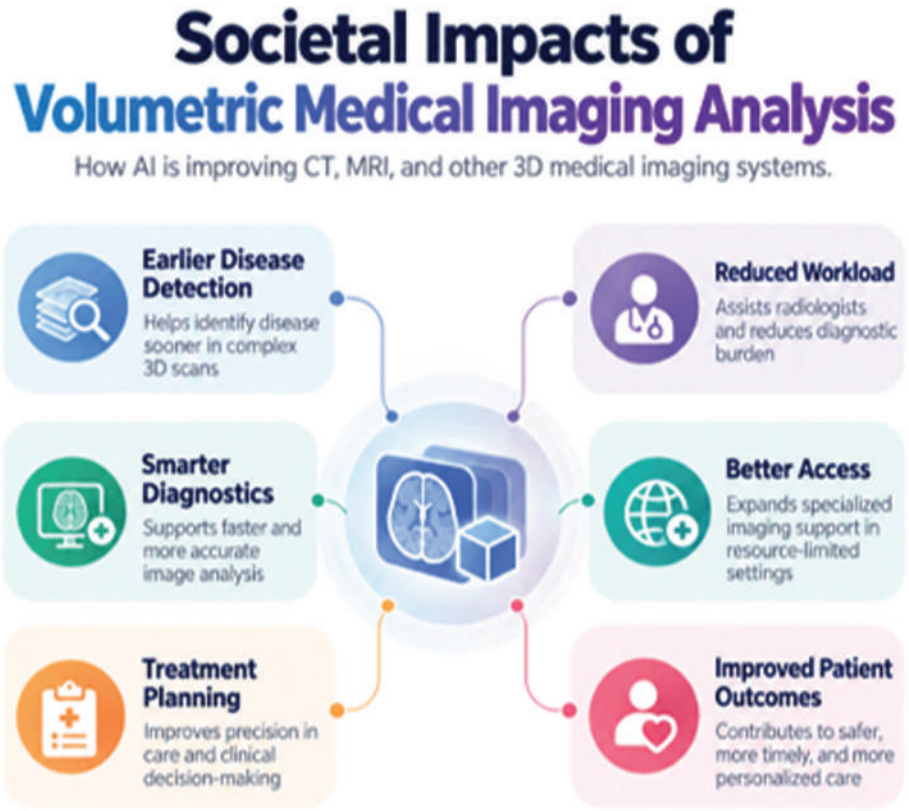


Saleem, S., Asim, M. N., Zulfiqar, S., & Dengel, A. (2026). The evolution of natural language processing: How prompt optimization and language models are shaping the future. Computer Science Review, 61, 100938.

This research has significant societal impacts by advancing Natural Language Processing (NLP) and improving how humans interact with artificial intelligence through optimized prompts and increasingly capable language models. Better NLP systems can make digital technologies more accessible, supporting education, healthcare, business, research, customer services, and multilingual communication by enabling more accurate and natural interactions with machines. At the same time, understanding the evolution of language models can guide responsible AI development, encouraging greater attention to accuracy, bias, transparency, and ethical use.

A Comprehensive Review Tracing the Evolution of Volumetric Medical Imaging Analysis from Classic CNNs to Emerging AI-Agents

(IMPACT FACTOR: 12.9)

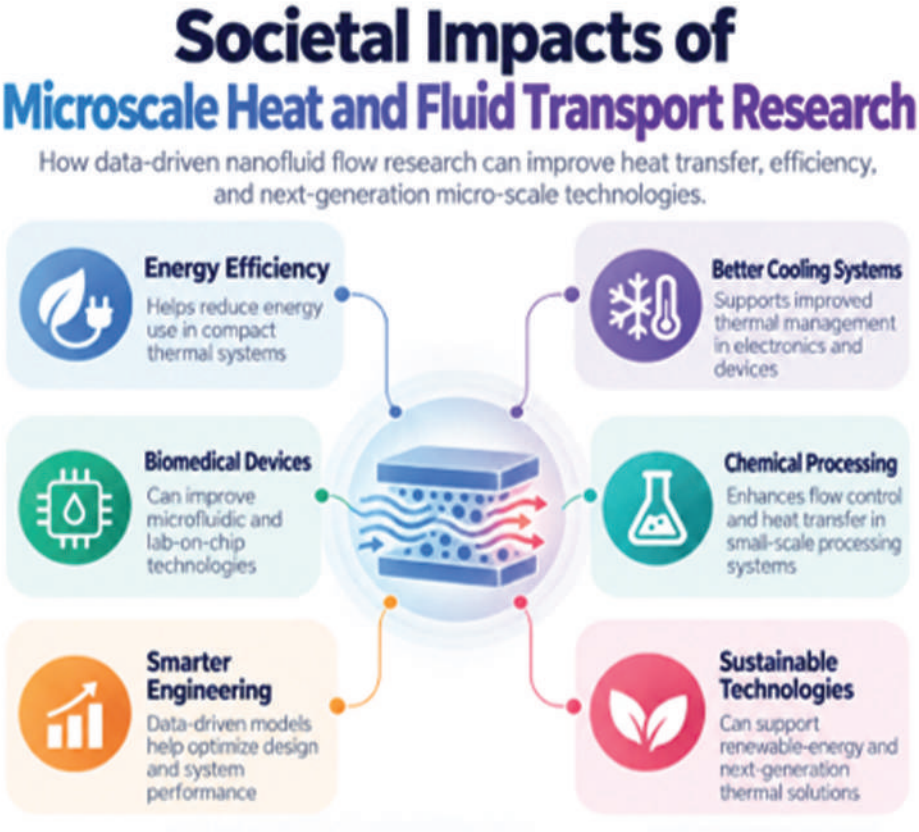


Owais, M., Zubair, M., Abdul Kareem, D. N., Naseer, S. A., Alam, M., Ahmad, M., & Hussain, I. (2026). A comprehensive review tracing the evolution of volumetric medical imaging analysis from classic CNNs to emerging AI-agents. Archives of Computational Methods in Engineering, 1-51.

