

Sudong Lee

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E-Mail. slee0@snu.ac.kr | ORCID. [0000-0002-8928-6070](https://orcid.org/0000-0002-8928-6070)

301-1412, Seoul National University, 1, Gwanak-ro, Gwanak-gu, Seoul 08826, Korea.



Education

Seoul National University

M.S. in Mechanical Engineering

Advisor: Prof. Yong-Lae Park

Thesis: Modularized Robotic Skin Sensorized by Fiber Optic Force Sensing for Remote and Autonomous Robot Operation [[Link](#)]

Seoul, Korea.

2019.03. - 2021.08.

Korea University

B.S. in Mechanical Engineering

Seoul, Korea.

2013.03. - 2019.02.

Research Experience

Soft Robotics Research Center (SRRC)

- Seoul National University

Research Assistant

Research topics:

Fiber Jamming Actuator driven by Tendon to Enhance Adaptability,
Robotic Skin using 3-DoFs Force Sensor for Dexterous and Safe Interaction

Seoul, Korea.

2021.09. - present

Soft Robotics and Bionics Laboratory (SRBL)

- Mechanical Engineering, Seoul National University

Graduate Student

Research topics:

Robotic Skin Sensorized by Fiber Optic Strain Sensors,
Multi-modal Locomotion and Environmental Adaptability of Legged Robots,
Soft Electronics and Sensors using Stretchable Materials and Sensing Mechanisms

Seoul, Korea.

2019.01. - 2021.08.

Honors and Awards

M.S. Thesis Presentation Award

Mechanical Engineering, Seoul National University

2021.06.

Third Place Award for Locomotion Challenge

IEEE International Conference on Soft Robotics 2019 (RoboSoft 2019)

Team SRBL (Sudong Lee, G. Shin, J. Kim, M. Choi, Y. Baek, and Y.-L. Park)

2019.04.

Great Honor, Winter 2018 Graduation

Korea University

2019. 02.

Semester High Honors

Korea University

2013 - 2018

Scholarships

Kwanjeong Fellowship Kwanjeong Educational Foundation	1 st Semester, 2019. - 2 nd Semester, 2020.
National Science and Engineering Scholarship Korea Student Aid Foundation	1 st Semester, 2015. - 2 nd Semester, 2018.
Academic Excellence Scholarship Korea University	2 nd Semester, 2014.
Best Honor Scholarship Korea University	1 st Semester, 2014.

Publications

Journal Papers

1. T. Kim, **Sudong Lee**, T. Hong, G. Shin, T. Kim, and Y.-L. Park, "Heterogeneous Sensing in a Multifunctional Soft Sensor for Human-Robot Interfaces," *Science Robotics*, Vol. 5, No. 49, eabc6878, 2020. (DOI: [10.1126/scirobotics.abc6878](https://doi.org/10.1126/scirobotics.abc6878))
2. G. Shin*, **Sudong Lee***, and Y.-L. Park, "Selective Patterning of Conductive Elastomers Embedded with Silver Powders and Carbon Nanotubes for Stretchable Electronics," *IEEE Robotics and Automation Letters*, vol. 7, no. 2, pp. 4983-4990, 2022. (DOI: [10.1109/LRA.2022.3153707](https://doi.org/10.1109/LRA.2022.3153707))
*: *These authors contributed equally to this work.*
3. Y. Lee, S. Lim, W. J. Song, **Sudong Lee**, S. J. Yoon, J.-M. Park, M.-G. Lee, Y.-L. Park, and J.-Y. Sun, "Triboresistive Touch Sensing: Grid-Free Touch Point Recognition Based on Monolayered Ionic Power Generators," *Advanced Materials*, vol. 34, no. 19, 2108586, 2022. (DOI: [10.1002/adma.202108586](https://doi.org/10.1002/adma.202108586))
4. **Sudong Lee***, J. I. Kim*, Y. Baek, D. Chang, J. Lee, Y. S. Park, D. Lee, and Y.-L. Park, "Modularized Robotic Skin Sensorized by Fiber Optic Force Sensing for Remote and Autonomous Robot Operation." (Submitted to *IEEE Transactions on Robotics*.)
*: *These authors contributed equally to this work.*
5. T. Kim*, **Sudong Lee***, S. Chang, S. Hwang, Y.-L. Park, "Multi-modal Locomotion and Environmental Adaptability of Legged Robots using Soft Inflatable Sensing Skin." (Prepared to submit)
*: *These authors contributed equally to this paper.*
6. D. Kim, **Sudong Lee**, T. H. Hong, and Y.-L. Park, "Robust Online Model Identification for Versatile Robot Control Based on Self-Attention Learning." (Prepared to submit)

In preparation - Fiber Jamming Actuator driven by Tendon with Image Sensing of Optic Fiber
- Robotic Skin using 3-DoFs Force Sensor with Soft Chamber

Conference Papers and Posters

1. G. Shin*, **Sudong Lee***, and Y.-L. Park, "Selective Patterning of Conductive Elastomers Embedded with Silver Powders and Carbon Nanotubes for Stretchable Electronics," *IEEE International Conference on Soft Robotics 2022 (Robosoft 2022)*.

**: These authors contributed equally to this work.*

Patents

1. J. I. Kim, **Sudong Lee**, Y. Baek, and Y.-L. Park, "Modularized Robotic Skin," 2020.
(Korea Appl. No.: 1020200148802)
2. T. Kim, **Sudong Lee**, and Y.-L. Park, "Soft Sensor with Multi-Sensing Function," 2020.
(Korea Appl. No.: 1020200144246)

Teaching Experience

M2794.001700_001: Mechanical Product Design

1st Semester, 2019.

- *Mechanical Engineering, Seoul National University*

Teaching assistant, Instructor: Prof. Yong-Lae Park.

Skills

Programming Languages: C++, Python, Matlab

Embedded System: Arduino, AVR ATmega, Single-Board Computer (SBC)

Software for System and Robots: ROS, Pybullet

Machine Learning: Pytorch, TensorFlow

Design and Simulation: 3D Computer-Aided Design (CAD), Finite Element Analysis (FEA) Software

Fabrication: 3D Printing (Additive Manufacturing), Silicone Fabrication

Other Experience

Republic of Korea Air Force (ROKAF, Military Service)

2015.08. - 2017.08.

Staff Sergeant, Honorable discharge