

Curriculum Vitae (last update : 2020.10.26)

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Education

Institution	Degree	Period	Degree
Yonsei University Seoul, South Korea	Bachelor	2011.03 – 2015.08	B.A. in Psychology (1st), Business Admin. (2nd), Theology (3rd)
Yonsei University Seoul, South Korea	Master	2015.09 – 2017.08	M.A. in Psychology Minor in Computational Neuroscience
KAIST Daejeon, South Korea	Doctor	2017.09 - present	Ph.D. in Brain & Cognitive Engineering (Candidate)

Honors & Scholarship

2011.03 – 2015.08.	- Talent-fostering program & scholarship by NH Foundation, NACF (\$20,000)
2011.03 – 2011.08.	- Awarded honors student by University College, Yonsei Univ.
2013.03 – 2014.02.	- Yonsei scholarship by Yonsei Univ. (\$1,100)
2016.03 – 2017.08.	- Eagle tutoring program & TA scholarship (Psych. Statistics) by OSE Center, Yonsei Univ. (\$1,000)
2017.03 – 2017.08.	- Brain Korea 21+ Fellowship by Dept. of Psychology, Yonsei Univ. (\$4,000)
2017.05.	- Outstanding academic paper award by Graduate School, Yonsei Univ.
2017.08.	- Outstanding academic poster award by Korean Computational Neuroscience Society, Seoul, South Korea

Main research methodology

Systems Neuroscience	- Neural data interpretation and theoritization - Brain stimulation & modulation using opto/chemogenetics - EEG/LFP (from animal surgery, data acquisition, and analysis)
Computational Neuroscience	- Quantitative data analysis using MATLAB/Python (EEG/LFP, fMRI, behavioural data) - Computer simulation using MATLAB/Python
Cognitive Psychology	- Psychophysical & behavioural experiment design and implementation
Engineering	- Experimental hardware setup for human and animal model study - Machine learning for data analysis (Tensorflow, Keras, Scikit-learn)

Publications (* corresponding author, + equally contributed)

Han H.-B., Kim J., & Choi J.H.* (*In prep*). Freeze-and-Flight Behaviors of Fear Engage Competing Patterns of Theta and Gamma Rhythms in the Functional Network of mPFC-Basolateral Amygdala

Kim J., Kim C., **Han H.-B.**, Cho C.J., Yeom W., Lee S.Q., Kim J.Y.**, & Choi J.H.** (*In press*). A Bird's Eye View of Brain Activity in Socially Interacting Mice through Mobile Edge Computing, *Science Advances*, <https://doi.org/10.1101/2020.02.03.931758>

Hwang E.+, **Han H.-B.**+, Kim J.Y.+, & Choi J.H.* (2020). High-density EEG of Auditory Steady-State Response during Stimulation of Basal Forebrain Parvalbumin Neurons. *Scientific Data*, 7(1), 1-9, <https://doi.org/10.1038/s41597-020-00621-z>

Han H.-B.* (2020). Rotational snapping: Illusory rhythmicity induced by global and local motion binding, *bioRxiv*, <https://doi.org/10.1101/2020.02.03.931758>

Han H.-B.+, Lee K.E.+, & Choi J.H.* (2019). Functionally dissociated theta oscillations in the frontal and visual cortices and their long-range network during sustained attention, *eNeuro*, 6(6), 4 November 2019, ENEURO.0248-19.2019; DOI: <https://doi.org/10.1523/ENEURO.0248-19.2019>

Kum J., Kim J.W., Braubach O., Ha J.-G., Cho H., Kim C.-H., **Han H.-B.**, Choi J.H.*, & Yoon J.-H.* (2019). Neural Dynamics of Olfactory Perception: Low- and High-frequency Modulations of Local Field Potential Spectra in Mice Revealed by an Oddball Stimuli. *Frontiers in Neuroscience*.

Hwang E., Brown R. E., Kocsis B., Kim T., McKenna J. T., McNally J. M., **Han H.-B.**, & Choi J. H. (2019). Optogenetic stimulation of basal forebrain parvalbumin neurons modulates the cortical topography of auditory steady-state responses. *Brain Structure and Function*, 1-14.

