FIFTH ANNOUNCEMENT AND CALL FOR PAPERS

# 2025 DtDA

October 20 (Mon.) – 22 (Wed.), 2025

Sendai
Japan

## 1st IEEE International Conference on Device Technologies for Diversified Applications (IEEE DTDA)

**Extended abstract deadline: July 18, 2025**
**Full-paper submission deadline: December 26, 2025**

**https://ieee-dtda.org/**

## Plenary speaker

**Susumu Kaminaga**
(Toray Industries, Inc./SK Global Advisers Co., Ltd.)
Unleashing Power of MEMS for Diversified Applications

## Scope

DTDA aims to establish a premier platform for researchers, engineers, and industry professionals to converge and share their latest advancements in device technologies across diverse applications. This flagship conference will facilitate discussion, collaboration, and the exploration of innovative applications in the rapidly evolving field of electron devices and technologies.
DTDA is an annual conference sponsored by IEEE Electron Devices Society, dedicated to application-driven cutting-edge technologies. The conference goes beyond traditional approaches, incorporating non-conventional elements to engage attendees, foster innovation, and provide value to industry sponsors, including application sessions, interactive workshops, demo sessions, pitch and competition, art showcases, and various networking events where people interact and innovative ideas are born.

## DTDA Event Activities, Unleashing Your Potential!

When DTDA is over, we aim for "Okay, let's get started," rather than "Goodbye, see you next time."
Workshops and pitches will be held throughout the conference to generate new ideas and collaborations. At the exhibition, you will discover exciting technologies and possibilities that you may not have known existed. We also plan to demonstrate technological advances through an experience-based Art showcase.
DTDA will provide you with an opportunity for growth and discovery. Let's start expanding our possibilities!


**Secretariat**
**Semiconductor Portal Inc.**
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***Papers for presentation at DTDA 2025 are invited in the following application areas. Authors must submit the final camera-ready papers of their original unpublished research work online on DTDA 2025 website. The guidelines and the downloadable template must be followed to prepare manuscripts.***

## Application Area 1: Unleashing Power of MEMS

### Chair: Kentaro Totsu (Tohoku Univ.), Co-chair: Yongfang Li (Toshiba)

Papers include practical MEMS and their applications for IoT, energy harvesting and power management, consumer electroni telecommunications and 5G, as well as biomedical applications and environmental monitoring. Contributions are also encouraged on the role of MEMS in automotive and transportation systems, where they enhance safety and efficiency. Papers focused on advancements in MEMS fabrication and manufacturing are particularly welcome, as these innovations are essential for future realization.

## Application Area 2: Biosensors, Bioelectronics, Biomedical Devices

### Chair: Madoka Takai (Univ. of Tokyo), Co-chair: Yuhei Hayamizu (Inst. of Science Tokyo)

Papers on the topics of biosensors, bioelectronics, medical devices, and healthcare monitoring are invited. The materials which are used for these devices include such as nanocarbon (CNTs, graphene, etc.), conductive materials, biocompatible polymers, hydrogels, and also DNA, proteins, and cells. The fabrication technologies of lithography, MEMS, laser fabrication, and also detection technologies electrochemistry, optics, photonics, semiconductors are included.

## Application Area 3: Robotics for Smart Society

### Chair: Masanori Muroyama (Tohoku Inst. of Tech.), Co-chair: Chinthaka Premachandra (Shibaura Inst. of Tech. Science)

Papers are invited in all areas of robotic technologies that enhance the quality of life, including assistive robots for home and healthcare, rehabilitation robots, and applications of robotics in telemedicine. Contributions on robots in smart factories that accelerate industrial automation, AI-driven optimization of production lines, and practical examples of collaborative robots are also welcomed. The scope of DTDA also includes applications of robots in education, AI-assisted teaching robots, robots in STEM education, and case studies from educational environments. Additionally, papers on robotic technologies for smart city infrastructure, optimization of public services, urban transportation systems, and security robots are encouraged. Submissions related to key components of practical robotic systems (AI, sensors, actuators, control systems, energy sources and efficiency, interface technologies) and their applications in various fields are highly welcome.

## Application Area 4: Automobile

### Chair: Bernard Lim (Appscard), Co-chair: Eu Poh Leng (NXP)

Inviting papers that will explore how these advancements shape the future of automotive technology. The automotive industry is rapidly advancing, driven by the integration of semiconductors to meet the demands of complex vehicle systems, electrification, and autonomous technologies. This call for papers seeks cutting-edge research on semiconductor innovations that enhance automotive safety, efficiency, and intelligence. Topics include advanced technologies addressing vehicle complexity, novel devices for next-gen applications, and the role of AI in automotive systems, such as adaptive driving aids and predictive maintenance. Join us in defining the future of automotive innovation, infrastructure, optimization of public services, urban transportation systems, and security robots are encouraged. Submissions related to key components of practical robotic systems (AI, sensors, actuators, control systems, energy sources and efficiency, interface technologies) and their applications in various fields are highly welcome.

## Application Area 5: Achieving a Sustainable Future

### Chair: Shin Nakagawa (SCREEN), Co-chair: Slava Libman (FTD Solutions)

We invite papers showcasing innovative technologies and strategies to address critical challenges, such as pollution reduction, conservation of natural resources, climate resilience, water scarcity, infrastructure constraints, operational efficiency. Environmental Impact Mitigation: Use smart technologies for real-time monitoring. Identify pollution sources with data analysis software and AI, and build eco-friendly infrastructure using green materials. Energy Consumption Reduction: Optimize consumption with energy efficiency technologies and reduce it through innovative ideas and engineering solutions. Water Risk Management: Develop water resource management systems to promote reuse, and improve water quality with purification technologies. Our goal is to lead the way towards a sustainable future by incorporating advanced device technologies.

## Application Area 6: Smart Agriculture on the Ground and in Space

### Chair: Mayumi B. Takeyama (Kitami Inst. of Tech.), Co-chair: Kazuo Oki (The Univ. Tokyo / KUAS)

Papers include all area of sensing technologies for fully automated plant factories, plant growth that produces no waste, smart agriculture using as little water as possible and controlling harvest time and maintaining freshness of vegetables.