This research has significant societal impacts by advancing the use of artificial intelligence in volumetric medical imaging, helping improve the analysis of complex 3D scans such as CT, MRI, and other diagnostic images. By tracing the evolution from classic CNNs to emerging AI-agent approaches, the review can support the development of faster, more accurate, and potentially more personalized diagnostic systems. These advances may help healthcare professionals detect diseases earlier, reduce diagnostic workload, improve treatment planning, and make medical imaging more efficient. AI-assisted imaging can also contribute to expanding access to specialized diagnostic support, particularly in resource-limited settings.

Data-driven analysis of MHD electroosmotic peristaltic transport of Carreau–Yasuda nanofluid in porous microchannels for heat transfer enhancement

(IMPACT FACTOR: 9.2)

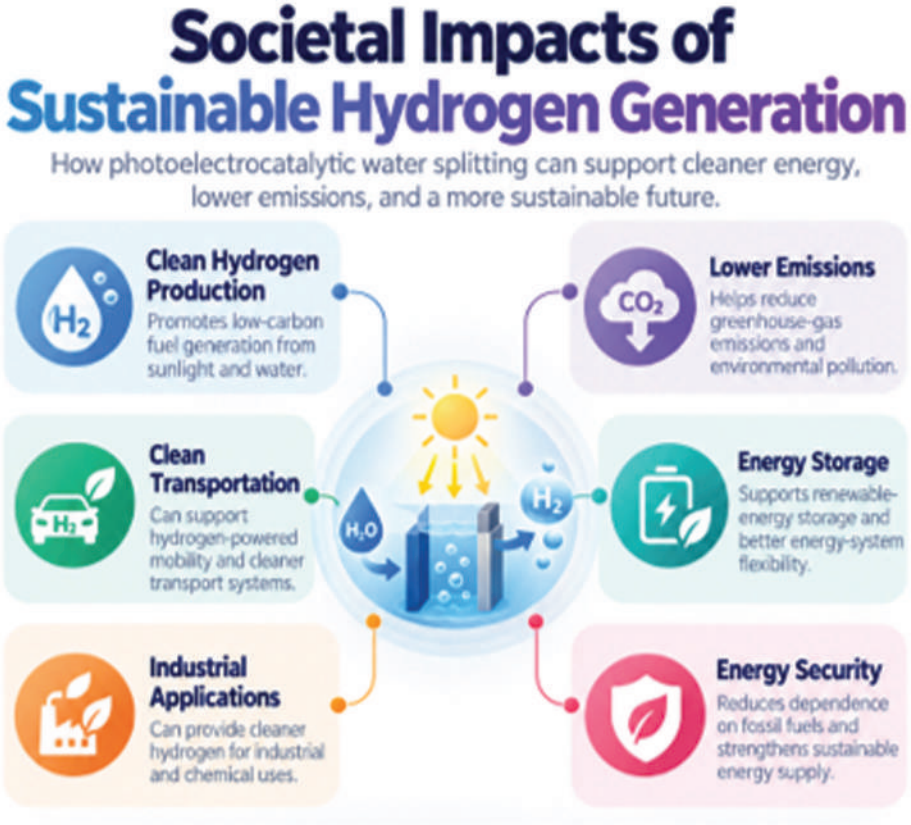


Rehman, S. U., Hassan, I., Jari, H., Azyabi, A., Alshehery, S., & Dallak, A. M. (2026). Data-driven analysis of MHD electroosmotic peristaltic transport of Carreau–Yasuda nanofluid in porous microchannels for heat transfer enhancement. International Journal of Hydrogen Energy, 264, 156819.

This research has significant societal impacts by advancing efficient heat and fluid transport at the microscale, with potential applications in microfluidic devices, biomedical systems, cooling technologies, and advanced energy systems. By studying MHD electroosmotic peristaltic flow of Carreau–Yasuda nanofluids in porous microchannels, the research can help optimize heat transfer, improve thermal management, and reduce energy requirements in compact systems. Such advances may support more efficient medical lab-on-chip devices, electronic cooling systems, chemical processing, and renewable-energy technologies. The data-driven approach can further improve prediction and system optimization, contributing to smarter engineering solutions.

Sustainable energy generation: Cu-α-Mno2 coupled with SGCN: A breakthrough in photoelectrocatalysis for overall water splitting

(IMPACT FACTOR: 9.2)

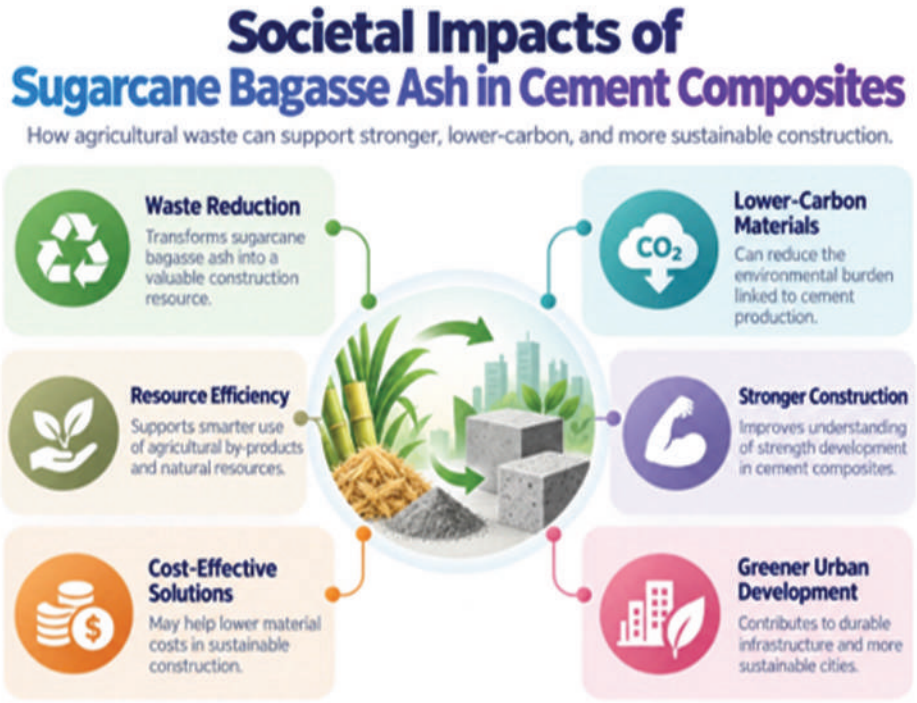


Maryam, S., Javed, M., Aroosh, K., Mansoor, S., Khalid, H. D., Manzoor, F., ... & Abdelmohsen, S. A. (2026). Sustainable energy generation: Cu-α-Mno2 coupled with SGCN: A breakthrough in photoelectrocatalysis for overall water splitting. International Journal of Hydrogen Energy, 258, 156574.

