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Research Fields

- **Bioelectronics for neuroscience, healthcare, and human-machine interface**
  - ► Soft implantable electronics
  - ► Physiological sensors
  - ► Wireless neural interface

Education

- **Integrated M.S/Ph.D. in Electrical Engineering** — Mar. 2019 - Present
  KAIST, Daejeon, South Korea — (GPA: 4.08/4.3)
  Bio-Integrated Electronics and Systems Lab (Advisor: Jae-Woong Jeong)
- **B.S. in Electrical Engineering** — Mar. 2015 - Feb. 2019
  KAIST, Daejeon, South Korea — (GPA: 3.79/4.3)
- **High School Diploma** — Mar. 2013 - Feb. 2015
  Hansung Science High School, Seoul, South Korea — Early graduation

Awards and Honors

- **Graduate Student Outstanding Paper Award**, KAIST — Nov. 2024
- **Government-Sponsored Scholarship**, KAIST — Mar. 2019 - Present
- **BK21 Financial Support for Overseas Long-Term Training**, KAIST — Sep. 2022
- **Outstanding Teaching Assistant Award**, KAIST — Apr. 2021
- **Cum Laude**, KAIST — Feb. 2019
- **National Scholarship for Science and Engineering**, KOSAF — Mar. 2015 - Dec. 2018
- **Full Tuition Scholarship**, KAIST — Mar. 2015 - Dec. 2018

Publications

[1] H. Kim†, **J. Lee†**, U. Heo, D. Jayashankar, K.-C. Agno, Y. Kim, C. Y. Kim, Y. Oh, S.-H. Byun, B. Choi, H. Jeong, W.-H. Yeo, Z. Li, S. Park, J. Xiao, J. Kim, J.-W. Jeong (2024). Skin-preparation-free, stretchable microneedle adhesive patches for reliable electrophysiological sensing and exoskeleton robot control. *Science Advances, 10(3), eadk5260*.

[2] K. E. Parker†, **J. Lee†**, J. R. Kim†, C. Kawakami, C. Y. Kim, R. Qazi, K.-I. Jang, J.-W. Jeong, J. G. McCall (2023). Customizable, wireless, and implantable optogenetic probe design and fabrication via 3D printing. *Nature Protocols, 18(1), 3-21*. **(Featured on the Cover)**

[3] **J. Lee†**, K. E. Parker†, C. Kawakami†, J. R. Kim†, R. Qazi, J. Yea, S. Zhang, C. Y. Kim, J. Bilbily, J. Xiao, K.-I. Jang, J. G. McCall, J.-W. Jeong (2020). Rapidly Customizable, Scalable 3D-Printed Wireless Optogenetic Probes for Versatile Applications in Neuroscience. *Advanced Functional Materials*, *30(46), 2004285*. **(Featured on the Back Cover)**

[4] I. Kang†, J. Bilbily†, C. Y. Kim, C. Shi, M. K. Madasu, E. Y. Jeong, K. E. Parker, D. A. Kwon, B.-J. Jung, J.-S. Yang, **J. Lee**, N. D. L. Kabbaj, W. Lee, J.-B. Yoon, R. Al-Hasani, J. Xiao, J. G. McCall, J.-W. Jeong (2024). Wireless Modular Implantable Neural Device with One-touch Magnetic Assembly for Versatile Neuromodulation. *Advanced Science, 2406576.*

[5] S. Oh†, S. Lee†, S. W. Kim, C. Y. Kim, E. Y. Jeong, **J. Lee**, D. A. Kwon, J.-W. Jeong (2024). Softening Implantable Bioelectronics: Material Designs, Applications, and Future Directions. *Biosensors and Bioelectronics, 116328.*

[6] G.-H. Lee†, H. Kim†, **J. Lee**, J.-Y. Bae, M. Kim, C. Yang, S. Park, H. Kang, S.-K. Kang, J. Kang, Z. Bao, J.-W. Jeong, S. Park (2023). Large-area photo-patterning of initially conductive EGaIn particle-assembled film for soft electronics. *Materials Today, 67, 84-94*

[7] S.-H. Byun†, J. Y. Sim†, Z. Zhou, **J. Lee**, R. Qazi, M. C. Walicki, K. E. Parker, M. P. Haney, S. H. Choi, A. Shon, G. B. Gereau, J. Bilbily, S. Li, Y. Liu, W.-H. Yeo, J. G. McCall, J. Xiao, J.-W. Jeong (2019). Mechanically transformative electronics, sensors, and implantable devices. *Science advances, 5(11), eaay0418*.

Conference Presentations

[1] **J. Lee**, K. E. Parker, J. G. McCall, J.-W. Jeong (2024). Wireless optoelectronic neural interfaces for simultaneous and spatially-matching optogenetics and electrophysiology. *The 12th World Biomaterials Congress, poster presentation*

[2] **J. Lee**, K. E. Parker, C. Kawakami, J. R. Kim, R. Qazi, J. Yea, S. Zhang, C. Y. Kim, J. Bilbily, J. Xiao, K.-I. Jang, J. G. McCall, J.-W. Jeong (2021). Customizable and rapidly manufacturable 3D-printed neural probes for wireless optogenetics. *2021 Virtual MRS Spring Meeting & Exhibit, oral presentation*

[3] H. Kim, **J. Lee**, U. Heo, D. Jayashankar, K.-C. Agno, Y. Kim, C. Y. Kim, Y. Oh, S.-H. Byun, B. Choi, H. Jeong, W.-H. Yeo, Z. Li, S. Park, J. Xiao, J. Kim, J.-W. Jeong (2024). Skin-Preparation-Free, Stretchable Microneedle Adhesive Patches for High-Fidelity Electrophysiological Sensing and Exoskeleton Robot Control. *2024 MRS Spring Meeting & Exhibit, oral presentation*

[4] H. Kim, **J. Lee**, J.-W. Jeong (2022). Adhesive, Air-permeable, Stretchable Conductive Sensors for Long-term Electrophysiological Signal Monitoring. *The 6th International Conference on Active Materials and Soft Mechatronics*

[5] S.-H. Byun, J. Y. Sim, Z. Zhou, **J. Lee**, R. Qazi, M. C. Walicki, K. E. Parker, M. P. Haney, S. H. Choi, A. Shon, G. B. Gereau, J. Bilbily, S. Li, Y. Liu, W.-H. Yeo, J. G. McCall, J. Xiao, J.-W. Jeong (2020).

Mechanically Transformative Electronics Enabled by Gallium-Elastomer Composite. *2020 BMES Annual Meeting*

Experience

- **Visiting Researcher,** Stanford University, United States
  - ► Department of Chemical Engineering, Bao Research Group — Sep. 2022 - Feb. 2023
- **Teaching Assistant,** KAIST
  - ► Electronics Design Lab (Device, Circuit), MEMS in EE Perspective — Sep. 2019 – Dec. 2023
- **Freshman Tutoring Program,** KAIST
  - ► General Physics I — Mar. 2016 - Jun. 2018
- **Language Exchange Program (German),** KAIST — Fall. 2017
- **Exchange Student,** Karlsruhe Institute of Technology (KIT), Germany
  - ►Fakultät für Elektrotechnik und Informationstechnik — Mar. - Aug. 2017