

# Soo Ahn Lee

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## **MAJOR RESEARCH INTERESTS**

- Investigating the brain representations and mechanisms of how pain and pleasure interact in the cognitive and affective dimensions
- Developing fMRI-based brain models of pleasure and pain with advanced machine learning techniques

## **EDUCATION & TRAINING**

Sep 2022 – present	Biomedical Global Leadership Training Grant (predoctoral), Department of Psychological and Brain Sciences, Dartmouth College, United States (Advisor: Tor D. Wager, Ph.D.)
Sep 2018 – present	Master-Ph.D. combined course student, Department of Biomedical Engineering, Sungkyunkwan University, South Korea (Advisor: Choong-Wan Woo, Ph.D.)
Jun 2017 – Aug 2018	Undergraduate Research Assistant, Computational Cognitive Affective Neuroscience laboratory, Sungkyunkwan University, South Korea (Advisor: Choong-Wan Woo, Ph.D.)
Mar 2015 – Aug 2018	B.A. (summa cum laude, Total GPA: 4.23/4.50), Department of Psychology, Sungkyunkwan University, South Korea

## **PUBLICATIONS**

- Lee, S. A., Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (2024). Brain representations of affective valence and intensity in sustained pleasure and pain. *Proceedings of the National Academy of Sciences* 121, e2401959121. DOI: 10.1073/pnas.2401959121.
- Lee, J. -J., Kim, H. J., Čeko, M., Park, P. -Y., Lee, S. A., Park, H., Roy, M., Kim, S. -G., Wager, T. D., Woo, C. -W. (2021). A neuroimaging biomarker for sustained experimental and clinical pain. *Nature Medicine* 27, 174-182. <https://doi.org/10.1038/s41591-020-1142-7>

## **CONFERENCE PRESENTATIONS & INVITED TALKS**

- Lee, S. A.,** Lee, J. -J., Han, J., Choi, M., Wager, T. D., Woo, C. -W. (October 2023). Brain representations of affective valence and intensity in sustained pleasure and pain. Invited talk at the Human Pain Seminar Series, Virtual.
- Lee, S. A.,** Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (November 2022). Know pain, know gain: Shared brain representations of sensory pleasure and pain. Poster presentation at the annual meeting of the Society for Neuroscience (SfN), San Diego, USA.
- Lee, S. A.,** Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (May 2022). Know pain, know gain: Shared brain representations of sensory pleasure and pain. Poster presentation at the annual meeting of the Social and affective neuroscience society (SANS), virtual meeting.
- Lee, S. A.,** Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (November 2021). Know pain, know gain: Shared brain representations of sensory pleasure and pain. Oral presentation at the annual meeting of the Korean Society for Human Brain Mapping (KHBM), virtual meeting.
- Lee, S. A.,** Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (June 2021). Know pain, know gain: Brain representations of sensory pleasure and pain. Poster presentation at the annual meeting of the Organization for Human Brain Mapping (OHBM), virtual meeting.
- Lee, S. A.,** Han, J., Choi, M., Woo, C. -W. (October 2019). Know pain, know gain: Brain representations of sensory pleasure and pain. Poster presentation at the annual meeting of the Society for Neuroscience (SfN), Chicago, USA.
- Lee, S. A.,** Han, J., Choi, M., Woo, C. -W. (September 2019). Brain representations of sensory pleasure and pain. Oral presentation at the monthly meeting of Center for Neuroscience Imaging Research, South Korea.

## **HONORS & AWARDS**

Feb 2022	Best presentation award, Sungkyunkwan University, South Korea
Spring 2019	Academic Scholarship (Shim-san) for advanced graduate students, Sungkyunkwan University, South Korea
Spring 2018 – present	Academic Scholarship for graduate students, Sungkyunkwan University, South Korea
Spring 2015, Spring 2016 – Fall 2017	Academic Scholarship for undergraduate students, Sungkyunkwan University, South Korea

### **OPEN SCIENCE EFFORTS**

Data sharing with Dr. Vania Apkarian	Lee, S. A., Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (2023). Brain representations of affective valence and intensity in sustained pleasure and pain. <i>Biorxiv</i> . <a href="https://doi.org/10.1101/2023.06.08.544230">https://doi.org/10.1101/2023.06.08.544230</a>
Data sharing with Dr. Marta Čeko	Lee, S. A., Lee, J. -J., Han, J., Choi, M., Woo, C. -W. (2023). Brain representations of affective valence and intensity in sustained pleasure and pain. <i>Biorxiv</i> . <a href="https://doi.org/10.1101/2023.06.08.544230">https://doi.org/10.1101/2023.06.08.544230</a>

### **TEACHING EXPERIENCES & GUEST LECTURES**

Spring 2021	Teaching assistant, BIOSTATISTICS AND BIG DATA (undergraduate course), Sungkyunkwan University
Spring 2021	Guest lecture, METHODS FOR DEVELOPING fMRI-BASED BIOMARKER 1 (graduate course), Sungkyunkwan University
Fall 2019	Invited talk (title: Brain representations of sensory pleasure and pain), INTRODUCTION TO AFFECTIVE NEUROSCIENCE (undergraduate course), Sungkyunkwan University
Fall 2018	Undergraduate student research mentor of the Undergraduate Research Project (title: Brain representations of sensory pleasure and pain), Sungkyunkwan University

### **PROFESSIONAL ACTIVITIES**

Ad-Hoc Reviewer	<i>PAIN</i> <i>Journal of Cognitive Neuroscience</i>
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### **OTHER SKILLS**

Programming	Matlab (proficient), Python, R (intermediate)
MRI operation	fMRI operation & data collection ( $N = 169$ )
fMRI imaging data analysis software	SPM, FSL
Quantitative Skills	Predictive modeling (Matlab) and fMRI data preprocessing and analysis (SPM, FSL, Matlab)

Languages

Korean (native), English (proficient), Spanish (intermediate)

### **OTHER EXTRACURRICULAR ACTIVITIES**

Mar – Aug 2020                      Graduate Student's Council, Department of Global Biomedical  
Engineering, Sungkyunkwan University

### **PROFESSIONAL REFERENCES**

**Choong-Wan Woo, Ph.D. (PhD advisor)**

Associate Professor

Department of Biomedical Engineering, Sungkyunkwan University

Associate Director of Center for Neuroscience Imaging Research, Institute for Basic Science

Email: [choongwan.woo@gmail.com](mailto:choongwan.woo@gmail.com)

**Tor D. Wager, Ph.D. (Training grant advisor)**

Professor

Department of Psychological and Brain Sciences, Dartmouth College

Director of Dartmouth Brain Imaging Center

Email: [Tor.D.Wager@dartmouth.edu](mailto:Tor.D.Wager@dartmouth.edu)