This research has significant societal impacts by advancing clean and sustainable hydrogen production through photoelectrocatalytic overall water splitting. The Cu-α-MnO_2 coupled with SGCN system may improve the efficiency of converting solar energy and water into hydrogen, offering a promising pathway toward low-carbon fuel generation. More efficient hydrogen production could support clean transportation, renewable energy storage, industrial applications, and reduced dependence on fossil fuels, helping lower greenhouse-gas emissions and environmental pollution. The development of efficient and potentially scalable photocatalytic materials can also accelerate innovation in renewable-energy technologies, contributing to energy security, a cleaner environment, and a more sustainable energy future.

Multiscale effects of sugarcane bagasse ash on strength development, shrinkage, and early-age creep in cement composites

(IMPACT FACTOR: 8.9)

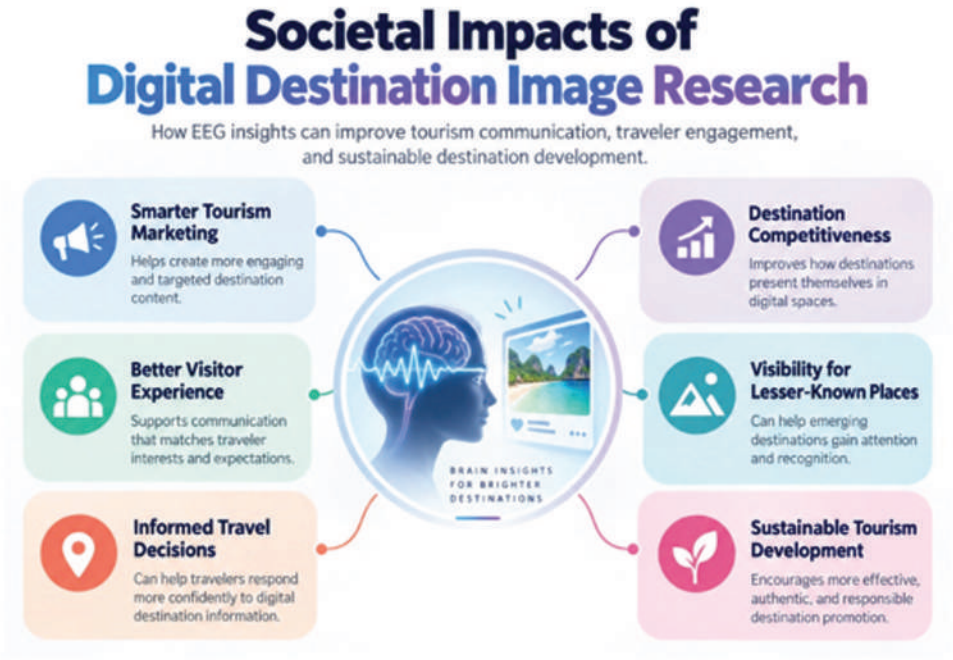


Rashid, K., Irfan-ul-Hassan, M., Fatima, M., Alinizzi, M., Shafiquzzaman, M., & Haider, H. (2026). Multiscale effects of sugarcane bagasse ash on strength development, shrinkage, and early-age creep in cement composites. Construction and Building Materials, 532, 146770.

This research has significant societal impacts by promoting the sustainable use of sugarcane bagasse ash (SBA) as a supplementary material in cement composites, transforming an agricultural waste product into a valuable construction resource. By improving understanding of how SBA affects strength development, shrinkage, and early-age creep, the study can support the production of more durable and potentially lower-carbon construction materials while reducing agricultural waste and the environmental burden associated with cement production. Its application could help lower material costs, conserve natural resources, and encourage circular-economy practices in the construction industry. Ultimately, this research contributes to greener infrastructure, waste reduction, resource efficiency, and more sustainable urban development.

Mapping the mind: evaluating digital destination images with EEG technique

(IMPACT FACTOR: 8.6)

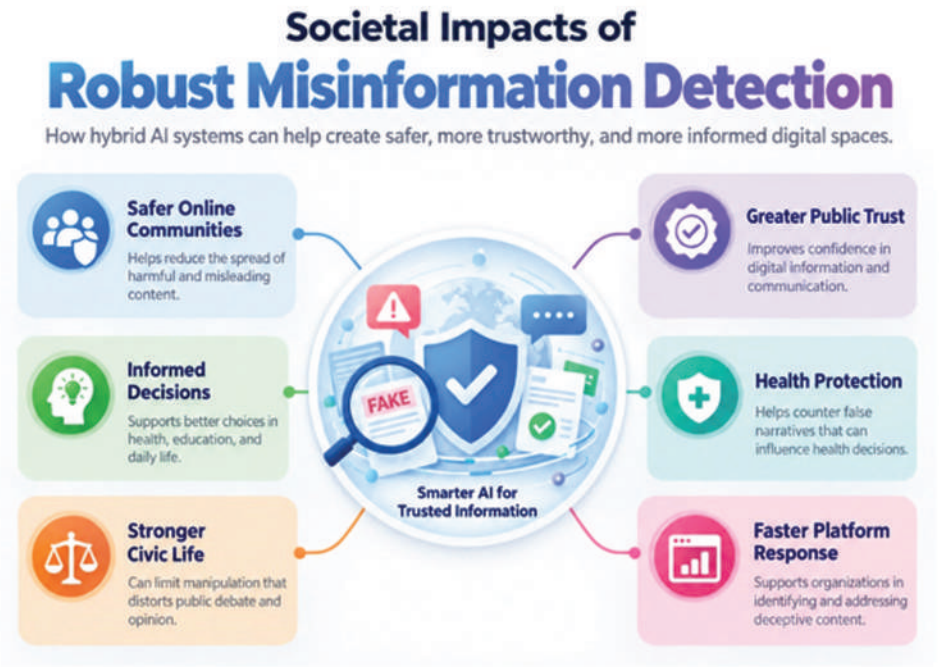


Sultan, A., Syed, S., & Shah, S. R. H. (2026). Mapping the mind: evaluating digital destination images with EEG technique. Information Technology & Tourism, 28(2), 50.

