Eunsu Lee

Physical Human-Robot Interaction, Soft Robotics, Soft Sensors

✉ eunuce1208@snu.ac.kr | ⌂ eunsulee12.github.io

Education

Seoul National University   *Seoul, Korea*

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING   *2018 - 2022*

- Total GPA of 4.04/4.3 (3.88/4.0) - **Summa Cum Laude**

Seoul National University   *Seoul, Korea*

MASTERS OF SCIENCE IN MECHANICAL ENGINEERING   *2022 - 2024*

- Advisor: Yong-lae Park
- Total GPA of 4.09/4.3 (3.93/4.0)
- **Outstanding Master's Thesis Award**
- Outstanding MS Thesis Presentation Award

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," in preparation.

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.

Junhyung Kim, Seongjun Koh, **Eunsu Lee**, Jeehoon Hwang and Yong-Lae Park, "Wavelength division wireless reception system for small-sized underwater device," 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
- **Wavelength division wireless reception system for small-sized underwater device**
  - Designed and fabricated the laser signal receiver for light-controlled DEA-based underwater device
- **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 (Creative Engineering Design), 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
2024	**Outstanding Master's Thesis Award**, Seoul National University
2024	**Outstanding MS Thesis Presentation Award**, Seoul National University