

2024

1.31

(wed.)

12:10

12:50

12:10-12:15

◆ Introduction

12:15-12:40

◆ Seminar
(Presentation)

12:40-12:50

◆ Q&A

Online
(Zoom)Scan here for
Registration ▶▶https://temdec-med-kyushu-u-ac-jp.zoom.us/webinar/register/WN_-KT0DhooR_S4_w9y4HxfCQ

Supported by Kyushu University, Q-AOS & TEMDEC

Scalable control for multi-robot systems

Chair: Assoc. Prof. Toshinori TANAKA (Research Promotion Coordinator of Q-AOS)



Key Words

Robotic swarm control

Scalable control

Nature swarms

Nanorobots

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Kaoru Yamamoto was born in Kyoto, Japan, and received the B.S. and M.S. degrees in Architectural Engineering from Kyoto University, in 2009 and 2011, respectively. From October 2011 she moved to the UK with the support of the Funai Overseas Scholarship and received the Ph.D. degree in control engineering from the University of Cambridge in January 2016. Subsequently, she was a postdoctoral researcher at the University of Minnesota Twin Cities, USA, and a postdoctoral researcher at Lund University, Sweden. In August 2018, she joined the Faculty of Information Science and Electrical Engineering in her current position as Associate Professor. Her research interests include distributed control of multi-robot systems such as drones and wheeled robots, and systems theory in general.

In recent years, robots and drones have been expected to be used in a variety of situations such as logistics, infrastructure inspection and disaster response. In order to coordinate a large number of robots and drones to perform complex tasks, it is necessary to implement a control method that is "scalable", i.e. has the property of being able to control robots and drones appropriately regardless of their number. How can we stably control a large number of robot swarms using the simplest possible mechanism? In this seminar, examples of scalable control will be presented, such as swarm control inspired by swarm behaviour in nature and ensemble control for nanorobot guidance, which is attracting attention as a new medical technology.