This research has significant societal impacts by providing deeper insight into how people emotionally and cognitively respond to digital destination images using EEG technology. By identifying the brain responses associated with different tourism visuals, the study can help destinations and tourism organizations design more engaging, authentic, and responsible digital content that better reflects travelers' interests and expectations. These insights can support smarter tourism marketing, improved visitor experiences, destination competitiveness, and more informed travel decisions, while potentially helping lesser-known destinations gain visibility. More broadly, the integration of neuroscience and tourism research demonstrates how emerging technologies can improve human-centered communication and contribute to more effective and sustainable tourism development.

A Hybrid Multi-Representation Fusion Framework for Robust Misinformation Detection

(IMPACT FACTOR: 8.4)

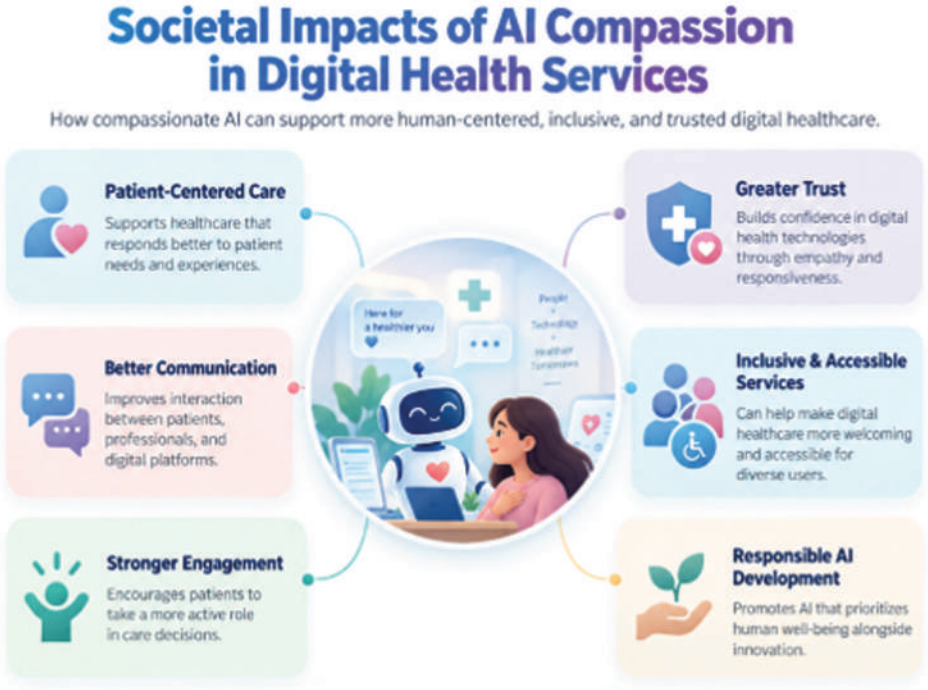


Abdullah, Ather, M. A., Sardar, K., Fatima, Z., Sidorov, G., Sánchez-Mejorada, C. G., ... & Ruiz, M. J. T. (2026). H-FuseNet: A Hybrid Multi-Representation Fusion Framework for Robust Misinformation Detection. Machine Learning and Knowledge Extraction, 8(7), 205.

This research has significant societal impacts by improving the ability to identify and combat misinformation and misleading content across digital platforms. A hybrid multi-representation fusion framework can combine different forms of information to make misinformation detection more robust, helping reduce the spread of false or harmful narratives that can influence public opinion, health decisions, social relationships, and civic life. More reliable detection can support safer online communities, greater public trust in digital information, and more informed decision-making while helping platforms and organizations respond to deceptive content more effectively.

How AI compassion drives co-creation in digital health services

(IMPACT FACTOR: 8.1)

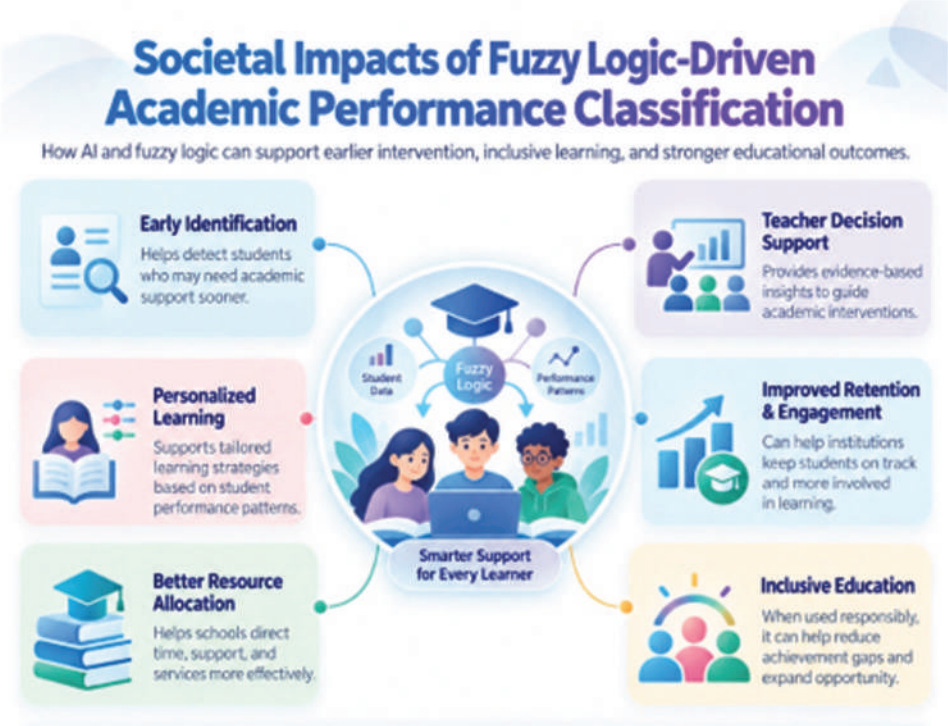


Latif, M. S., Li, G., Bokhari, I. H., & Hasan, M. M. (2026). How AI compassion drives co-creation in digital health services. The Service Industries Journal, 1-29.

