

The IEICE Poster Competition

On October 22, 2024, the IEICE Indonesia Section, in collaboration with the Department of Electrical and Information Engineering, Universitas Gadjah Mada, hosted an international conference and student poster competition session. This event provided an excellent platform for students, researchers, and professionals to exchange ideas, discuss advancements, and explore collaboration opportunities within fields critical to Indonesia's technological growth. The event focused on the themes of smart cities and digital transformation, both of which are essential to building sustainable, human-centered urban environments and fostering Indonesia's digital future.

The conference featured insightful presentations from prominent experts in their respective fields. Prof. Dr. Ir. Suhono H. Supangkat opened the conference with a presentation on the evolving concept of smart cities, emphasizing a shift from technology-centric to more human-centered designs. His discussion focused on the Cognitive City Platform, a technological infrastructure combining artificial intelligence, big data analytics, and cloud computing to support sustainable, responsive urban solutions. Prof. Suhono also introduced the Smart-X paradigm, a framework applied across domains like smart buildings, energy, and maritime, aimed at improving urban life through a cycle of sensing, understanding, and acting on data. An innovative component of Prof. Suhono's presentation was the Living Lab model, a participatory approach developed by the Smart City and Community Innovation Center (SCCIC) at ITB. This model engages community members directly in creating urban solutions, allowing for innovations such as the Smart Waste Bin and Road Anomaly Detection System to enhance waste management and road safety. He also addressed challenges in digital interaction, underscoring the importance of trust in digital society to facilitate effective digital transformation.

Following Prof. Suhono, Prof. Ir. Lukito Edi Nugroho, M.Sc., Ph.D., presented on the foundational aspects of digital transformation through innovation, integration, and convergence. His talk emphasized the transformative role of digital technologies in enhancing customer experiences, operational efficiency, data-driven decision-making, and sustainability. Prof. Lukito highlighted successful Indonesian examples, such as Gojek, Telkom Indonesia, and Jakarta Smart City, which have embraced digital technologies to drive growth and efficiency. He also discussed the challenges unique to Indonesia, where digital transformation strategies must be tailored to meet the diverse needs of each region. Recognizing variations in infrastructure, economic growth, and ICT access, he advocated for locally adapted approaches to ensure that digital transformation benefits communities across Indonesia.

The final presentation was delivered by Prof. Kenzo Takahashi, an IEICE member, who joined the conference via Zoom. Prof. Takahashi discussed IEICE's academic initiatives and international outreach efforts, showcasing IEICE's dedication to fostering global research collaborations, sharing knowledge, and providing platforms for international academic exchange. His participation underscored IEICE's role as a bridge connecting researchers worldwide and emphasized the value of collaborative networks in advancing knowledge across borders.

An integral part of the conference was the student poster competition session, featuring 22 finalists who presented their research across various topics. This session provided an invaluable opportunity for young researchers to showcase their work, receive feedback from

academic experts, and engage with an international audience. By encouraging academic growth and fostering connections, the poster competition session highlighted the importance of nurturing the next generation of researchers.

This conference exemplified the value of international collaboration in addressing complex technological challenges and harnessing new opportunities. The event provided participants with valuable insights and highlighted the role of organizations like IEICE in advancing research and fostering international partnerships to promote growth and innovation.

The international conference and student poster competition session have successfully demonstrated the potential for collaborative efforts to drive technological progress and address challenges. By bringing together academics, industry experts, and students, the event reinforced the importance of diverse perspectives in advancing knowledge and innovation. Building on the success of this conference, IEICE and the Department of Electrical and Information Engineering at Universitas Gadjah Mada anticipate future events that will continue to promote global knowledge exchange and sustainable development. As a testament to its impact, the achievements of this conference will also be shared at the upcoming IEICE All Sections Meeting (ASM) in November, where the report will serve as a valuable contribution to the discussion on fostering international collaboration and shaping the future of IEICE's initiatives.

The Winners of Poster Competition are:

- 1st Place: Optimizing Image Quality and Diagnostic Accuracy in Impedance Tomography with Gastric Phantom
- 2nd Place: Comparison of Ship Tracking Algorithms on Dual Overlapping High Frequency Surface Wave Radars
- 3rd Place: Investigation of The Effect of Roller Pump Geometry and Speed on Pulsation in Dialysis Tube



Alternative (a briefer version):

On October 22, 2024, the IEICE Indonesia Section, in partnership with the Department of Electrical and Information Engineering at Universitas Gadjah Mada, hosted an inspiring international conference and student poster competition. This dynamic event drew together students, researchers, and industry professionals to foster rich discussions, fresh perspectives, and new collaboration opportunities in the critical areas of smart cities and digital transformation. Designed to address Indonesia's technological future, the conference served as a significant platform for meaningful dialogue and innovation that will undoubtedly influence the nation's path toward sustainable, human-centered urban development.

The conference launched with a keynote by Prof. Dr. Ir. Suhono H. Supangkat, whose insights on "Cognitive Cities" showcased a bold shift from traditional smart city models to human-focused, responsive urban designs. He introduced groundbreaking concepts like the Cognitive City Platform and the Smart-X paradigm, demonstrating how advanced AI, big data, and cloud computing can build smarter, more sustainable cities. Adding an interactive touch, he shared real-world applications of these ideas, including ITB's Living Lab model—an innovation that invites local communities to shape urban solutions such as Smart Waste Bins and Road Anomaly Detection Systems.

