

YUJIN KIM

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RESEARCH INTERESTS

I am interested in machine learning algorithms for decision-making and control in real-world dynamical systems, drawing on reinforcement learning and optimization methods. My research identifies structural limitations in existing learning frameworks — such as state-aliased demonstrations or misspecified residual models — and designs algorithms to overcome them.

EDUCATION

Cornell University <i>PhD in Computer Science;</i>	New York, United States <i>Aug. 2024 –</i>
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Korea University <i>MS in Electrical Engineering; GPA: 4.39/4.5</i>	Seoul, Republic of Korea <i>Mar. 2021 – Aug. 2023</i>
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- Thesis: "Off-Policy Reinforcement Learning Training Method for Multi-Goal Environments and Driving Framework with Synchronized Model Predictive Control"

University of Seoul <i>BS in Electrical and Computer Engineering; GPA: 4.0/4.5</i>	Seoul, Republic of Korea <i>Mar. 2017 – Feb. 2021</i>
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PUBLICATIONS

- **Yujin Kim**, Nidhi Soma and Sarah Dean. "Mind the Residual Gap: Probabilistic Downscaling under Real-World Bias." arXiv preprint arXiv:2606.30821 (2026)
- **Yujin Kim** and Sarah Dean. "Sparse-to-Field Reconstruction via Stochastic Neural Dynamic Mode Decomposition." Annual Learning for Dynamics and Control Conference. PMLR, 2026.
- Dongwhan Kim, Euncheol Im, **Yujin Kim**, and Yisoo Lee. "Single-Instance Sampling for Computationally Efficient and Accurate Real-Time Task Space MPPI Control," in IEEE Transactions on Robotics, vol. 41, pp. 6327-6344, 2025.
- **Yujin Kim**, Nathaniel Chin, Arnav Vasudev and Sanjiban Choudhury. "Distilling Realizable Students from Unrealizable Teachers." 2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2025.
- **Yujin Kim**, Keunwoo Jang. "Whole-body motion planning of dual-arm mobile manipulator for compensating for door reaction force." 2024 IEEE International Conference on Robotics and Automation in PACIFICO Yokohama, Japan, May. 2024.
- **Yujin Kim**, Dong-Sung Pae, Sun-Ho Jang, Woo-Jin Ahn, and Myo-Taeg Lim. "A reinforcement learning approach to dynamic trajectory optimization with consideration of imbalanced sub-goals in self-driving vehicles." Applied Sciences 14.12 (2024): 5213.
- **Yujin Kim**, Sol Choi, Bum-Jae You, Keunwoo Jang and Yisoo Lee "Subspace-wise Hybrid RL for Articulated Object Manipulation." arXiv preprint arXiv:2412.08522 (2024).
- Sun-Ho Jang, Woo-Jin Ahn, **Yujin Kim**, Hyung-Gil Hong, Dong-Sung Pae, and Myo-Taeg Lim. "Stable and Efficient Reinforcement Learning Methods for Avoidance Driving of Unmanned Vehicles." Electronics 12, no. 18 (2023): 3773.
- **Yujin Kim**, Dong-Sung Pae, Sun-Ho Jang, Seong-Woo Kang, and Myo-Taeg Lim. "Reinforcement Learning for Autonomous Vehicles Using MPC in Highway Situations." International Conference on Electronics, Information, and Communication (ICEIC), pp. 1-4. IEEE, 2022.

HONORS AND AWARDS

Scholarship for Excellent Achievement, University of Seoul	<i>Spring, 2018</i>
Research Scholarship Fellow, Hyundai Motor Group	<i>Sep. 2019 – Dec. 2022</i>
Teaching Assistant Scholarship, Korea University	<i>Spring, Fall 2021 – 2022</i>
3rd Place, 10th F1TENTH Autonomous Racing Grand Prix, ICRA 2022	<i>May 2022</i>
3rd Place, 2018 Intelligent Model Car Competition, Hanyang University	<i>Jul. 2018</i>
Special Award for Women Engineer, 14th Microrobot Competition, Dankook University	<i>Jul. 2017</i>

TEACHING AND TUTORING

Mentor, Cornell Bowers Undergraduate Research Experience (BURE)	<i>Jun. 2026 – Aug. 2026</i>
Mentor, Cornell Bowers Undergraduate Research Experience (BURE)	<i>Jun. 2025 – Aug. 2025</i>
Research Staff, Cornell Engineering: CURIE Academy Summer Program	<i>Jan. 2025 – Feb. 2025</i>
Senior Research Mentor, Control and Mechatronics Lab, Korea University	<i>Mar. 2022 – Dec. 2022</i>
Teaching Assistant, Spring 2022 Mechatronics Course, Korea University	<i>Mar. 2022 – Jun. 2022</i>
Senior Tutor, ZETIN, University of Seoul	<i>Mar. 2018 – Dec. 2018</i>
Korean Tutor, KUGS Language Exchange Program, Korea University	<i>Oct. 2022 – May 2023</i>
Seoul Donghaeng-Teaching Volunteering, University of Seoul	<i>Mar. 2018 – Jun. 2021</i>