Rui Kato

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Education

Tokyo Institute of Technology Yokohama, Japan
D.Eng. in Computer Science March 2024
Advisor: Professor Hideaki Ishii
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
- Nonlinear oscillations and networks

Publications

Journals

4. **Cluster synchronization of Kuramoto oscillators and the method of averaging**
   Rui Kato & Hideaki Ishii
   IEEE Transactions on Automatic Control, vol. XX, no. XX, pp. XX–XX, 2023 (accepted as full paper).

3. **Hausdorff dimension estimates for interconnected systems with variable metrics**
   Rui Kato & Hideaki Ishii
   IEEE Control Systems Letters, vol. 7, pp. 3247–3252, 2023.

2. **Linearization-based quantized stabilization of nonlinear systems under DoS attacks**
   Rui Kato, Ahmet Cetinkaya, & Hideaki Ishii
   IEEE Transactions on Automatic Control, vol. 67, no. 12, pp. 6826–6833, 2022.

1. **Security analysis of linearization for nonlinear networked control systems under DoS**
   Rui Kato, Ahmet Cetinkaya, & Hideaki Ishii
   IEEE Transactions on Control of Network Systems, vol. 8, no. 4, pp. 1692–1704, 2021.

Conference Proceedings

5. **A unified framework on global stability and Lyapunov dimension of Lur'e systems**
   Rui Kato & Hideaki Ishii
   Proc. 2024 European Control Conference, pp. XX–XX, 2024 (to appear).

4. **Dimension analysis via differential Lyapunov and dissipation inequalities**
   Rui Kato & Hideaki Ishii
   Proc. 22nd IFAC World Congress, pp. 65–70, 2023.

3. **Averaging and cluster synchronization of Kuramoto oscillators**
   Rui Kato & Hideaki Ishii
   Proc. 2021 European Control Conference, pp. 1497–1502, 2021.

2. **DoS-aware quantized control of nonlinear systems via linearization**
   Rui Kato, Ahmet Cetinkaya, & Hideaki Ishii
   Proc. 21st IFAC World Congress, pp. 3054–3059, 2020.

1. **Stabilization of nonlinear networked control systems under denial-of-service attacks: A linearization approach**
   Rui Kato, Ahmet Cetinkaya, & Hideaki Ishii
   Proc. 2019 American Control Conference, pp. 1444–1449, 2019.

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.