Han H.-B., Hwang E., Lee S., Kim M.-S., & Choi J.H.* (2017). Gamma-Band Activities in Mouse Frontal and Visual Cortex Induced by Coherent Dot Motion, *Scientific Reports*, 7, 43780.

Han H.-B.* (2016). Distinctive BOLD Connectivity Patterns in the Schizophrenia Brain: Machine-learning based comparison between various connectivity measures, *bioRxiv*, 084160.

Kum, J.E., **Han, H.-B.**, & Choi, J.H.* (2016). Pupil Size in Relation to Cortical States during Isoflurane Anesthesia. *Experimental Neurobiology*, 25(2), 86-92.

Poster/Oral Presentations (* corresponding author)

(Online, 5-min video) **Han H.-B.**, Kim J., Cho C.J., & Choi J.H.* (2020). Behavioral microstate analysis reveals gamma oscillations in BLA are associated with escaping-related context rather than threat itself, *Korean Society of Brain and Neuroscience Society*, Seoul (Online), South Korea.

(Cancelled) (Poster) **Han H.-B.**, Lee K.E., & Choi J.H.* (To be presented). Fronto-visual long-range synchrony as a coupling between functionally distinct cortical oscillators. FENS 2020 meeting, *Federations of European Neuroscience Society*, Glasgow, UK.

(Oral) **Han H.-B.**, Lee K.E., & Choi J.H.* (2019). Functional dissociation of EEG theta rhythms between prefrontal and visual cortices and their synchronization during sustained attention, Annual meeting of Cognitive Neuroscience Society, San Francisco, USA.

(Poster) Lee K.E., **Han H.-B.**, & Choi J.H.* (2019). Baso-cortical and cortico-cortical gamma oscillations represent distinct attentional networks predicts of opposite trial outcomes. Annual meeting of Cognitive Neuroscience Society, San Francisco, USA.

(Poster) **Han H.-B.**, Hwang E., Lee S., Kim M.-S., & Choi J.H.* (2017), Cortical oscillatory network for perceptual binding in mice, Neuroscience 2017, Society for Neuroscience, Washington DC, USA.

(Poster) Hwang E., **Han H.-B.**, Kim B., Brown R.E., McCarley R.W., McKenna J.T., Kim T., & Choi J.H. (2017), Cortically projecting parvalbumin positive neurons in basal forebrain mediate top-down processing by reorganizing gamma oscillation network, Neuroscience 2017, Society for Neuroscience, Washington DC, USA.

(Poster) **Han H.-B.**, Kum J., Lee S., Kim B., Jung Y., Hwang E., & Choi J.H.* (2016), Induced gamma-band oscillations in mouse frontal cortex during coherent motion perception, CINP World Congress of Neuropsychopharmacology 2016, Seoul, South Korea.

(Poster) Choi J.H.*, Hwang E., Kim B., **Han H.-B.**, Brown R., McCarley R., McKenna J.T., & Kim T. (2016), Cortically projecting basal forebrain parvalbumin positive neurons regulate top-down processing in mice, Neuroscience 2016, Society for Neuroscience, San Diego, USA.

(Poster) Hwang E., Kim B., **Han H.-B.**, Kim T., Choi J.H.* (2015). Topographic mapping of neocortical oscillations elicited by optogenetic modulation of basal forebrain parvalbumin neurons, Society for Neuroscience 2014, Chicago, USA.

(Poster) **Han H.-B.**, Kim T.G., Lee Y., Lee J.-H., & Hong. I.* (2014), The Role of Cognitive Control Resource on Misattribution of Negative Affect, Cognitive Neuroscience Society Conference 2014, Seoul, South Korea.

(Poster) **Han H.-B.***, Jang H.J., Im Y., Kim E.T., Lee K.Y., Jeong K.J., Kim S.H. Kong H.I. Lee S.M. Cho H.Y. & Min S. (2014), The Adaptive Value of Social Cue: Masked gaze cue produces shift of spatial attention in the aversive context, Korean Psychological Society Annual Conference 2014, Seoul, South Korea.