

# Junsung Park

✉ night1115@snu.ac.kr | 💬 Linkedin | 🏠 jnsungp.github.io | 🤖 HuggingFace

## Research Interests

Robotics Engineer | Learning-Based Control

I aim to build generalizable robot autonomy capable of robust interaction in dynamic, unstructured environments. My primary interest lies in Robot Learning, utilizing Reinforcement Learning and Learning based Control to ensure system robustness against uncertainty.

Ultimately, I seek to advance Human-Robot Interaction, focusing on humanoid robots and wearable interfaces to bridge the gap between human intent and robotic action.

## Education

University of California, San Diego, La Jolla, CA, USA	Jan 2026 (Upcoming)
• Enrolled as an exchange student for Winter and Spring Quarters	
• Tuition and stipend fully covered by Korea-U.S. Student Exchange Program Scholarship	
Seoul National University, Seoul, South Korea	Mar 2020 – Feb 2026
• B.S. in Department of Electrical and Computer Engineering (Minor in Mechanical Engineering)	
• <b>GPA: 3.87/4.0</b>	
• Relevant Coursework: Robot Learning (Graduate, A+), Mechanical System Modeling and Control (A+), Introduction to Robotics (A+), Fundamentals of Control Engineering (A+), Mechatronics (A+)	
• Tuition and stipend fully covered by Silla Scholarship Foundation	
• Leave of absence for 2 years of mandatory military service in the Republic of Korea Air Force (Feb 2022 – Nov 2023)	
Daejeon Science High School for the Gifted, Daejeon, South Korea	Mar 2017 – Feb 2020
• Graduated with Honors, Specialized Curriculum in Mathematics and Physics	

## Publications

[1] Junsung Park. *BiCQL-ML: A Bi-Level Conservative Q-Learning Framework for Inverse Reinforcement Learning*. arXiv preprint arXiv:2511.22210, 2025. ([link](#))

[2] Junsung Park, Hogun Kee, and Songhwai Oh. *Modality-Augmented Fine-Tuning of Foundation Robot Policies for Cross-Embodiment Manipulation on GR1 and G1*. arXiv preprint arXiv:2512.01358, 2025. ([link](#)) (*Working in Progress*)

## Research Experience

Robot Learning Lab (RL LAB), Research Intern (Advisor: Prof. Songhwai Oh)	Jan 2025 – Present
• Pioneered <b>modality-augmented VLA diffusion policies</b> for the <b>Unitree G1</b> , creating a <b>multi-modal dataset</b> that improved manipulation success from 48% to 94% via force integration - <b>open-sourced the dataset on Hugging Face [Link]</b> , achieving over 4k downloads in the first month.	
• Developed a <b>goal-conditioned locomotion controller</b> using <b>end-to-end PPO</b> with <b>curriculum reward shaping</b> , enabling stable navigation and robust heading alignment.	
• Engineered a <b>whole-body motion retargeting pipeline</b> converting the OMOMO dataset to robot kinematics, facilitating large-scale imitation learning of human interactions.	
• Implemented a <b>transformer-based semantic mapping</b> system that transforms egocentric RGB-D observations into allocentric <b>Bird's-Eye-View representations</b> for 3D spatial reasoning.	

Soft Robotics and Bionics Lab, Research Intern (Advisor: Prof. Yong Lae Park)	June 2024 – Dec 2024
• Designed and prototyped a <b>wearable rehabilitation glove</b> integrating <b>Twisted String Actuators</b> and <b>e-gain soft sensor</b> for assisted hand motion.	

- Developed and integrated motor control architecture for real-time finger strain detection, enhanced by **IMU-based feedback control** to enable adaptive and **closed-loop motion regulation**.

**Robotics Laboratory, Research Intern** (Advisor: Prof. Frank Chongwoo Park) Jun 2025 – Present

- Developed and fine-tuned **vision-language-action models** by collecting demonstration data with the **Franka Emika Panda** and adapting the **Pi-0** model for real-world policy transfer.
- Developing a **physics-integrated action generation** framework that augments diffusion policies with a **Hamiltonian action encoder**, embedding **energy-conserving constraints** into the action manifold.

## Conference Presentations

---

**2025 IEEE MIT URTC**, Boston, MA, USA

Oct 2025

- Poster Presentation (Peer-Reviewed Abstract): “*BiCQL-ML: A Bi-Level Conservative Q-Learning Framework for Inverse Reinforcement Learning.*”

**2025 ICCE-ASIA**, Busan, South Korea

Oct 2025

- Poster Presentation: “*BiCQL-ML: A Bi-Level Conservative Q-Learning Framework for Inverse Reinforcement Learning.*”

**2024 SRRC Workshop**, Seoul, South Korea

Feb 2025

- Design and Implementation of a TSA-Driven Opposition Assist Glove with Integrated Soft Sensors
- Presented a poster on the development of a wearable rehabilitation glove integrating rack-and-pinion actuator, e-gain soft sensor and IMU-based feedback control for adaptive hand motion assistance.

## Awards and Honors

---

**Gold Prize, SNU Creative Design Fair (out of 75 teams)**

Sep 2025

- Awarded with a prize of \$1,000 and international conference support worth \$4,000
- Developed and validated a novel offline IRL reward-inference method through predictive-consistency evaluation on MuJoCo continuous-control benchmarks without online RL.

**3rd Prize, Mechatronics Design Competition (out of 25 teams)**

June 2024

- Awarded with a prize of \$500
- Recognized for developing an innovative mechatronic system integrating mechanical design and control algorithms

**Korea-U.S. Student Exchange Program Scholarship**

Nov 2025

- Recognized for excellence in intelligent robotics research; awarded \$9,000 for outstanding academic and interdisciplinary achievement in AI-driven communication and control systems.

**Semiconductor Track Scholarship**

Jan 2025 - Present

- Recognized for excellence in interdisciplinary studies; awarded \$4,300 to date, with \$10,000 to be awarded upon graduation

**Shilla Cultural Scholarship Foundation Scholarship**

Mar 2021 - Present

- Awarded full tuition coverage until graduation, recognizing academic excellence

## Extra Curricular

---

**SNU BUDDY(cultural exchange organization for exchange students)**

Aug 2025 - Dec 2025

- Facilitated cultural exchange by introducing Korean culture and campus life to international exchange students

**Gongsang (SNU College of Engineering Student Reporters)**

Mar 2021 – Dec 2024

- Promoted STEM via web magazines on daily engineering, faculty insights, and engineering disciplines
- Mentored high school students and supported outreach activities at the SNU Youth Engineering Frontier Camp

## Skills

---

**Languages:** Korean, English

**Technologies:** Python, C++, MATLAB, Isaac Sim, Fusion360, Simulink, Verilog