



# **International Symposium on Community-centric Systems and Local 5G 2023 (CcS-L5G-2023)**

**February 21-23, 2023**

**Tokyo Metropolitan University, Tokyo, Japan**

- Venue: Large Conference Room, International Center, Minami-Osawa Campus, Tokyo Metropolitan University
- Dates: February 21-23, 2023
- Language: English
- Participation Fee: Free
- Official Web Page:  
<https://beyond.research-miyacology.tmu.ac.jp/community-centric-systems/news/419.html>
- Meeting type: Hybrid (In-person and Online)
- **Sponsors**
  - **Research Center for Community-centric Systems (CcS)**  
<https://beyond.research-miyacology.tmu.ac.jp/community-centric-systems/>
  - **The Consortium for Robot Intelligence Innovation based on Local 5G (RiiL5G)**  
<https://kublab-l5g.com/member/kubota/>
  - **Task Force on Continual Learning and Emergence of Intelligent Systems, Japan Society for Fuzzy Theory and Intelligent Informatics**

# Program

## February 21, Tuesday

- 10:40 - 11:00 **Opening Session**
- 11:00 - 12:00 Plenary Talk 1 (Chair: Dr. WeiHong Chin)  
**"Continual Machine Learning: Overview & Challenges"**  
Prof. ChuKiong Loo, Dean, Faculty of Computer Science & Information Technology, University of Malaya (Malaysia)
- 12:00 - 13:00 Lunch
- 13:00 - 13:30 Special Talk 1 (Chair: Prof. Eri-Sato Shimokawara)  
**"Unsupervised Anomaly Detection on Streaming Data"**  
Prof. Kurnianingsih, Department of Electrical Engineering, Politeknik Negeri Semarang (Indonesia)
- 13:30 - 14:00 Special Talk 2 (Chair: Prof. Eri-Sato Shimokawara)  
**"Human-In-The-Loop application design for early detection of pregnancy danger signs"**  
Dr. Melyana Nurul Widyawati, Department of Midwifery, Politeknik Kesehatan Kemenkes Semarang (Indonesia)
- 14:10 - 14:40 Special Talk 3 (Chair: Prof. Yasufumi Takama)  
**"Growing Neural Gas based Traversability Analysis for an Autonomous Mobile Robot"**  
Dr. Yuichiro Toda, Faculty of Natural Science and Technology, Okayama University (Japan)
- 14:40 - 15:10 Special Talk 4 (Chair: Prof. Yasufumi Takama)  
**"Consideration of Consistent Learning Model with Exchange Monte Carlo"**  
Dr. Hiroki Shibata, Graduate School of Systems Design, Tokyo Metropolitan University (Japan)

## 15:20-17:20 **Special Session on Community-centric Systems**

(Chair: Dr. Takenori Obo, Dr. Aulia Saputra Azhar)

### **1."2.5D Evolutionary Strategy SLAM for Outdoor Mobile Robots"**

Mahiro Watanabe, Tokyo Metropolitan University (Japan)

### **2."A Hybrid Optimization Approach for 3D Human Pose Estimation using Particle Swarm Optimization and Steepest Descent Method"**

Masatoshi Eguchi, Tokyo Metropolitan University (Japan)

### **3."Entrainment Promoting Robot Based on Physiological Signals towards Human Cooperation"**

Huang Tzong-Xiang, Tokyo Metropolitan University (Japan)

### **4."Deep Learning-based face recognition detection for personality trait classification: A comprehensive review"**

Sumarni Adi, Tokyo Metropolitan University (Japan)

### **5."Development of Aquatic Survey Robot with Fins for Underwater Environment with Floating Objects"**

Mao Ichimura, Tokyo Metropolitan University (Japan)

### **6."Lightweight Design and Developing of Cycloidal Gear Reducer for Flapping-wing Aerial Vehicle"**

Hidaka Sato, Tokyo Metropolitan University (Japan)

