Lee, Ka Eun

kelsey1030@snu.ac.kr

2515, 58 Ogeum-ro, Songpa-gu,
Seoul, Korea 05510
+82-10-4820-6820

EDUCATION

2015.3 – 2020.2 **Seoul National University** Seoul, Korea
College of Liberal Studies
B.S., Systems Neuroscience (Advisor: Dr. Inah Lee); B.A., Economics
Summa cum laude

2011.7 – 2014.5 **Auckland International College** Auckland, New Zealand
Dux/Valedictorian
International Baccalaureate Diploma: 45/45

RESEARCH EXPERIENCE

2017.7 – Present **Korea Institute of Science and Technology (KIST)** Seoul, Korea
Undergraduate Research Assistant; Advisor: Dr. Jee Hyun Choi

[1] Dynamics of long-range gamma/theta oscillations in relation to behavioral states

- Performed stereotaxic surgery for optogenetics and EEG/LFP recording, to conduct simple behavioral experiments with mice.
- Collected and analyzed EEG and LFP signals using MATLAB, that captured long-range gamma oscillatory dynamics through changing behavioral states.
- Used Bayesian modeling with R and Stan, to correlate estimated parameters that represent latent psychological processes with neural signals.
  (Mentored by Dr. Woo-Young Ahn, Seoul National University)
- Prepared and published a manuscript

[2] Neural signatures of perceived risk

- Designed behavioral experiment which captured sequential forced-choice risk-taking decisions in mice, with 5 possible conditions with differing probabilities but with equal expected value of reward.
- Collected extracranial EEG signals, analyzed differences in induced oscillations in the beta band under distinct perceived risk conditions.

RESEARCH INTERESTS

- Systems-level mechanisms behind cognitive processes and/or dysfunctions, including attention, risk-taking, decision-making
- Neuroeconomics, value-based decision-making
- EEG analysis of induced oscillations
- Behavioral modeling

PUBLICATIONS

Han, H.-B.*, **Lee, K. E.***, and Choi, J. H. (2019). Functional dissociation of theta oscillations in the frontal and visual cortices and their long-range network during sustained attention. *eNeuro, 6*(6). doi: 10.1523/eneuro.0248-19.2019 (*, equal contribution)

Lee, K. E., Han, H.-B., and Choi, J. H. (in preparation). Shifts in baso-cortical gamma network dynamics reflect changing behavioral states over time.

CONFERENCE PRESENTATIONS (presented by the first author)

Lee, K. E., Han, H.-B., and Choi, J. H. (2019, October). Shifts in baso-cortical gamma network dynamics reflect changing behavioral states over time. Poster presentation delivered at the *Society for Neuroscience Annual Meeting*, Chicago, IL.

Han, H.-B., **Lee, K. E.**, and Choi, J. H. (2019, October). Functional dissociation of EEG theta rhythms between prefrontal and visual cortices and their synchronization during sustained attention. Poster presentation delivered at the *Society for Neuroscience Annual Meeting*, Chicago, IL.

Lee, K. E., Han, H.-B., and Choi, J. H. (2019, September). Cortico-cortical and baso-cortical gamma oscillations represent functionally distinct attentional networks. *IBRO Reports*, *6*, S151.

Han, H.-B., **Lee, K. E.**, and Choi, J. H. (2019, September). Functional dissociation of EEG theta rhythms between prefrontal and visual cortices and their synchronization during sustained attention. *IBRO Reports*, *6*, S151.

Lee, K. E., Han, H.-B., and Choi, J. H. (2019, March). EEG network coherence in the 40 Hz gamma band modulates attentional state and task performance. Poster presentation delivered at the *Cognitive Neuroscience Society Annual meeting*, San Francisco, CA.

Han, H.-B., **Lee, K. E.**, and Choi, J. H. (2019, March). Functional dissociation of EEG theta rhythms between prefrontal and visual cortices and their synchronization during sustained attention. Poster presentation delivered at the *Cognitive Neuroscience Society Annual meeting*, San Francisco, CA.

Lee, K. E., Han, H.-B., and Choi, J. H. (2017, August). Cortical theta oscillations induced by cognitive control. Poster presentation delivered at the *Annual Meeting of Korean Society for Brain and Neural Science*, Seoul, Korea.

Lee, K. E., Han, H.-B., and Choi, J. H. (2017, August). Theta oscillations in mouse prefrontal cortex during Go/No-Go task. Poster presentation delivered at the *Annual Meeting of Korean Society for Computational Neuroscience*, Seoul, Korea.

REFERENCES

Jee Hyun Choi, Ph.D.
Principal Scientist
Center for Neuroscience
Brain Science Institute
Korea Institute of Science and Technology
Seoul, Korea 02792
Telephone: +82-2-958-6952
Email: jeechoi@kist.re.kr
Website: https://sites.google.com/site/jeelabhomepage/

Inah Lee, Ph.D.
Departmental Chair
Professor
Department of Brain and Cognitive Sciences
College of Natural Sciences
Seoul National University
Seoul, Korea 08826
Telephone: +82-2-880-8013
Fax: +82-2-871-9129
Email: inahlee@snu.ac.kr
Website: http://inahlee.org

Woo-Young Ahn, Ph.D.
Associate Professor
Department of Psychology
Seoul National University
Seoul, Korea 08826
Telephone: +82-2-880-2538
Email: wahn55@snu.ac.kr
Website: http://ccs-lab.github.io