

Myungsun Park [[Website](#)] [mypark@ucsd.edu]

My research focuses on enhancing **adaptability and dexterity in robots during physical interaction with complex environments**. I draw inspiration from human motion, sensing, and intelligence, and embody these principles in real-world robotic systems. My recent work tackles irregular, unsteady, and contact-rich environments through **exteroceptive sensing (e.g., tactile and flow sensing) and human-robot interfaces such as motion-capture gloves that enable physical AI for robot manipulation**.

Experience

2024–Present: Postdoctoral researcher (Advisor: Michael T. Tolley and Geno Pawlak)
University of California, San Diego

Education

2024: Ph.D. in Mechanical engineering (Advisor: Yong-Lae Park)
Seoul National University
2018: B.S. in Mechanical and aerospace engineering (*Summa Cum Laude*)
Seoul National University

Awards and Honors

2025: Selected for Carl Storm Opportunity Fellowship for Gordon Research Conference
2025: Selected for **Rising Stars of RoboSoft 2025**
(15 selected among assistant professors, group leaders, postdocs and students)
2025: Best poster award at the IEEE International Conference on Soft Robotics (RoboSoft)
The HARDER Workshop
2024: **Sejong Science Fellowship** (Overseas Training Track)
National Research Foundation of Korea
2024: Best poster presentation award at the SRRC Workshop
Soft Robotics Research Center, Seoul National University
2022: Selected for Elite summer school, University of southern Denmark
2020: Cover article for *Advanced Intelligent Systems*
2019: 1st Place award in wearable challenge competition
at the IEEE International Conference on Soft Robotics (RoboSoft)
2018: Graduation with honors, *Summa Cum Laude*
2014–2018: Korean national scholarships
2015–2017: SNU Mechanical engineering scholarships
2015–2017: Hyunsong educational and cultural foundation scholarships
2014: Seoul National University foundation scholarship

Publications

1. [TacO: Benchmarking Tactile Sensors for Object Manipulation](#). Anya Zorin, Zilin Si, **Myungsun Park**, Junsung Park, Alexiy Buynitsky, Sachin Bhadang, Taejun Park, Sohee John Yoon, Yong-Lae Park, Oliver Kroemer, Zeynep Temel, Michael T. Tolley, Sha Yi, Xiaolong Wang. *Under review*.
2. [Bioinspired flow sensor enables underwater robots to estimate motion and detect flow structure](#). **Myungsun Park**, Allyson E. Chen, Jacobo Cervera-Torralba, Michael T. Tolley, Geno Pawlak. *Under revision*.
3. [Dynamic shape control of soft robots enabled by data-driven model reduction](#). Iman Adibnazari, Harsh Sharma, **Myungsun Park**, Jacobo Cervera-Torralba, Boris Kramer, Michael T. Tolley. *Under review*.
4. [Analysis of kinematics and propulsion of a self-sensing multi-dof undulating soft robotic fish](#). **Myungsun Park**, Jacobo Cervera-Torralba, Iman Adibnazari, Geno Pawlak, Michael T. Tolley. *IEEE International Conference on Robotics and Automation (ICRA)*. 2025.
5. [Real-time Estimator of Actuator Control and Health \(REACH\) on an Eel-Inspired Soft Robot](#). Zhangjingyi Jiang, **Myungsun Park**, Michael T. Tolley, Mark Campbell. *IEEE International Conference on Soft Robotics (RoboSoft)*. 2025.
6. [Stretchable glove for accurate and robust hand pose reconstruction based on comprehensive motion data](#). **Myungsun Park**, Taejun Park (co-1st author), Soah Park, Sohee John Yoon, Sumin Helen Koo, Yong-Lae Park. ***Nature Communications***. 2024.
7. [Teleoperation of Soft Robots with Real-Time Fingertip Haptic Feedback Using Small Batteries](#). Hyeonseong Ham, **Myungsun Park (co-1st author)**, Taejun Park, Xuelang Gao, Yong-Lae Park, Moon Jeong Park. ***Advanced Materials Technologies***. 2023.
8. [Parametric analysis of multi-material soft sensor structures for enhanced strain sensitivity](#). **Myungsun Park**, Taejun Park, Yong-Lae Park. ***Extreme Mechanics Letters***. 2023.
9. [Selectively stiffening garments enabled by cellular composites](#). Junghan Kwon, Inrak Choi, **Myungsun Park**, Jeongin Moon, Bomin Jeong, Prabhat Pathak, Jooeun Ahn, Yong-Lae Park. ***Advanced Materials Technologies***. 2022.
10. [Pop-up cookie molds: self-folding elastomer sheets using thermal expansion of embedded air chambers](#). Junghan Kwon, **Myungsun Park**, Jaeyoun Choi, Yong-Lae Park. ***Smart Materials and Structures***. 2021.
11. [Probabilistic modeling and Bayesian filtering for improved state estimation for soft robots](#). DongWook Kim, **Myungsun Park**, Yong-Lae Park. ***IEEE Transactions on Robotics***. 2021.
12. [Hybrid system analysis and control of a soft robotic gripper with embedded proprioceptive sensing for enhanced gripping performance](#). **Myungsun Park**, Bomin Jeong, Yong-Lae Park. ***Advanced Intelligent Systems***. 2021. ***Cover article***.
13. [Optically sensorized elastomer air chamber for proprioceptive sensing of soft pneumatic actuators](#). Jaewoong Jung, **Myungsun Park (co-1st author)**, DongWook Kim, Yong-Lae Park. ***IEEE Robotics and Automation Letters***. 2020.
14. [Multi-material soft strain sensors with high gauge factors for proprioceptive sensing of soft bending actuators](#). **Myungsun Park**, Yunsik Ohm, DongWook Kim, Yong-Lae Park. *IEEE International Conference on Soft Robotics (RoboSoft)*. 2019.