This research has significant societal impacts by exploring how compassionate artificial intelligence can improve collaboration and co-creation in digital health services. By enabling AI systems to respond more empathetically to patients' needs, concerns, and experiences, the approach can support more human-centered healthcare and strengthen patient engagement in decisions about their care. It may help improve communication between patients, healthcare professionals, and digital health platforms, leading to more personalized services, greater trust in healthcare technologies, and better user experiences. Ultimately, research into AI compassion can contribute to more inclusive, accessible, and patient-centered digital healthcare, while encouraging responsible AI development that prioritizes human well-being alongside technological innovation.

A fuzzy logic-driven machine learning framework for multi-class classification of students academic performance

(IMPACT FACTOR: 8.0)



Sultan, M., Akram, M., Habib, S., & Kahraman, C. (2026). A fuzzy logic-driven machine learning framework for multi-class classification of students academic performance. Knowledge-Based Systems, 116158.

This research has significant societal impacts by enabling earlier, more accurate, and data-driven identification of students' academic performance levels. By combining fuzzy logic with machine learning for multi-class classification, the framework can help educators identify students who may need additional academic support, personalize learning strategies, and allocate educational resources more effectively. It can also assist institutions in developing evidence-based interventions to improve student retention, engagement, and learning outcomes. When implemented responsibly and with appropriate safeguards against bias, such systems can promote more inclusive education, reduce achievement gaps, support teachers' decision-making, and help students reach their full academic potential, ultimately contributing to a stronger and more equitable education system.

Symmetrical behaviors based on order relations in advanced fuzzy soft sets for optimization and collaborative solutions

(IMPACT FACTOR: 7.8)

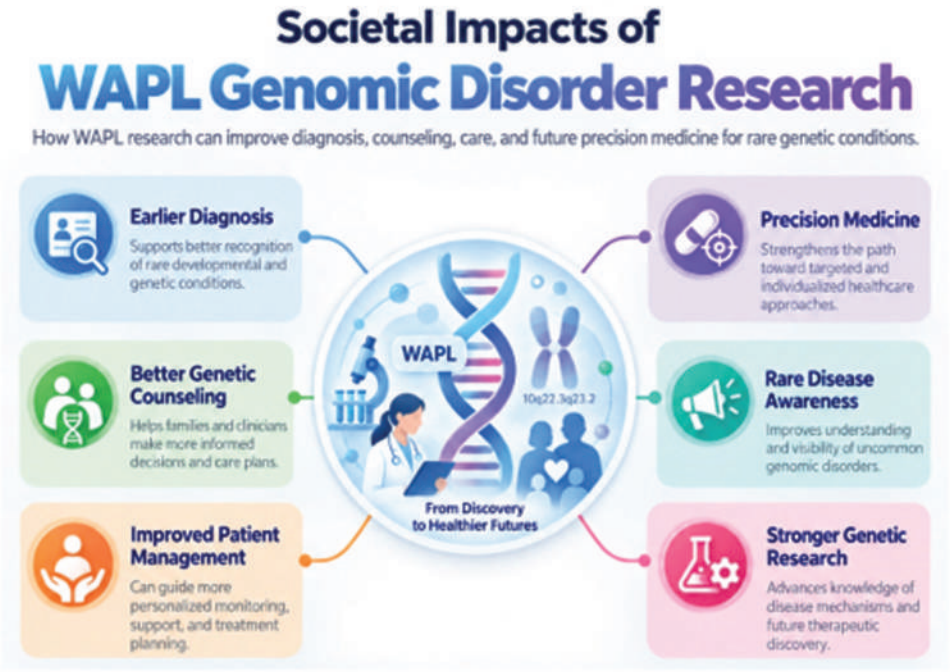


Wasim, A., Saeed, M., Saeed, M. H., Deveci, M., Mohammed, M. A., & Tomášková, H. (2026). Symmetrical behaviors based on order relations in advanced fuzzy soft sets for optimization and collaborative solutions. Applied Soft Computing, 115180.

This research has potential societal impacts by improving decision-making and optimization under uncertainty, particularly in situations where information is incomplete, ambiguous, or subject to different interpretations. Advanced fuzzy soft sets and order-based approaches can provide more flexible mathematical tools for solving complex real-world problems involving multiple criteria and stakeholder preferences. Their potential applications include healthcare planning, resource allocation, environmental management, engineering, business strategy, and collaborative decision-making, where selecting the best solution can be challenging. By supporting more systematic and reliable analysis of uncertain information, the research can contribute to better resource utilization, more transparent decisions, and innovative solutions to complex societal and organizational challenges.

Clinical, in vitro, and in vivo evidence of WAPL as a cohesinopathy-associated gene and phenotypic driver of 10q22. 3q23. 2 genomic disorder

(IMPACT FACTOR: 7.7)



Boone, P. M., Erdin, S., Mohamed, A., Haghshenas, S., Faour, K. N., Kao, E., ... & Pfeifer, K. E. (2026). Clinical, in vitro, and in vivo evidence of WAPL as a cohesinopathy-associated gene and phenotypic driver of 10q22. 3q23. 2 genomic disorder. The American Journal of Human Genetics.

