

13th ICIEV 2026 <https://cennser.org/ICIEV>

Special Session: Intelligent Control and Autonomous Systems for Smart and Resilient Applications

The ICIEV 2026 Special Session on “Intelligent Control and Autonomous Systems for Smart and Resilient Applications” will bring together researchers, academics, and practitioners working at the intersection of **intelligent control, artificial intelligence, autonomous systems, robotics, sensing, optimization, and intelligent transportation**.

The session aims to provide a focused forum for presenting recent advances in the integration of **control theory, machine learning, sensing, communication, optimization, and intelligent decision-making** for real-world applications.

Particular emphasis will be placed on intelligent and autonomous systems capable of operating effectively in **dynamic, uncertain, complex, and safety-critical environments**.

Scope of the Special Session

The session welcomes original research addressing, but not limited to:

- Intelligent and adaptive control
 - Model Predictive Control (MPC)
 - Artificial intelligence and machine-learning-based control
 - Autonomous and connected vehicles
 - V2X communication and cooperative intelligent systems
 - Intelligent Transportation Systems (ITS)
 - Smart traffic management and optimization
 - Disaster-aware and resilient transportation systems
 - Multi-agent systems and autonomous robotics
 - Sensor-based intelligent systems
 - Anomaly detection and intelligent monitoring
 - Autonomous decision-making in dynamic environments
 - Resilient and safety-critical autonomous systems
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Proposed Contributions

The special session is currently organized around the following six research topics:

Session 1 – Intelligent Control and Optimization

1. Adaptive Model Predictive Control for Emergency Vehicle Priority at Signalized Intersections

Main Area: Intelligent Control / Intelligent Transportation Systems

2. Disaster-Aware Traffic Optimization with Dynamic Alternative Routes and Emergency Priority

Main Area: Intelligent Transportation / Optimization

Session 2 – Autonomous and Connected Systems

3. Cooperative Intelligent Control of Connected and Autonomous Vehicles Using V2X Communication

Main Area: Autonomous Vehicles / V2X Communication

4. AI-Based Adaptive Signal Control for Dynamic Urban Traffic Management

Main Area: Artificial Intelligence / Control Systems

Session 3 – Robotics and Intelligent Sensing

5. Intelligent Multi-Agent Decision Making for Autonomous Robotic Systems in Dynamic Environments

Main Area: Robotics / Computational Intelligence

6. Sensor-Based Intelligent Control and Anomaly Detection for Smart Autonomous Systems

Main Area: Sensors / Artificial Intelligence / Control

Session Objectives

The proposed special session aims to provide an interdisciplinary platform for researchers to present innovative approaches to **intelligent control and autonomous decision-making**.

The session will explore how artificial intelligence, optimization, sensing, communication, and control can be integrated to develop smarter, safer, and more resilient systems. Topics will span intelligent transportation, autonomous vehicles, robotics, adaptive control, model predictive control, multi-agent systems, and sensor-driven intelligent decision-making.

A particular focus will be placed on approaches that enable autonomous systems to **perceive changing conditions, make intelligent decisions, adapt their behavior, and maintain reliable performance under uncertainty and disruption**.

Session Organization

The six proposed contributions will be organized into three thematic sessions:

Session 1: Intelligent Control and Optimization

Session 2: Autonomous and Connected Systems

Session 3: Robotics and Intelligent Sensing

The session will include presentations followed by discussions aimed at encouraging technical exchange, collaboration, and future research directions.

We welcome researchers and practitioners working in **intelligent control, artificial intelligence, autonomous systems, robotics, intelligent transportation, sensing, and related areas** to participate in this special session and contribute to discussions on the development of smart and resilient autonomous systems.

Organizer:

Prof. Kou Yamada

Graduate School of Science and Technology, Gunma University

yamada@gunma-u.ac.jp