Rui Kato

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Education

Tokyo Institute of Technology Yokohama, Japan
D.Eng. in Computer Science March 2024 (expected)
Thesis: Stability and Dimension in Feedback Systems: A Differential Lyapunov Framework

Tokyo Institute of Technology Yokohama, Japan
M.Eng. in Computer Science March 2021
Thesis: Averaging and cluster synchronization of Kuramoto oscillators

Tokyo Institute of Technology Yokohama, Japan
B.Eng. in Control Systems Engineering March 2019
Thesis: Qualitative analysis of nonlinear networked control systems under denial-of-service attacks

Research Interests

- Complexity in systems and control
- Structure and function of complex networks
- 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