This research has significant societal impacts by improving understanding of WAPL as a cohesinopathy-associated gene and its role in genomic disorders affecting human development and health. By combining clinical, in vitro, and in vivo evidence, the study can help researchers and healthcare professionals better understand the genetic mechanisms underlying rare developmental conditions, potentially supporting earlier diagnosis, more accurate genetic counseling, and improved patient management. Identifying WAPL as a phenotypic driver may also contribute to the development of future targeted therapies and personalized healthcare approaches. More broadly, the research strengthens knowledge of genomic disorders, supports families affected by rare genetic conditions, and advances precision medicine and genetic research aimed at improving health outcomes and quality of life.

Stiffness characterisation of lattice joints with CHS chords and longitudinal branch plates

(IMPACT FACTOR: 7.6)

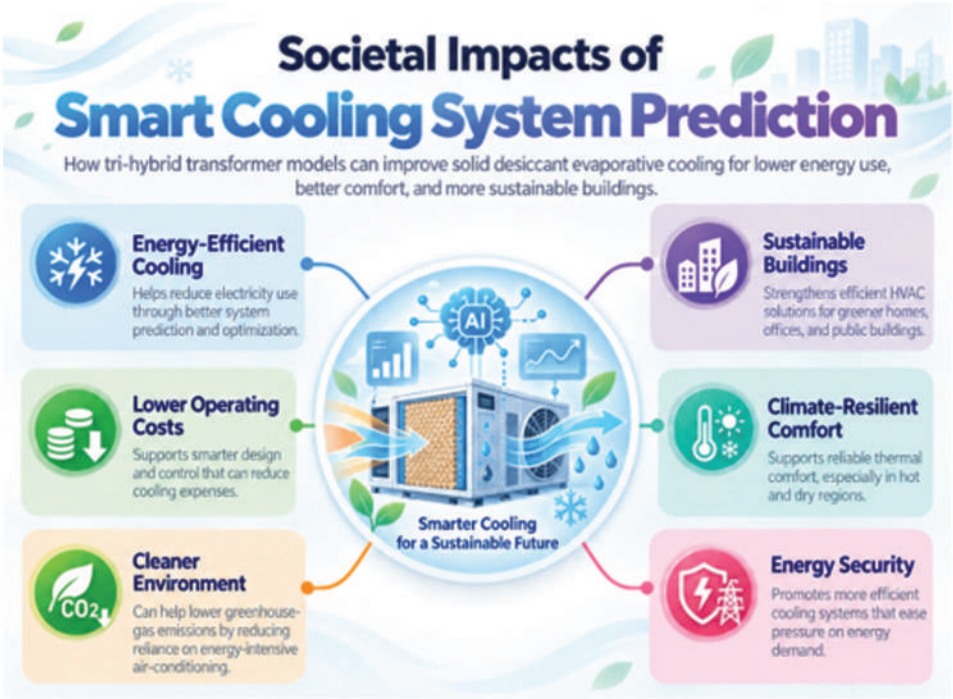


Ajwad, A., Di Benedetto, S., Latour, M., & Rizzano, G. (2026). Stiffness characterisation of lattice joints with CHS chords and longitudinal branch plates. Engineering Structures, 359, 122755.

This research has significant societal impacts by improving the safety, reliability, and efficiency of steel structures through a better understanding of stiffness in lattice joints with CHS (Circular Hollow Section) chords and longitudinal branch plates. More accurate characterization of these connections can support engineers in designing stronger and more economical structures such as bridges, towers, industrial facilities, and energy infrastructure, while reducing the risk of structural failure and improving public safety. The findings can also help optimize material use, potentially lowering construction costs and environmental impacts associated with excessive steel consumption.

Tri-hybrid transformer framework for multi-target performance prediction of solid desiccant evaporative cooling systems

(IMPACT FACTOR: 7.5)

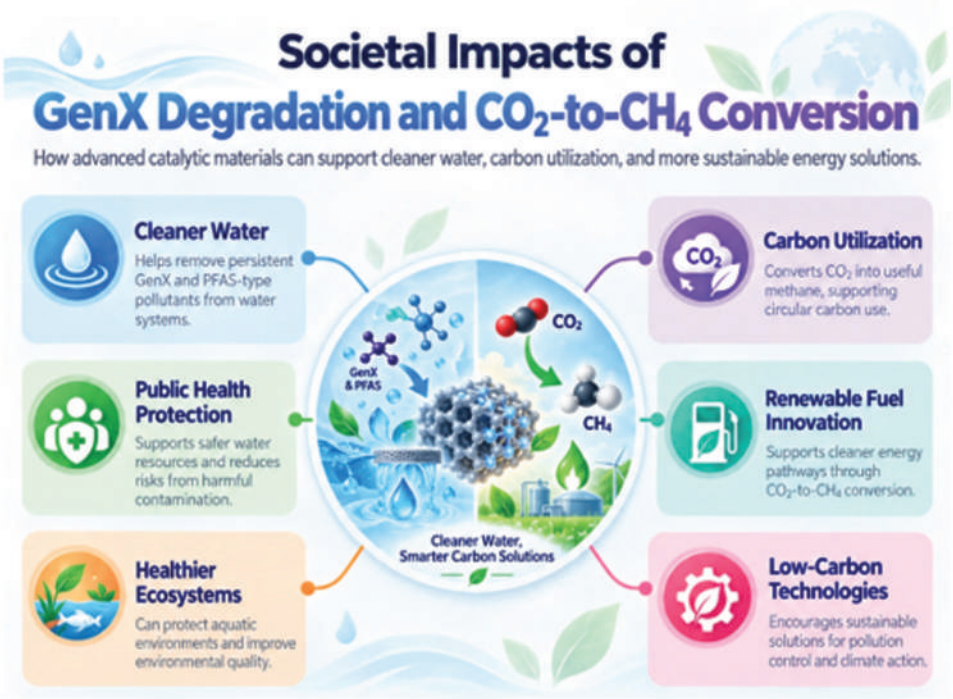


Al-Sameai, H., Ullah, S., Saleh, R. A., Ghaleb, M., Nasir, T., Arıcı, M., ... & Ali, M. (2026). Tri-hybrid transformer framework for multi-target performance prediction of solid desiccant evaporative cooling systems. Applied Thermal Engineering, 131967.

