

# AROB-ISBC-SWARM 2024

The Twenty-Ninth International Symposium on

**Artificial Life and Robotics**

(AROB 29th 2024)

The Ninth International Symposium on

**BioComplexity**

(ISBC 9th 2024)

The Seventh International Symposium on

**Swarm Behavior and Bio-Inspired Robotics**

(SWARM 7th 2024)

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International Society of Artificial Life and Robotics (ISAROB)

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The Society of Instrument and Control Engineers (SICE, Japan)  
The Robotics Society of Japan (RSJ, Japan)  
The Institute of Electrical Engineers of Japan (IEEJ, Japan)  
The Institute of Electronics, Information and Communication Engineers (IEICE, Japan)  
The Institute of Systems, Control and Information Engineers (ISCIE, Japan)  
IEEE Robotics and Automation Society Japan Chapter  
Japan Society for Simulation Technology (JSST, Japan)  
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B-Con Plaza, Beppu, Japan and ONLINE, January 24-26, 2024

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## HISTORY

The AROB symposium was founded in 1996 under the support of Science and International Affairs Bureau, Ministry of Education, Culture, Sports, Science and Technology, Japanese Government. Since then, the symposium organized by the AROB has been held every year at B-Con Plaza, Beppu, Japan except AROB 5th '00 (Oita), AROB 6th '01 (Tokyo) and AROB 18th '13 (Daejeon, Korea). The twenty-ninth symposium will be held on January 24-26, 2024, at B-Con PLAZA, Beppu, JAPAN and ONLINE.

## OBJECTIVE

This symposium will bring together researchers to discuss development of new technologies concerning *artificial life and robotics* based on computer simulations and hardware designs of state-of-the-art technologies, and to share findings on how advancements in artificial life and robotics technologies that relate to artificial intelligence, virtual reality, and computer science are creating the basis for exciting new research and applications in various fields.

## COPYRIGHTS

Accepted papers will be published in the proceeding of AROB-ISBC-SWARM2024 and some of high quality papers in the proceeding will be requested to re-submit their papers for the consideration of publication in an international journal ARTIFICIAL LIFE AND ROBOTICS. All correspondence related to the symposium should be addressed to AROB Secretariat.

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### AROB Secretariat

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## GENERAL SESSION TOPICS

Agent-based modelling	Artificial intelligence
Artificial life	Bio-inspired robotics
Cognitive science	Control techniques
Evolutionary computations (Genetic algorithm)	Human-machine interaction and collaboration
Machine learning	Medical informatics
Mobile robots	Motion planning and navigation
Multi-agent systems	Neural networks
Robot vision and image processing	Robotic mechanism
Sensor and multi-sensor data fusion	Swarm intelligence

## ORGANIZED SESSION TOPICS

AROB: Adaptable AI-enabled Robots to Create a Vibrant Society  
AROB: Advanced Information Technology for Education  
AROB: Bio-inspired Theory and Applications  
AROB: Biomimetic Machines and Robots I  
AROB: Biomimetic Machines and Robots II  
AROB: Collaborative AI robots for adaptation of diverse environments and innovation of infrastructure construction (Moonshot program Goal-3)  
AROB: Computational intelligence and cognitive science for human biosignals and human well-being I  
AROB: Computational intelligence and cognitive science for human biosignals and human well-being II  
AROB: Human-Centered Robotics  
AROB: Integration of AI and Robotics for Highly Versatile Robots  
AROB: Intuitive Human-System Interaction  
AROB: Psychophysiological measurements and analysis toward multimodal experimental study and its application  
AROB: Robot control and Path planning  
AROB: Robotics Evolution and Intelligence  
AROB: Robotics with Intelligence and/or Informatics  
AROB: System Sensing and Its Applications 1  
AROB: System Sensing and Its Applications 2  
AROB: Vehicle control  
ISBC: Bio-Complexity and Nonlinear system  
ISBC: Information and Visualization  
ISBC: Quantum leaps after IAS I  
ISBC: Quantum leaps after IAS II  
SWARM: Individuality and Collectivity in Living Systems II  
SWARM: Lunar bases construction and lunar exploration by modular and swarm AI-robots I  
SWARM: Lunar bases construction and lunar exploration by modular and swarm AI-robots II  
SWARM: Swarm and Bio-inspired Systems