Teaching, Mentoring, and Service

- **Peer-reviews:** RA-L, T-RO, RSS, ICRA, RoboSoft, Adv. Int. Sys.
- **Conference session chair:** International Conference on Robotics and Automation (ICRA), Atlanta, GA USA. (5/21/2025)
- **Guest lectures:** UC San Diego MAE 249: Soft Robotics (5/15/2024, 11/19/2024, 11/11/2025)
- **Project evaluation:** UC San Diego MAE 156B: Senior mechanical engineering student design projects (11/21/2024, 3/19/2025, 6/10/2025)
- **Conference volunteer:** IEEE International Conference on Soft Robotics (RoboSoft) San Diego, CA USA (4/14-17, 2024).
- **Teaching Assistant:** SNU M2794.001700: Mechanical product design (2019)
- **Mentoring:** Nadjila Sediki (MAE), Anu Fnu (CS), Yushan Xian (EE)
- **Tutoring:** SNU Peer tutoring program (math, physics), 18 freshmen/international students (2015–2018)
- **Team leader:** SNU student club for off-road car racing (KSAE Baja) (2015–2017)

Patents

1. [Variable Stiffness Structure with Sandwich Structure](#). Yong-Lae Park, Junghan Kwon, Inrak Choi, Myungsun Park, Bomin Jeong. Korean Patent No. 1026586640000 (2024/04/15).
2. [Forming Mold](#). Junghan Kwon, Yong-Lae Park, Myungsun Park, Jaeyoun Choi. Korean Patent No. 1027893080000 (2025/03/26).
3. [Optical Sensing Actuator, Soft Robot Having The Same Manufacturing Methods of Optical Sensing Actuator](#). Yong-Lae Park, Jaewoong Jung, Myungsun Park. Korean Patent No. 1022759000000 (2021/07/05).

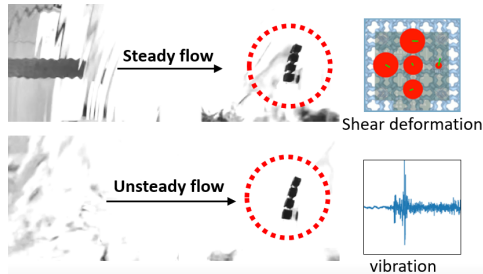
Filed

1. **Flow sensor for underwater robots**. Myungsun Park, Geno Pawlak, Michael T. Tolley. US Provisional Patent. Serial number 63/912,066 (2025/11/5).
2. [Soft Sensing Glove](#). Yong Lae Park, Myungsun Park, Taejun Park, Sohee Yoon. US Patent Application No. 19/224,848 (2025/6/1).
3. [Soft Sensing Glove](#). Yong Lae Park, Myungsun Park, Taejun Park, Sohee Yoon. Korean Patent Application No. 10-2025-0015203 (2025/2/6).
4. **Sensor-Integrated Actuator, and Haptic Feedback System Using Same**. Moon Jeong Park, Yong-Lae Park, Myungsun Park, Hyeon Seong Ham. China Patent Application No. 202410332777.1 (2024/3/22).
5. [Sensor-Integrated Actuator, and Haptic Feedback System Using Same](#). Moon Jeong Park, Yong-Lae Park, Myungsun Park, Hyeon Seong Ham. Moon Jeong Park, Yong-Lae Park, Myungsun Park, Hyeon Seong Ham. US Patent Application No. 18/612,259 (2024/03/21).
6. [Sensor-Integrated Actuator, and Haptic Feedback System Using Same](#). Moon Jeong Park, Yong-Lae Park, Myungsun Park, Hyeon Seong Ham. Korean Patent Application No. 1020240038697 (2024/03/20).

Research experiences (related publications)



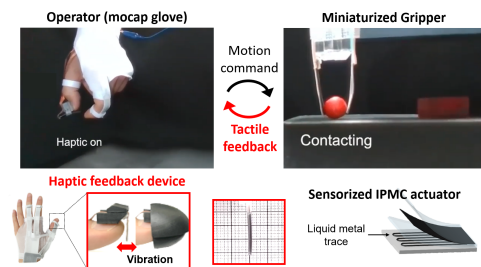
- Tactile sensing for imitation learning of fin-ray grippers in tasks involving slip, sliding, and impact (1)



- Multi-modal flow sensing for measuring directional velocity and vibration
- Application on underwater robots (2)



- Wearable motion-tracking glove capable of measuring finger abduction and distinguishing morphological variations across individuals
- Application on robot hand teleoperation (6,8,14)



- Planning and control of robotic grippers using tactile and proprioceptive sensing with haptic feedback (7,11,12,13)



- Development of novel sensing and actuation technologies, including liquid metal, magnetic, optical, pneumatic, and hydraulic systems (1-14)



- Vacuum-driven variable-stiffness structure for compliance and impact resistance (9)



- Design of bioinspired underwater robots and their sensing and locomotion (2,3,4,5)