Adding to the conversation, Prof. Ir. Lukito Edi Nugroho, M.Sc., Ph.D., captivated the audience with his perspective on digital transformation. Highlighting real Indonesian success stories like Gojek, Telkom Indonesia, and Jakarta Smart City, Prof. Lukito discussed the transformative power of digital technologies in boosting customer satisfaction, operational efficiency, and sustainability. His call for regionally adapted strategies underscored the importance of addressing Indonesia's unique regional differences to create a truly inclusive digital future.

The event's global outlook was further enriched by Prof. Kenzo Takahashi, an IEICE member who joined remotely to spotlight IEICE's global academic initiatives. Through his address, IEICE's commitment to connecting researchers and advancing knowledge across borders was clearly demonstrated, reinforcing the organization's vision for fostering collaborative academic progress on an international scale.

A highlight of the event was the student poster competition, where 22 finalists shared their research on diverse and emerging topics. This session provided an invaluable platform for young researchers to gain recognition, receive expert feedback, and build networks within the global academic community—setting the stage for the next generation of innovators.

This year's conference successfully showcased the strength of collaboration in overcoming complex technological challenges and shaping new opportunities. By uniting academia, industry, and emerging talent, the event underscored the essential role of diverse perspectives in driving forward knowledge and innovation. Inspired by the event's success, IEICE and Universitas Gadjah Mada look forward to organizing future conferences that will continue to support global knowledge exchange and sustainable development.

As a testament to its impact, the achievements of this conference will be presented at the upcoming IEICE All Sections Meeting (ASM) in November, marking another step in strengthening international collaboration and setting ambitious goals for IEICE's future initiatives.

Figure 1: Prof. Kenzo's virtual presentation introducing insights and updates on the IEICE organization.

Figure 2: Dr. Ridwan, representing IEICE Indonesia, alongside the IEICE promotional banner.

Figure 3: DTETI faculty members with Prof. Takei and Dr. Lila, following the plenary session.

Figure 4: Dr. Ridwan presenting a commemorative souvenir to Prof. Takei.

Figure 5: Prof. Takei delivering an in-depth lecture on "Electrical Impedance Tomography for Biomedical Applications."

Figure 6: Prof. Suhono discussing the "New Direction of Smart X: Cognitive City Platform, Human-Centric, and Trusted Society."

Figure 7: A participant engaged in reviewing a poster presented at the conference venue.

Figure 8: The poster exhibition area at the 2024 Joint Conference venue.

Figure 9: Prof. Lukito presenting his lecture on "Digital Transformation through Innovation, Integration, and Convergence."



Figure 1: Prof. Kenzo's virtual presentation introducing insights and updates on the IEICE organization.



Figure 2: Dr. Ridwan, representing IEICE Indonesia, beside the IEICE promotional banner.



Figure 3: Department of Electrical and Information Engineering faculty members with Prof. Takei and Dr. Lila, following the plenary session.



Figure 4: Dr. Ridwan presenting a commemorative souvenir to Prof. Takei.

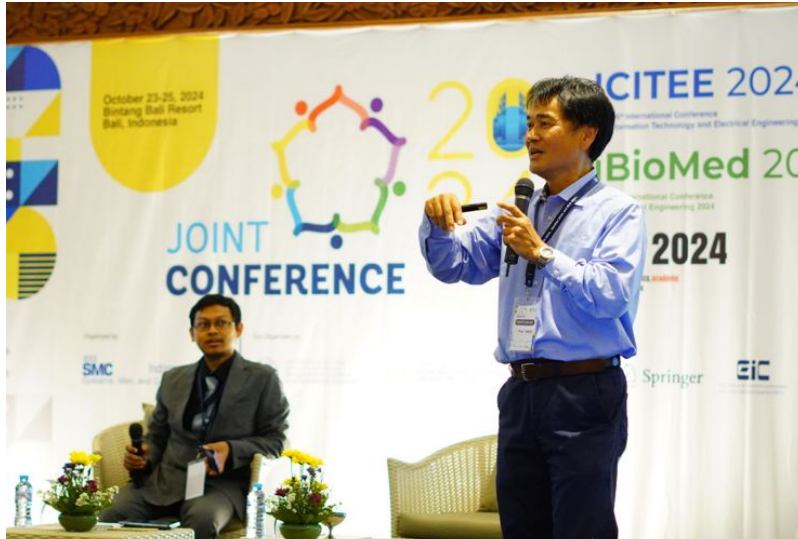


Figure 5: Prof. Takei delivering an in-depth lecture on “Electrical Impedance Tomography for Biomedical Applications”.



Figure 6: Prof. Suhono discussing the “New Direction of Smart X: Cognitive City Platform, Human-Centric, and Trusted Society.”



Figure 7: A participant engaged in reviewing a poster presented at the conference venue.



Figure 8: The poster exhibition area at the 2024 Joint Conference venue.



Figure 9: Prof. Lukito presenting his lecture on “Digital Transformation through Innovation, Integration, and Convergence.”