Eunsu Lee

MS Student · Mechanical Engineering

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Education

Seoul National University *Seoul, Korea*

Bachelor of Science in Mechanical Engineering *2018 - 2022*

- Total GPA of 4.0/4.3 (3.9/4.0) - ***Summa Cum Laude***

Seoul National University *Seoul, Korea*

Masters of Science in Mechanical Engineering (Expected 2024.08.) *2022 - Present*

- Advisor: Yong-lae Park
- Total GPA of 4.12/4.3 (4.0/4.0)

Research Interests

Soft Robotics, Soft Sensors, Physical Human-Robot Interaction, Human-machine Interface

Publications

Published

Jaewoong Jung, **Eunsu Lee**, Jaehoon Kim, Yong-Lae Park. "Ultra-Thin Multi-Modal Soft Sensor Using Liquid-Metal Thin-Film Deposition for Enhanced Human-Robot Interaction." *IEEE Robotics and Automation Letters*, 2024.

Under Review / In preparation

Eunsu Lee*, Sungjin Kim*, Yong-Lae Park. "Multimodal Soft Optical Waveguide Sensor with Microstructured Core-Cladding Interface for Human-Robot Interaction," *IEEE Transactions on Robotics*, submitted.

Sang-Yeop Lee*, **Eunsu Lee***, Wonseok Choi, Jungin Moon, Jooeun Ahn, and Kyujin Cho, "Exo-Ankle: A soft wearable robotic system for supporting lateral ankle stability during walking," in preparation.

Research Experience

Soft Robotics and Bionics Laboratory, Seoul National University *Seoul, Korea*

Research Assistant *August 2022 - Present*

- Advisor: Yong-Lae Park
- **Multimodal Soft Optical Waveguide Sensor for Human-Robot Interaction**
  - Designed, fabricated, and characterized soft multimodal optical waveguide sensor for bending and pressure sensing
  - Experimentally characterized multi-dof multimodal soft sensor
  - Developed a sensorized wrist sleeve and demonstrated the sensor's application in teleoperation tasks
- **Liquid Metal Thin Film based Multimodal Sensor**
  - Designed and fabricated multimodal sensor using liquid metal thin film deposition and micro-structuring of polymer surfaces
  - Experimentally characterized 3-dof multimodal soft sensor
  - Implemented machine learning algorithm for multimodal sensor signal processing
- **Light-controlled underwater robot**
  - Designed and fabricated the laser signal receiver for light-controlled DEA-based underwater robot
- **Sensorized knee sleeve for human motion detection (collaboration with Samsung Research)**
  - Designed and fabricated optical waveguide sensor for knee position estimation

Biorobotics Laboratory (Soft Robotics Research Center), Seoul National University *Seoul, Korea*

Undergraduate Research Intern *July 2020 - July 2022*

- Advisor: Kyujin Cho
- **Soft Robotic Wearable System for Ankle Sprain Prevention**
  - Designed, fabricated, and evaluated soft pneumatic actuators for ankle-specific wearable systems
  - Comprised a mechatronic system and devised a closed-loop control algorithm
  - Designed and conducted human performance evaluation
  - **Related Skills**: Design, Fabrication, System Integration, Mechatronics, Human Experiments

Technical skills

Programming languages and Softwares	Python, C, LabVIEW, MATLAB, Arduino, SOLIDWORKS, COMSOL, Adobe Photoshop
Fabrication	Soft Polymers, 3D printers, Fabric
Languages	English (Professional proficiency), Korean (Native Proficiency)

Honors and Awards

2018 **1st place**, Robocon, Seoul National University
2018 Merit-based Scholarship, Seoul National University
2019 Eminence Scholarship, Seoul National University
2021 Merit-based Scholarship, Seoul National University
2021 SNU Development Fund Scholarship, Seoul National University