

Donggeon (David) Oh

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KEYWORDS

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

RESEARCH INTERESTS

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

Princeton University

July 2024–May 2029 (Expected)

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

- Advisor: [Prof. Jaime Fernández Fisac](#)
- Cumulative GPA: 3.90/4.00

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

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

- | | |
|---|----------------------|
| 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

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.

ACADEMIC SERVICES

Reviewer Service

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| • IEEE Robotics and Automation Letters (RA-L) | 2025 |
| • International Conference on Neuro-symbolic Systems (NeuS) | 2025 |
| • ICRA Workshop on Public Trust in Autonomous Systems (PTAS) | 2025 |

Advising and Mentorship

- | | |
|---|--------------------|
| • Elle Lazarski (undergraduate student, Princeton University) | Sept. 2024–Current |
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REFERENCES

- | | |
|---|-----------------------|
| 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 | haimin@cs.jhu.edu |
| • Assistant Research Professor of Computer Science, Johns Hopkins University | |
| Guy Rosman | guy.rosman@tri.global |
| • Manager of the Human Aware Interaction & Learning Team, Toyota Research Institute (TRI) | |
| Zixu Zhang | zhangzix@tesla.com |
| • Senior Autopilot Machine Learning Scientist, Tesla | |