

Department of Computer Science
Tokyo Institute of Technology

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EDUCATION

Tokyo Institute of Technology

D.Eng. in Computer Science

Advisor: Professor Hideaki Ishii

Thesis: Stability and Dimension in Feedback Systems: A Differential Lyapunov Framework

Yokohama, Japan

March 2024 (expected)

Tokyo Institute of Technology

M.Eng. in Computer Science

Thesis: Averaging and cluster synchronization of Kuramoto oscillators

Yokohama, Japan

March 2021

Tokyo Institute of Technology

B.Eng. in Control Systems Engineering

Thesis: Qualitative analysis of nonlinear networked control systems under denial-of-service attacks

Yokohama, Japan

March 2019

RESEARCH INTERESTS

- Complexity in systems and control
- Structure and function of networked systems
- Safe and resilient cyber-physical systems

PUBLICATIONS

Journal Articles

4. **R. Kato** & H. Ishii (2023)
Cluster synchronization of Kuramoto oscillators and the method of averaging
IEEE Transactions on Automatic Control (accepted as full paper)
3. **R. Kato** & H. Ishii (2023)
Hausdorff dimension estimates for interconnected systems with variable metrics
IEEE Control Systems Letters, vol. 7, pp. 3247–3252
2. **R. Kato**, A. Cetinkaya, & H. Ishii (2022)
Linearization-based quantized stabilization of nonlinear systems under DoS attacks
IEEE Transactions on Automatic Control, vol. 67, no. 12, pp. 6826–6833
1. **R. Kato**, A. Cetinkaya, & H. Ishii (2021)
Security analysis of linearization for nonlinear networked control systems under DoS
IEEE Transactions on Control of Network Systems, vol. 8, no. 4, pp. 1692–1704

Conference Papers

4. **R. Kato** & H. Ishii (2023)
Dimension analysis via differential Lyapunov and dissipation inequalities
Proceedings of the 22nd IFAC World Congress, pp. 65–70
3. **R. Kato** & H. Ishii (2021)
Averaging and cluster synchronization of Kuramoto oscillators
Proceedings of the 19th European Control Conference, pp. 1497–1502
2. **R. Kato**, A. Cetinkaya, & H. Ishii (2020)
DoS-aware quantized control of nonlinear systems via linearization
Proceedings of the 21st IFAC World Congress, pp. 3054–3059
1. **R. Kato**, A. Cetinkaya, & H. Ishii (2019)
Stabilization of nonlinear networked control systems under denial-of-service attacks: A linearization approach
Proceedings of the 37th American Control Conference, pp. 1444–1449

AWARDS

- SICE Control Division Young Author Award, 2022
- SICE Young Author Award, 2020

FELLOWSHIP

- Research Fellow of the Japan Society for the Promotion of Science (JSPS), 2021–2023