

# Donggeon (David) Oh

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## KEYWORDS

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Safety-Critical Learning and Control, Human–Robot Interaction, Decision-Making under Uncertainty

## RESEARCH INTERESTS

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I push the boundaries of **safety assurance** for intelligent systems. In doing so,

- I integrate insights from **control theory**, **reinforcement learning (RL)**, and **dynamic game theory** to certify and enforce safety of high-dimensional, black-box systems under uncertainty.
- I investigate the **interplay between humans and robots** in safety-critical scenarios and how to foster safe, smooth, and **trustworthy collaboration**.

Ultimately, I envision a world where robots operate safely amidst other agents, including humans, in **unstructured, open-world environments**.

## EDUCATION

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### Princeton University

July 2024–May 2029 (Expected)

Ph.D. student, Department of Electrical and Computer Engineering

- Advisor: [Prof. Jaime Fernández Fisac](#)
- Cumulative GPA: 3.84/4.00

### Seoul National University

Mar. 2017–Aug. 2024

B.S. in Aerospace Engineering & B.S. in Artificial Intelligence

- Advisor: [Prof. Hyoun Jin Kim](#)
- Cumulative GPA: 4.11/4.30 (3.92/4.00)—**ranked 2nd** of 71 students.

## PUBLICATIONS

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### Conference Proceedings

- [C1] [Provably Optimal Reinforcement Learning under Safety Filtering](#)  
[D. D. Oh\\*](#), D. P. Nguyen\*, H. Hu, J. F. Fisac  
*International Association for Safe & Ethical AI (IASEAI), 2026*
- [C2] [Safety with Agency: Human-Centered Safety Filter with Application to AI-Assisted Motorsports](#)  
[D. D. Oh\\*](#), J. Lidard\*, H. Hu, H. Sinhmar, E. Lazarski, D. Gopinath, E. S. Sumner, J. A. DeCastro, G. Rosman, N. E. Leonard, J. F. Fisac  
*Robotics: Science and Systems (RSS), 2025*
- [C3] [Safety-Critical Control Under Multiple State and Input Constraints and Application to Fixed-Wing UAV](#)  
[D. D. Oh\\*](#), D. Lee\*, H. J. Kim  
*62nd IEEE Conference on Decision and Control (CDC), 2023*
- [C4] [Stable Contact Guaranteeing Motion/Force Control for an Aerial Manipulator on an Arbitrarily Tilted Surface](#)  
J. Byun, B. Kim, C. Kim, [D. D. Oh](#), H. J. Kim  
*IEEE International Conference on Robotics and Automation (ICRA), 2023*
- [C5] [Real-Time Trajectory Generation of a Quadrotor UAV with Load Suspended from a Pulley](#)  
[D. D. Oh](#), J. Byun, D. Lee  
*International Conference on Control, Automation and Systems (ICCAS), 2022*

## SCHOLARSHIPS & AWARDS

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- First Year Fellowship in Natural Sciences and Engineering** Sept. 2024–May 2025
- The Presidential Science Scholarship** Mar. 2017–Sept. 2022
- National scholarship recognizing 120 top STEM students; conferred by the President of Korea.
- Talent Award of Korea** Nov. 2016
- National cross-disciplinary honor recognizing 100 outstanding Koreans across arts, entrepreneurship, STEM, etc.; conferred by the Deputy Prime Minister & Minister of Education of Korea.

## SKILLS & CERTIFICATION

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### Learning & Simulation

- PyTorch, MuJoCo, Safety Gymnasium, Assetto Corsa (high-fidelity car racing simulator).

### Programming

- Python, MATLAB/Simulink, C/C++, Linux, Git.

### Hardware

- FANATEC sim-racing wheelbase and pedals; custom Linux force-feedback torque driver.

### Human Subjects Research

- Certified by the CITI Program (IRB — Social & Behavioral Research Investigators, completed Nov. 2024).
- Authored the IRB protocol and study materials and coordinated submission to the Princeton University IRB; ran an in-lab user study (N=83) on human–safety filter interaction in Assetto Corsa.

## TEACHING

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- Intelligent Robotic Systems** Spring 2026
- Head Teaching Assistant; Instructed by Prof. Jaime F. Fisac at Princeton University.

## ACADEMIC SERVICES

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### Reviewer Service

- International Association for Safe & Ethical AI (IASEAI)
- IEEE Robotics and Automation Letters (RA-L)
- International Conference on Neuro-symbolic Systems (NeuS)
- ICRA Workshop on Public Trust in Autonomous Systems (PTAS)

### Advising and Mentorship

- Elle Lazarski (undergraduate student at Princeton University)

## REFERENCES

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- Jaime Fernández Fisac** jffisac@princeton.edu
- Assistant Professor of Electrical and Computer Engineering, Princeton University
- Naomi Ehrich Leonard** naomi@princeton.edu
- Chair and Edwin S. Wilsey Professor of Mechanical and Aerospace Engineering, Princeton University

Haimin Hu

- Assistant Research Professor of Computer Science, Johns Hopkins University

[haimin@cs.jhu.edu](mailto:haimin@cs.jhu.edu)

Zixu Zhang

- Senior Autopilot Machine Learning Scientist, Tesla

[zhangzix@tesla.com](mailto:zhangzix@tesla.com)