This research has significant societal impacts by advancing energy-efficient and sustainable cooling technologies through improved performance prediction of solid desiccant evaporative cooling systems. The tri-hybrid transformer framework can help optimize multiple system performance parameters simultaneously, enabling more accurate design, operation, and control of cooling systems while reducing energy consumption and operational costs. Such advancements can support energy-efficient buildings, climate-resilient cooling, and sustainable HVAC solutions, particularly in hot and dry regions where cooling demand is high. By reducing dependence on conventional energy-intensive air-conditioning and potentially lowering associated greenhouse-gas emissions, the research contributes to cleaner environments, improved thermal comfort, energy security, and more sustainable urban development.

Synergistic Biopolymeric Z-Scheme Zn0. 8Fe0. 1Co0. 1O/GGAC/γ-Al2O3/CeO2/α-MoO3 heterojunction with synergistic redox sites and oxygen vacancies for efficient GenX degradation and CO2-to-CH4 conversion

(IMPACT FACTOR: 7.1)

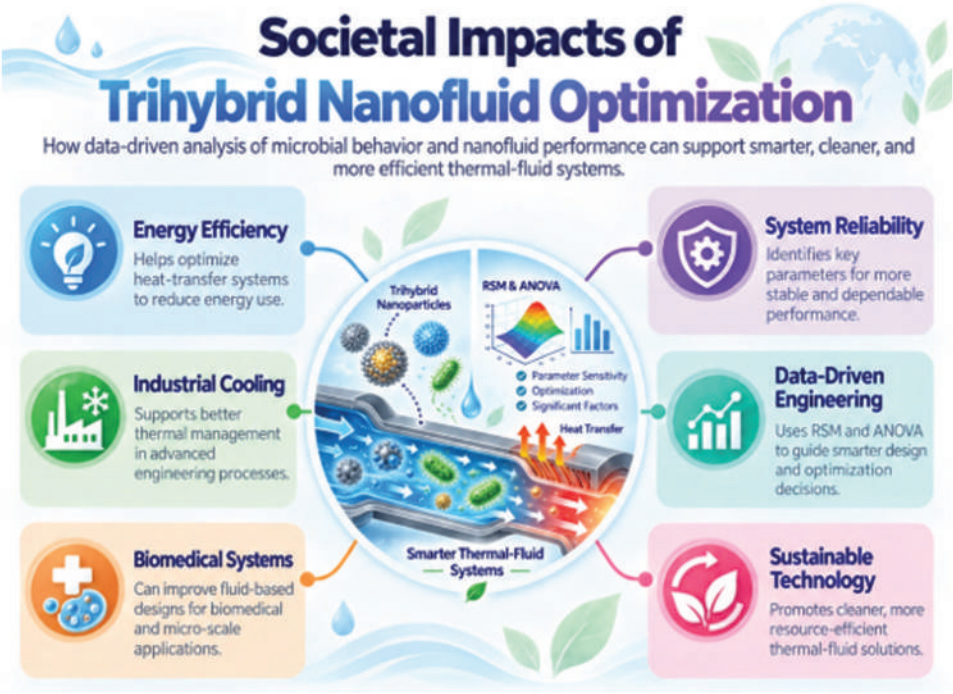


Ghaffar, A., Farooq, U., Noor, H., Khan, M. E., Fatima, K., Ali, S. K., ... & Alzahrani, A. (2026). Synergistic Biopolymeric Z-Scheme Zn0. 8Fe0. 1Co0. 1O/GGAC/γ-Al2O3/CeO2/α-MoO3 heterojunction with synergistic redox sites and oxygen vacancies for efficient GenX degradation and CO2-to-CH4 conversion. Journal of Industrial and Engineering Chemistry.

This research has significant societal impacts by addressing two major environmental challenges: persistent water pollution and greenhouse-gas emissions. The engineered heterojunction can support the efficient degradation of GenX, a persistent per- and polyfluoroalkyl substance (PFAS) contaminant, helping protect water quality, aquatic ecosystems, and public health. At the same time, its ability to convert CO_2 into methane offers a potential pathway for carbon utilization and renewable-fuel production, supporting efforts to reduce atmospheric carbon emissions and develop cleaner energy technologies.

Sensitivity analysis of microbial characteristics of trihybrid carreau nanofluid using response surface methodology and ANOVA

(IMPACT FACTOR: 6.7)

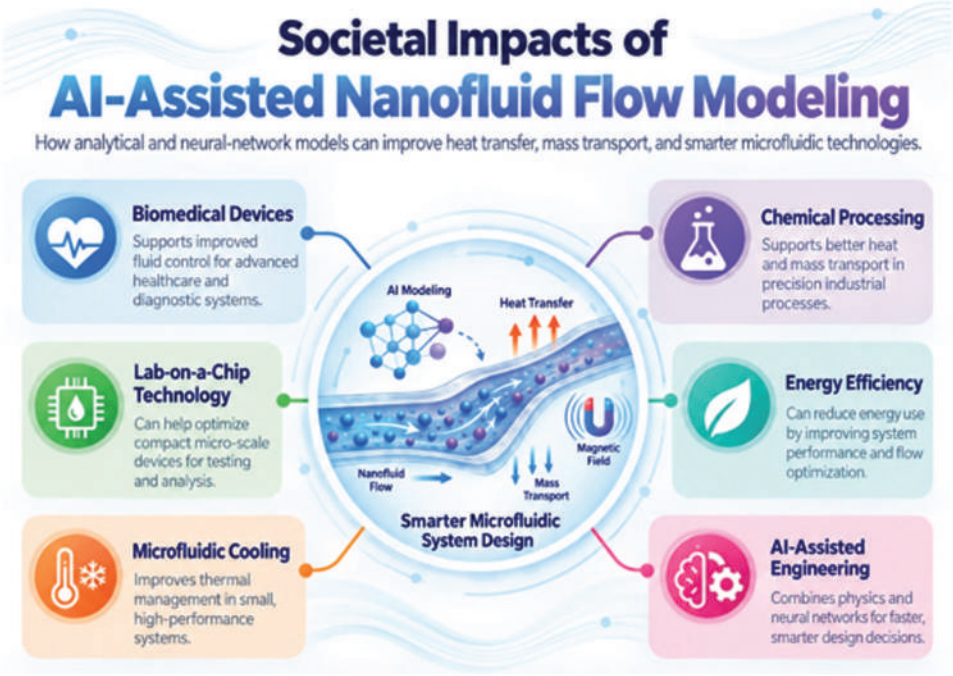


Saleem, S., Almutairi, S., Shabir, M. A., Shakoor, B., Saleem, M., Shahzadi, A., & Ghallab, A. S. (2026). Sensitivity analysis of microbial characteristics of trihybrid carreau nanofluid using response surface methodology and ANOVA. Discover Nano, 21(1), 391.

