Daisuke **Inoue**

Researcher, Toyota Central R&D Labs., Inc.

41-1, Yokomichi, Nagakute, Aichi 480-1192, Japan

(+81) 90-7741-8679 | d.inoue.jp@gmail.com | https://inody.github.io

About me

Daisuke Inoue is a researcher at Toyota Central R&D Labs,. Inc. He is also a Ph.D. student at the University of Tokyo. He received a B.E. degree of engineering from Osaka University in 2014 and an M.S. degree of informatics from Kyoto University in 2017. His current research interests include control engineering, multi-agent systems, and swarm intelligence.

Experience

Toyota Central R&D Labs., Inc. *Aichi, Japan*

Research Engineer *Aug. 2017 - Present*

- Controller design for very large-scale systems
- Exploring applications of quantum annealing machines for control engineering

Kyoto University *Kyoto, Japan*

Teaching Assistant *July. 2016 - Mar. 2017*

- Teaching Assistant of Complex Analysis Class

Siemens Industry Software N.V. *Leuven, Belgium*

Research Internship *July. 2015 - Mar. 2016*

- Motion Controller Design for Airbus A330 based on 1-D & 3-D Co-simulation

Mitsubishi Heavy Industries, Ltd. *Kobe, Japan*

Internship *July. 2014*

- Development of Nuclear Power Plant Simulator

Education

The University of Tokyo *Tokyo, Japan*

Ph.D student *Apr. 2021 - Present*

- Research on Numerical methods for PDEs arising in optimal control problems

Kyoto University *Kyoto, Japan*

M.S. in Informatics *Mar. 2017*

- Thesis: Stability Analysis of Networked Monotone Systems

Osaka University *Osaka, Japan*

B.S. in Engineering *Mar. 2014*

- Thesis: Stationary performance evaluation of control systems with random dither quantization

Selected Publication

Journal (Refereed)

Partially Centralized Model-Predictive Mean Field Games for Controlling Multi-Agent Systems *IFAC Journal of Systems and Control*

D. Inoue, Y. Ito, T. Kashiwabara, N. Saito, and H. Yoshida *2023*

A fictitious-play finite-difference method for linearly solvable mean field games *ESAIM: M2AN*

D. Inoue, Y. Ito, T. Kashiwabara, N. Saito, and H. Yoshida *2023*

Traffic Signal Optimization on a Square Lattice with Quantum Annealing *Scientific Reports*

D. Inoue, A. Okada, T, Matsumori, K. Aihara and H. Yoshida *2021*

Optimal Transport-based Coverage Control for Swarm Robot Systems: Generalization of the Voronoi Tessellation-based Method
IEEE Control Systems Letters
D. Inoue, Y. Ito and H. Yoshida
2020

Model Predictive Control for Finite Input Systems using the D-Wave Quantum Annealer
Scientific Reports
D. Inoue, H. Yoshida
2020

Conference (Refereed)

Stability Analysis of Logit Dynamics with Committed Minority and Internal/External Conformity Biases
Proc. 22nd IFAC World Congress
T. Miyano, Y. Ito, D. Inoue, S. Koide, and T. Hatanaka
Yokohama, Japan, 2023

Model Predictive Mean Field Games for Controlling Multi-Agent Systems
2021 IEEE International Conference on Systems, Man, and Cybernetics
D. Inoue, Y. Ito, T. Kashiwabara, N. Saito, and H. Yoshida
Melbourne, Australia, 2021

Optimal Transport-based Coverage Control for Swarm Robot Systems: Generalization of the Voronoi Tessellation-based Method
American Control Conference 2021
D. Inoue, Y. Ito and H. Yoshida
New Orleans, USA, 2021

Stochastic Self-Organizing Control for Swarm Robot Systems
ICSI 2019
D. Inoue, D. Murai, and H. Yoshida
Chiang Mai, Thailand, 2019

Distributed Range-based Localization for Swarm Robot Systems using Sensor-Fusion Technique
SENSORNETS 2019
D. Inoue, D. Murai, Y. Ikuta and H. Yoshida
Prague, Czech Republic, 2020

Replay attack detection in control systems with quantized signals
European Control Conference 2015
K. Kashima and D. Inoue
Linz, Austria, 2015

Stationary performance evaluation of control systems with random dither quantization
European Control Conference 2014
K. Kashima and D. Inoue
Strasbourg, France, 2014

Awards

2017 **Repayment Exemption for Students with Excellent Grades**, Japan Student Services Organization

2016 **Best presentation award on The 59th Japan Automatic Control Conference**, The Society of Instrument and Control Engineer

2015 **Research Encouragement Award on The 58nd Annual Conference of the Institute of Systems, Control and Information Engineers**, The Institute of Systems, Control and Information Engineers

2014 **Research Encouragement Award on The 1st Multi-symposium on Control Systems**, The Society of Instrument and Control Engineers

Grants

2015 **Vulcanus in Europe (15,540 dollars)**, Selected students get to go to Europe to study the local language, and to have a working experience by EU-Japan Centre for Industrial Cooperation in Institute for International Studies and Training.