

# Jihoon Suh

✉ E-mail: [suh95@purdue.edu](mailto:suh95@purdue.edu)  
🇺🇸 Nationality: **U.S. Citizen**  
🎖 Military Experience: **U.S. Army Reserve Veteran**  
🇺🇸 Disability Status: **No Disability**

🌐 [Personal Website](#) [↗](#)  
🌐 [LinkedIn](#) [↗](#)  
🎓 [Google Scholar](#) [↗](#)  
🐙 [GitHub Repository](#) [↗](#)  
📺 [YouTube](#) [↗](#)

## Research Interests

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Encrypted Control, Reinforcement Learning, Security, Cryptographic Computing

## Employment

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Graduate Research/Teaching Assistant, [Networked Control Systems Laboratory](#) [↗](#), 08/2019 – Present  
Chief Research Officer, Nika Capital, 06/2023 – 12/2024  
Machine Learning Intern, Draper Laboratory, 05/2021 – 08/2021

## Technical Skills

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Programming: Python, C++, MATLAB  
Tools: Simulink, PyTorch, Microsoft SEAL, TensorFlow, YALMIP, ROS, Google Cloud, Quarc, Git

## Education

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Ph.D. in Autonomy and Control (Aeronautics and Astronautics), Purdue University (Expected, 05/2026)  
Advisor: Takashi Tanaka  
Thesis: Efficient Encrypted Control Synthesis for Secure Cloud-based Control  
B.S. & M.S. in Aerospace Engineering, The University of Texas at Austin (12/2018 & 12/2020)

## Teaching Experience

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Teaching Assistant – The University of Texas at Austin  
Duties: Grading, presenting lectures, course materials, student interactions, and office hours.  
– Feedback Control Systems (Dr. Tanaka, Dr. Topcu): Sp2021, Sp2023, Fa2023, Sp2024  
– Linear Systems Analysis (Dr. Bakolas): Fa2023, Fa2024

## Mentoring / Advising

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Mentor for [REACT-REU](#) [↗](#), The Center for Autonomy at the Oden Institute, 05/2023 – 08/2023,  
– Mentoring undergraduate students while leading a research project on Crazyflies quadcopter formation flying with Python and basic motion planning (Mentees: Ian Cornwell, Alayasia Thomas).

## Publications

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### Journal Articles

- [J1] Suh, J., & Tanaka, T. (2025). Efficient implementation of reinforcement learning over homomorphic encryption. *Journal of The Society of Instrument and Control Engineers*, 64(4), 223–229
- [J2] Suh, J., Jang, Y., Teranishi, K., & Tanaka, T. (2025). Relative entropy regularized reinforcement learning for efficient encrypted policy synthesis. *(Under Review) IEEE Control Systems Letters*

## Peer-Reviewed Conference Publications

- [C1] Suh, J., & Tanaka, T. (2021b). SARSA (0) reinforcement learning over fully homomorphic encryption. *2021 SICE International Symposium on Control Systems (SICE ISCS)*, 1–7
- [C2] Suh, J., & Tanaka, T. (2021a). Encrypted value iteration and temporal difference learning over leveled homomorphic encryption. *2021 American control conference (ACC)*, 2555–2561
- [C3] Suh, J., & Tanaka, T. (2023). Encrypted price-based market mechanism for optimal load frequency control. *IFAC-PapersOnLine*, 56(2), 11203–11208
- [C4] Suh, J., Hibbard, M., Teranishi, K., Tanaka, T., Jah, M., & Akella, M. (2024). Encrypted computation of collision probability for secure satellite conjunction analysis. *75th International Astronautical Congress (IAC 2024)*

## Poster Presentations

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Encrypted Control Experimental Demonstration, Industry Visit at the Auto GNC Lab, 2020.

## Community Engagement

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Encrypted Inverted Pendulum Demonstration at [Explore UT](#) , 2019, 2020.

## Selected Honors and Awards

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Bob E. Schutz, Ph.D. Endowed Presidential Fellowship in Aerospace Engineering, 2022 – 2023

## Professional Service

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Reviewer: TAC, CDC, ACC, ECC, IFAC, L-CSS, Automatica

## References

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**Dr. Takashi Tanaka**, Associate Professor, Dept. of Aero. and Astro., Purdue University  
**Mr. Hyunjun Kenny Park**, Founder, Nika Capital, Seoul, South Korea  
**Dr. Ufuk Topcu**, Professor, Dept. of Aero. Eng. and Eng. Mech., The Univ. of Texas at Austin  
**Dr. Efstathios Bakolas**, Associate Professor, Dept. of Aero. Eng., The Univ. of Texas at Austin  
**Dr. Maruthi Akella**, Professor, Dept. of Aero. Eng., The Univ. of Texas at Austin  
**Dr. Rebecca Russel**, Machine Learning Scientist, Draper Laboratory