### **7."Joint Angle-Based Activity Recognition System for PARO Therapy Observation"**

Dwi Kurnia Basuki, Tokyo Metropolitan University (Japan)

### **8."Evaluation of the Methods for Detecting Trash on Toilet Floor by Image Similarity"**

Rama Okta Wiyagi, Tokyo Metropolitan University (Japan)

## February 22, Wednesday

- 9:50 - 10:20 Special Talk 5 (Chair: Prof. Naoyuki Takesue)  
**"Toward automated underwater monitoring system for freshwater fish"**  
Prof. Shinji Fukuda, Institute of Agriculture, Tokyo University of Agriculture and Technology (Japan)
- 10:20 - 10:50 Special Talk 6 (Chair: Prof. Naoyuki Takesue)  
**"Adaptive Resonance Theory-based Clustering"**  
Prof. Naoki Masuyama, Graduate School of Informatics, Osaka Metropolitan University (Japan)
- 11:00 - 12:00 Plenary Talk 2 (Chair: Prof. Naoyuki Kubota)  
**"CI&AI-FML for Human and Robot Co-Learning"**  
Prof. Chang-Shing Lee, Dept. of Computer Science and Information Engineering, National University of Tainan (Taiwan)
- 12:00 - 13:00 Lunch
- 13:00 - 14:00 Plenary Talk 3 (Chair: Prof. Kazuyoshi Wada)  
**"Gaze Tracking Based on Attention Mechanism and Its Application in Space Human-robot Interaction"**  
Prof. Zhaojie Ju, Faculty of Technology, University of Portsmouth (UK)
- 14:10 - 14:40 Special Talk 7 (Chair: Dr. Hiroki Shibata)  
**"Structured Learning for Human Behavior Modeling"**  
Dr. Takenori Obo, Graduate School of Systems Design, Tokyo Metropolitan University (Japan)
- 14:40 - 15:10 Special Talk 8 (Chair: Dr. Hiroki Shibata)  
**"Multi-modal Sensing for Motor Function Rehabilitation"**  
Dr. Dalin Zhou, Faculty of Technology, University of Portsmouth (UK)

### 15:20 - 17:35 Special Session on Continual Learning and Emergence of Intelligent Systems

(Chair: Dr. Yuichiro Toda, Prof. Naoki Masuyama,)

1. **"Wheeled Mobile Robot with Step-Overcoming Function Using Link Mechanism"**  
Hiroki Shimizu, Tokyo Metropolitan University (Japan)
2. **"Evaluation of Calisthenics Motion using Recurrent Neural Network"**  
Kunikazu Hamada, Tokyo Metropolitan University (Japan)
3. **"Improving data-driven habitat suitability model of Genji-firefly by removing noisy data"**  
Tomoya Ogami, Tokyo University of Agriculture and Technology (Japan)
4. **"Application of deep learning for species identification and counting of a freshwater fish"**  
Wataru Ishikawa, Tokyo University of Agriculture and Technology (Japan)
5. **"A Proposal for Shape Recognition of a Rope based on Deep Convolutional Neural Networks named ResNet-50"**  
Wang Junxiang, Okayama University (Japan)
6. **"Data Reuse in Hierarchical Topological Clustering based on Adaptive Resonance Theory"**  
Yamada Yuna, Osaka Metropolitan University (Japan)
7. **"Comparison of Different Hierarchical Implementations in Topological Clustering with a Hierarchical Structure and Data Visualization"**  
Kazuki Tashiro, Osaka Prefecture University (Japan)
8. **"Multi-label Classification with Adaptive Resonance Theory-based Clustering for Handling Mixed Data"**  
Nishikawa Tsuyoshi, Osaka Prefecture University (Japan)
9. **"Topological Clustering based on Adaptive Resonance Theory with Automatic Vigilance Parameter Setting"**  
Takanori Takebayashi, Osaka Prefecture University (Japan)

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