

# SUDONG LEE

[Google Scholar](#) ◇ [LinkedIn](#)

ORCID: [0000-0002-8928-6070](#)

## EDUCATION

<b>Ph.D. student in Robotics, Control, and Intelligent Systems (EDRS)</b> <i>EPFL (Swiss Federal Institute of Technology in Lausanne)</i> <i>Advisor: Prof. Josie Hughes</i>	2023.04. - present <i>Lausanne, Switzerland.</i>
<b>M.S. in Mechanical Engineering</b> <i>Seoul National University</i> <i>Advisor: Prof. Yong-Lae Park</i> <i>Thesis: Modularized Robotic Skin Sensorized by Fiber Optic Force Sensing for Remote and Autonomous Robot Operation [<a href="#">Link</a>]</i>	2019.03. - 2021.08. <i>Seoul, Korea.</i>
<b>B.S. in Mechanical Engineering</b> <i>Korea University</i>	2013.03. - 2019.02. <i>Seoul, Korea.</i>

## RESEARCH EXPERIENCE

<b>Computational Robot Design &amp; Fabrication Laboratory (CREATE Lab)</b> <i>- EPFL (École Polytechnique Fédérale de Lausanne)</i> <i>Assistant-doctorant</i>	<i>Lausanne, Switzerland.</i> 2023.04. - present
<b>Soft Robotics Research Center (SRRC)</b> <i>- Seoul National University</i> <i>Research Associate</i> <i>Research Assistant</i> <i>Research topics:</i> <ul style="list-style-type: none"><li>· Fiber Jamming Actuator driven by Tendons to Enhance Adaptability</li><li>· Robotic Skin using 3-DoFs Force Sensor for Dexterous and Safe Interaction</li></ul>	<i>Seoul, Korea.</i> 2022.09. - 2023.03. 2021.09. - 2022.08.
<b>Soft Robotics and Bionics Laboratory (SRBL)</b> <i>- Mechanical Engineering, Seoul National University</i> <i>Graduate Student Researcher</i> <i>Research topics:</i> <ul style="list-style-type: none"><li>· Robotic Skin Sensorized by Fiber Optic Strain Sensors</li><li>· Multi-modal Locomotion and Environmental Adaptability of Legged Robots</li><li>· Soft Electronics and Sensors using Stretchable Materials and Sensing Mechanisms</li></ul>	<i>Seoul, Korea.</i> 2019.01. - 2021.08.

## HONORS AND AWARDS

<b>M.S. Thesis Presentation Award</b> <i>Mechanical Engineering, Seoul National University</i>	2021.06.
<b>Third Place Award for Locomotion Challenge</b> <i>IEEE International Conference on Soft Robotics 2019 (RoboSoft 2019)</i> <i>Team SRBL (Sudong Lee, G. Shin, J. Kim, M. Choi, Y. Baek, and Y.-L. Park)</i>	2019.04.
<b>Great Honor, Winter 2018 Graduation</b> <i>Korea University</i>	2019. 02.
<b>Semester High Honors</b> <i>Korea University</i>	1 <sup>st</sup> Semester, 2013., 2 <sup>nd</sup> Semester, 2013., 1 <sup>st</sup> Semester, 2014., 2 <sup>nd</sup> Semester, 2014., 1 <sup>st</sup> Semester, 2015.,

## SCHOLARSHIPS

---

**Kwanjeong Fellowship**  
Kwanjeong Educational Foundation

1<sup>st</sup> Semester, 2019.,  
2<sup>nd</sup> Semester, 2019.,  
1<sup>st</sup> Semester, 2020.,  
2<sup>nd</sup> Semester, 2020.

**National Science and Engineering Scholarship**  
Korea Student Aid Foundation

1<sup>st</sup> Semester, 2015.,  
2<sup>nd</sup> Semester, 2017.,  
1<sup>st</sup> Semester, 2018.,  
2<sup>nd</sup> Semester, 2018.

**Academic Excellence Scholarship**  
Korea University

2<sup>nd</sup> Semester, 2014.

**Best Honor Scholarship**  
Korea University

1<sup>st</sup> 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))  
\*: **Sudong Lee and G. Shin are co-first authors.**
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. T. Kim\*, **Sudong Lee\***, S. Chang, S. Hwang, and Y.-L. Park, "Environmental Adaptability of Legged Robots with Cutaneous Inflation and Sensation," *Advanced Intelligent Systems*, 2300172, 2023. (DOI: [10.1002/aisy.202300172](https://doi.org/10.1002/aisy.202300172))  
\*: **Sudong Lee and T. Kim are co-first authors.**
5. J. Kang\*, **Sudong Lee\***, and Y.-L. Park, "Soft Bending Actuator With Fiber-Jamming Variable Stiffness and Fiber-Optic Proprioception," *IEEE Robotics and Automation Letters*, vol. 8, no. 11, pp. 7344-7351, 2023. (DOI: [10.1109/LRA.2023.3316075](https://doi.org/10.1109/LRA.2023.3316075))  
\*: **Sudong Lee and J. Kang are co-first authors.**
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." (Accepted to *npj Robotics*.)
7. **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." (Under review, Submitted to *IEEE Transactions on Robotics*.)  
\*: **Sudong Lee and J. I. Kim are co-first authors.**

### 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)*.  
\*: **Sudong Lee and G. Shin are co-first authors.**

2. S. Koh\*, **Sudong Lee\***, and Y.-L. Park, "Multi-Functional Tactile Sensors Using a Hybrid Structure of Soft and Rigid Layers for Adaptable Interactions of Robots," (*Submitted to IEEE International Conference on Robotics and Automation 2024 (ICRA 2024)*).

\*: **Sudong Lee and S. Koh are co-first authors.**

## PATENTS

---

1. J. I. Kim, **Sudong Lee**, Y. Baek, and Y.-L. Park, "Modularized Robotic Skin," 2020.  
(Korea Appl. No.: 1,020,200,148,802)
2. T. Kim, **Sudong Lee**, and Y.-L. Park, "Soft Sensor with Multi-Sensing Function," 2022.  
(Korea Patent: 102,384,623)

## TEACHING EXPERIENCE

---

**M2794.001700\_001: Mechanical Product Design**  
- Mechanical Engineering, Seoul National University  
Teaching assistant, Instructor: Prof. Yong-Lae Park.

1<sup>st</sup> Semester, 2019.

## ACADEMIC SERVICE

---

Reviewer - Journal Papers  
*IEEE Robotics and Automation Letters (RA-L)*  
*Soft Robotics*

Reviewer - Conference Paper  
*IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*

## TECHNICAL STRENGTHS (SKILLS)

---

<b>Programming Languages</b>	C++, Python, Matlab
<b>Embedded System</b>	Arduino, AVR ATmega, Single-Board Computer (SBC)
<b>Software for System and Robots</b>	ROS, Pybullet
<b>Machine Learning</b>	Pytorch, TensorFlow
<b>Design and Simulation</b>	3D Computer-Aided Design (CAD), Finite Element Analysis (FEA) Software
<b>Fabrication</b>	3D Printing (Additive Manufacturing), Silicone Fabrication

## OTHER EXPERIENCE

---

**Republic of Korea Air Force (ROKAF, Military Service)**  
Staff Sergeant, Honorable discharge.

2015.08. - 2017.08.