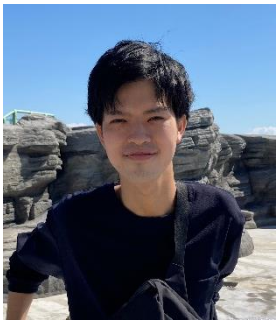
Takumi **Shinohara**, Ph.D.



Visiting Researcher
School of Integrated Design Engineering,
Faculty of Science and Technology, Keio University
3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa 223-8522, Japan

ye.5.takt.s@gmail.com | Takumi Shinohara | Takumi Shinohara

Education

Sep. 2021 – Sep. 2024	**Ph.D. in Engineering** of Keio University, Japan Thesis Title: *Secure state estimation under sensor attacks* Advisor: Prof. Toru Namerikawa
Apr. 2016 – Mar. 2018	**Master in Engineering** of Keio University, Japan Thesis Title: *Zero-stealthy attacks in cyber-physical systems and secure state estimation in adversarial environments* Advisor: Prof. Toru Namerikawa
Apr. 2012 – Mar. 2016	**Bachelor in Engineering** of Keio University, Japan Thesis Title: *SLAM problem for UAV with considering computational load and unordinary observations* Advisor: Prof. Toru Namerikawa

Employment

Apr. 2018 – present	**Consultant, Mitsubishi Research Institute, Inc.**, Japan *Research, study, and consult on the cybersecurity policy for the Japanese Government (e.g., METI, MIC, and NISC) and consult private companies with cybersecurity issues.*

List of Publications

I. Journal Articles

[1] Takumi Shinohara and Toru Namerikawa, "Optimal security investment problem for secure state estimation on cyber-physical systems," *IEEE Transactions on Automatic Control* (accepted, to appear in 2025).

[2] Takumi Shinohara and Toru Namerikawa, "Optimal resilient sensor placement problem for secure state estimation," *Automatica*, vol. 160, 111454, 2024.

[3] Takumi Shinohara and Toru Namerikawa, "Distributed secure state estimation with a priori sparsity information," *IET Control Theory & Applications*, vol. 16, no. 11, pp. 1086–1097, 2022.

[4] Takumi Shinohara, Toru Namerikawa, and Zhihua Qu, "Resilient reinforcement in secure state estimation against sensor attacks with *a priori* information," *IEEE Transactions on Automatic Control*, vol. 64, no. 12, pp. 5024–5038, 2019.

[5] Takumi Shinohara and Toru Namerikawa, "Reach set-based secure state estimation against sensor attacks with interval hull approximation," *SICE Journal of Control, Measurement, and System Integration*, vol. 11, no. 5, pp. 399–408, 2018.

[6] Takumi Shinohara and Toru Namerikawa, "Perfect stealthy attacks in cyber-physical systems," *Transactions of the Society of Instrument and Control Engineers*, vol. 54, no. 3, pp. 309–319, 2018. (in Japanese)

[7] Takumi Shinohara and Toru Namerikawa, "On the vulnerabilities due to manipulative zero-stealthy attacks in cyber-physical systems," *SICE Journal of Control, Measurement, and System Integration*, vol. 10, no. 6, pp. 563–570, 2017.

[8] Takashi Irita, Takumi Shinohara and Toru Namerikawa, "Detection of replay attack on smart grid with code signal and bargaining game," *Transactions of the Society of Instrument and Control Engineers*, vol. 52, no. 9, pp. 498–506, 2016. (in Japanese)

II. Referred Conference Papers

[1] Takumi Shinohara and Toru Namerikawa, "Security measure implementation for distributed state estimation," in *Proc. 5th IFAC Workshop on Cyber-Physical Human Systems,* Antalya, Türkiye, 2024. (accepted, to be presented)

[2] Takumi Shinohara and Toru Namerikawa, "Secure state estimation for multi-agent systems: On the relationship between the number of agents and system resilience," in *Proc. 2023 American Control Conference*, San Diego, CA, 2023, pp. 1006–1011.

[3] Takumi Shinohara and Toru Namerikawa, "Reach set-based attack resilient state estimation against omniscient adversaries," in *Proc. 2018 American Control Conference*, Milwaukee, WI, 2018, pp. 5813–5818.

[4] Takumi Shinohara and Toru Namerikawa, "Manipulative zero-stealthy attacks in cyber-physical systems: Existence space of feasible attack objectives," in *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, HI, 2017, pp. 1123–1128.

[5] Takumi Shinohara and Toru Namerikawa, "SLAM for a small UAV with compensation for unordinary observations and convergence analysis," in *Proc. 2016 55th Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE)*, Tsukuba, Japan, 2016, pp. 1252–1257.