This research has potential societal impacts by improving the understanding and optimization of microbial characteristics in advanced trihybrid Carreau nanofluids, which can support the development of more efficient fluid and heat-transfer systems. By using response surface methodology and ANOVA to identify influential parameters and optimize performance, the study can help reduce energy consumption, improve system reliability, and minimize resource use in applications such as thermal management, industrial cooling, biomedical systems, and advanced engineering processes. Better optimization of nanofluid-based technologies may also support cleaner and more sustainable industrial operations.

Analytical and artificial neural network modeling of double-diffusive magnetized electroosmotic ellis nanofluid flow through a tapered non-uniform channel

(IMPACT FACTOR: 6.7)

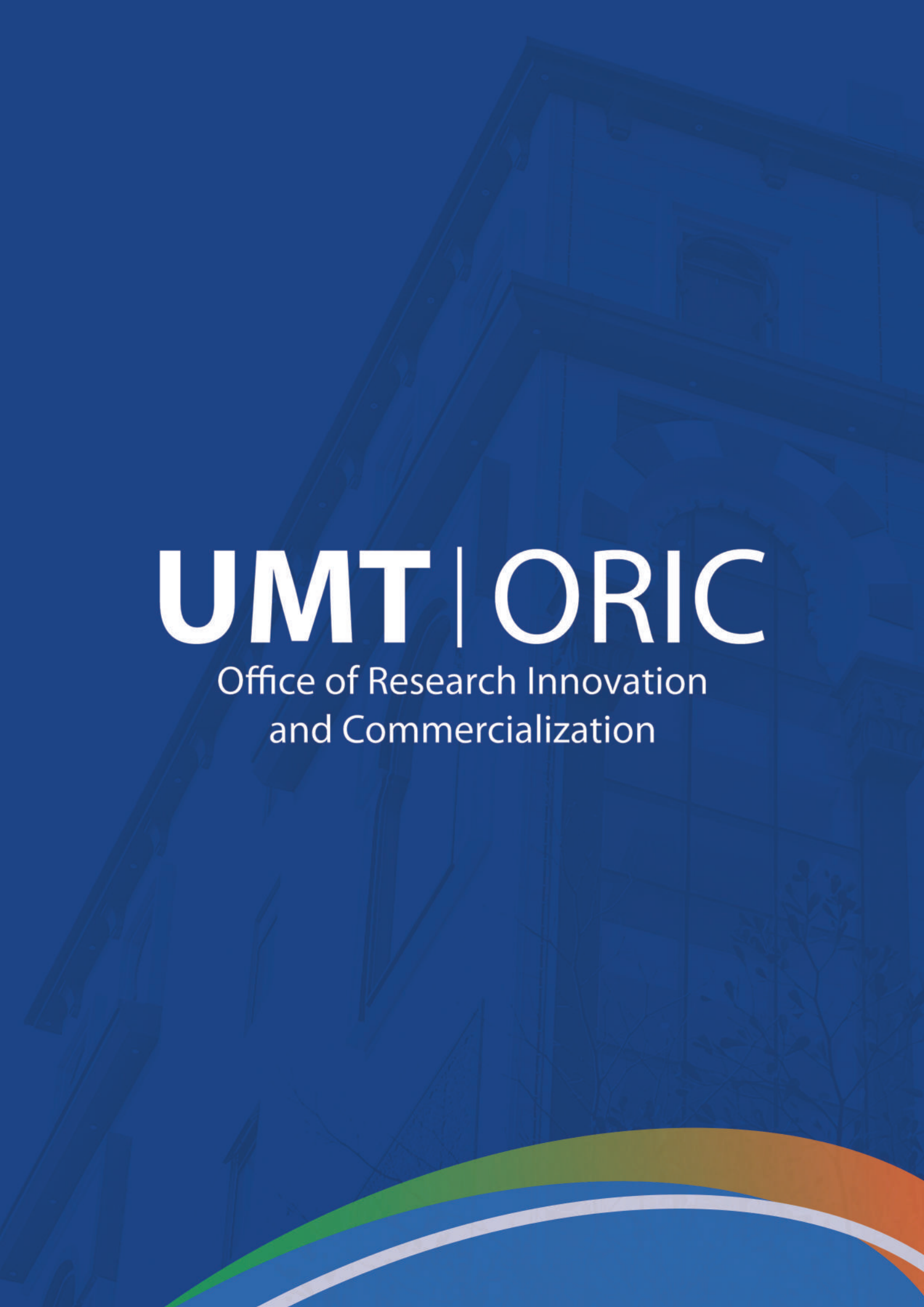


Rehman, S. U., Hadidi, H. M., Jari, H., Azyabi, A., Alshehery, S., Sado, A. E., & Dallak, A. M. (2026). Analytical and artificial neural network modeling of double-diffusive magnetized electroosmotic ellis nanofluid flow through a tapered non-uniform channel. Discover Nano, 21(1), 413.

This research has potential societal impacts by improving the understanding and prediction of complex nanofluid flow, heat transfer, and mass transport in magnetized electroosmotic systems. The combination of analytical modeling and artificial neural networks can enable faster and more accurate optimization of microscale fluid systems, with potential applications in biomedical devices, lab-on-a-chip technologies, microfluidic cooling, chemical processing, and energy systems. Improved control of heat and mass transfer can enhance energy efficiency, system performance, and resource utilization while reducing computational and operational costs.

KEY HIGHLIGHTS OF 2 MONTHS




UMT | ORIC
Office of Research Innovation
and Commercialization