* Jo SeongHyeon
조 성 현

+82) 10 4223 3052
sh.jo@kaist.ac.kr / mathjsh217@gmail.com

Academic Background

PhD, Mechanical Engineering

Mar 2019- Aug 2025-

KAIST (Korea Advanced Institute of Science and Technology)
NREL(Neuro-Rehabilitation Engineering Lab)
Thesis : Development and Validation of an Intention Recognition Based Hand Rehabilitation Robot System for Promoting Neuroplasticity in Stroke Patients

MS, Mechanical Engineering

Mar 2017- Feb 2019-

KAIST (Korea Advanced Institute of Science and Technology)
NREL(Neuro-Rehabilitation Engineering Lab)
Thesis : EEG Analysis based on subject-specific MRI data during self-paced treadmill training of patients post stroke

BS, Mechanical Engineering

Mar 2012- Feb 2017-

KAIST (Korea Advanced Institute of Science and Technology)

Undergraduate researcher

Jan 2014- Dec 2015-

KAIST (Korea Advanced Institute of Science and Technology)
RISTI (Research Institute for Social Technology and Innovation)

Undergraduate researcher

Jan 2013- Dec 2014

KAIST (Korea Advanced Institute of Science and Technology)
KSE(Knowledge Service Engineering)

WORK EXPERIENCE

System Engineer, KAIDEA
Daejeon, Republic of Korea — 2014-2016

PUBLICATION

1. Lee, Hyemin S., **Jo, Seong-Hyeon,** et al. "Individual finger movement decoding using a novel ultra-high-density electroencephalography-based brain-computer interface system." *Frontiers in Neuroscience* 16 (2022).
2. Bhatia, Divij, **Jo, Seong-Hyeon,** et al. "Wearable triboelectric nanogenerator based exercise system for upper limb rehabilitation post neurological injuries." *Nano Energy* 80 (2021): 105508.
3. Oh, Keonyoung, **Jo, Seong-Hyeon**, et al. "Improved cortical activity and reduced gait asymmetry during poststroke self-paced walking rehabilitation." *Journal of neuroengineering and rehabilitation* 18.1 (2021): 1-12.
4. Choe, Jong-Hun, **Jo, Seong-Hyeon**, et al. "Design and Manufacture of Robotic Exoskeleton Hands Using 3-D Printer." *Journal of Engineering Education Research* 17.4 (2014): 3-6.
5. **Jo, Seong-Hyeon**, et al. "The smart IV stand design through human tracking mobile robot system by CDS cell." *Modern Physics Letters B* 29.06n07 (2015): 1540013.

6. Choe, Jong-Hun, **Seong-Hyeon Jo**, Suk-Hyun Seo, Won-Hoe Kim, Ji-Eum Hyun, Hong-Kyu Lee, Yun-Haek Kim, and Se-Ho Park. "Design and Manufacture of Robotic Exoskeleton Hands Using 3-D Printer." Journal of Engineering Education Research 17, no. 4 (2014): 3-6.

CONFERENCE

1. Kim, Minki, **Jo, SeongHyeon**, et al., "Development of Multimodal EEG-EMG Human Machine Interface for Hand-Wrist Rehabilitation: A Preliminary Study." In *2025 International Conference On Rehabilitation Robotics (ICORR)*, pp. 1564-1569. IEEE, 2025.
2. **Jo, SeongHyeon**, and Hyung-Soon Park. "BCI-Based Dexterous Hand Rehabilitation Robot for Grasping Training of Post Stroke." *International Conference on NeuroRehabilitation*. Cham: Springer Nature Switzerland, 2024.
3. Feng, Jirou, Min Jin Yang, Seulki Kyeong, Yusung Kim, **SeongHyeon Jo**, Hyung-Soon Park, and Jung Kim. "Hand Grasp Motion Intention Recognition Based on High-Density Electromyography in Chronic Stroke Patients." In *2023 45th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, pp. 1-4. IEEE, 2023.
4. **Jo, SeongHyeon**, et al. "Functional MRI assessment of brain activity during hand rehabilitation with an MR-compatible soft glove in chronic stroke patients: A preliminary study." *2023 International Conference on Rehabilitation Robotics (ICORR)*. IEEE, 2023.
5. **Jo, SeongHyeon**, et al. "EEG-EMG hybrid real-time classification of hand grasp and release movements intention in chronic stroke patients." *2022 International Conference on Rehabilitation Robotics (ICORR)*. IEEE, 2022.

PATENTS

1. **Jo, SeongHyeon,** et al, 뉴로피드백을 이용한 재활훈련 시스템, filled November 28, 2023
2. **Jo, SeongHyeon,** et al, WiFi 라디오 맵 자동 구축 시스템, filled December 22, 2015
3. KAIDEA, Supply device and supply method for continuously supplying filament of 3D printer, KOR patent 1020150044739, filled March 31, 2015
4. KAIDEA, **Jo, SeongHyeon**, et al, Supply device and supply method for continuously supplying filament of 3D printer, KOR patent 1020150044739, filled March 31, 2015
5. KAIDEA, **Jo, SeongHyeon**, et al, 3D printer to choose colors, 1020150133221, filled September 21, 2015
6. **Jo, SeongHyeon,** et al, Small vessels unmanned marine cleaning, filled July 29, 2014
7. **Jo, SeongHyeon,** et al, Edu. Square Clock, filled July 29, 2014
8. **Jo, SeongHyeon,** et al, Edu. Square 한글, filled July 29, 2014
9. **Jo, SeongHyeon,** et al, The design of left-turning vehicle guidance system using the Photovoltaic, filled March 30, 2014
10. **Jo, SeongHyeon,** et al, Smart drip stand/ Smart IV stand, filled March 30, 2014
11. **Jo, SeongHyeon,** et al, Oil pressure prosthetic hand, filled March 24, 2014

SKILLS

- Programming – C/C++, C#, Python, MATLAB, Javascript
- Web Frontend - React
- 3D CAD design – Solidworks

RESEARCH INTERESTS

Brain computer interfaces
Neural decoding of human thinking
Deep learning for automation