Hongmi Lee

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ACADEMIC POSITIONS

2023 – now **Assistant Professor**
Department of Psychological Sciences, Purdue University, West Lafayette, IN
2018 – 2023 **Postdoctoral Researcher**
Department of Psychological & Brain Sciences, Johns Hopkins University, Baltimore, MD

EDUCATION

2013 – 2018 **Ph.D. in Psychology**, New York University, New York, NY
Dissertation: Mnemonic content representations in human posterior parietal cortex
Committee: Brice A. Kuhl, Lila Davachi, Clayton E. Curtis
2009 – 2011 **M.A. in Psychology**, Yonsei University, Seoul, South Korea
Dissertation: The effects of stimulus novelty and familiarity on source memory
Committee: Do-Joon Yi, Min-Shik Kim, Sanghoon Han
2004 – 2009 **B.A. in Psychology**, Yonsei University, Seoul, South Korea

PUBLICATIONS

Journal articles

Wang, Y., **Lee, H.**, & Kuhl, B. A. (2023). Mapping multidimensional content representations to neural and behavioral expressions of episodic memory. *NeuroImage, 120122*.

Lee, H. & Chen, J. (2022). Predicting memory from the network structure of naturalistic events. *Nature Communications*, *13,* 4235.

Lee, H. & Chen, J. (2022). A generalized cortical activity pattern at internally-generated mental context boundaries during unguided narrative recall. *eLife, 11,* e73693.

Lee, H., Chen, J., & Hasson, U. (2022). A functional neuroimaging dataset acquired during naturalistic movie watching and narrated recall of a series of short cinematic films. *Data in Brief*, 108788.

Favila, S. E., **Lee, H**., & Kuhl, B. A. (2020). Transforming the concept of memory reactivation. *Trends in Neurosciences, 43*(12), 939–950.

Botvinik-Nezer, R., Holzmeister, F., Camerer, C. F., ... Lee, S., **Lee, H**., Leemans, A., … Nichols, T., Poldrack, R. A., Schonberg, T. (2020). Variability in the analysis of a single neuroimaging dataset by many teams. *Nature*, *582*(7810)*,* 84–88.

Lee, H., Bellana, B., & Chen, J. (2020). What can narratives tell us about the neural bases of human memory? *Current Opinion in Behavioral Sciences, 32,* 111-119.

Lee, H., Kim, K., & Yi, D-J. (2020). Pre-experimental stimulus familiarity modulates the effects of item repetition on source memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 46*(3), 539–548.

Lee, H., Samide, R., Richter, F. R., & Kuhl, B. A. (2019). Decomposing parietal memory reactivation to predict consequences of remembering. *Cerebral Cortex, 29*(8), 3305-3318.

Lee, H., Chun, M. M., & Kuhl, B. A. (2017). Lower parietal encoding activation is associated with sharper information and better memory. *Cerebral Cortex, 27*(4)*,* 2486-2499.

Long, N. M., **Lee, H**., & Kuhl, B. A. (2016). Hippocampal mismatch signals are modulated by the strength of neural predictions and their similarity to outcomes. *Journal of Neuroscience, 36*(50)*,* 12677-12687.

Lee, H. & Kuhl, B. A. (2016). Reconstructing perceived and retrieved face images from activity patterns in lateral parietal cortex. *Journal of Neuroscience, 36*(22)*,* 6069-6082.

Tark, K-J., **Lee, H**., & Yi, D-J. (2014). Memory encoding and consolidation in the default mode network. *Korean Journal of Cognitive and Biological Psychology, 26*(4), 343-367.

Peer-reviewed conference papers

Lee, Y., **Lee, H.**, & Chen, J. (2022). Component activity states underlying memory reactivation in the posterior medial cortex. Cognitive Computational Neuroscience, San Francisco, CA. https://doi.org/10.32470/CCN.2022.1275-0

Lee, H. & Chen, J. (2019). Narratives as networks: Predicting memory from the structure of naturalistic events. Cognitive Computational Neuroscience, Berlin, Germany. https://doi.org/10.32470/CCN.2019.1170-0

Bellana, B., **Lee, H**., Zuo, X., & Chen, J. (2019). Measuring behavioral and neural responses to fluctuations in real-world predictability. Cognitive Computational Neuroscience, Berlin, Germany. https://doi.org/10.32470/CCN.2019.1035-0

Manuscript submitted

Lee, H., Keene, P. A., Sweigart, S. C., Hutchinson, J. B., & Kuhl, B. A. (in revision). Adding meaning to memories: How parietal cortex combines semantic content with episodic experience. *bioRxiv*. https://doi.org/10.1101/2022.10.25.513263

Born, S., Shi, K., Lee-Masson, H., **Lee, H**., Lee, Y., & Chen, J. (submitted). Word-timestamped transcripts of two spoken narrative recall functional neuroimaging datasets

Manuscripts in preparation

Lee, H., Born, S., Li, X., Honey, C. J., & Chen, J. Spontaneous memory recall in the dynamic flow of thoughts.

Lee, Y., **Lee, H.**, & Chen, J. Organization of event-specific fMRI activity patterns during movie-viewing and spoken recall in posterior medial cortex.

Li, X., Musz, E., Bellana, B., Zuo, X., **Lee, H.**, & Chen, J. Inter-subject brain synchrony during self-guided viewing of complex pictures.

PRESENTATIONS

Invited talks

Lee, H. (Dec 2022). Constructing memories in the real world. Department of Psychology, Binghamton University, Binghamton, NY.

Lee, H. (July 2022). Behavioral and neural dynamics during naturalistic memory recall. Brain, Mind, and Computation Symposium at Center for Neuroscience Imaging Research, Institute of Basic Science, Suwon, South Korea.

Lee, H. (Feb 2022). Constructing memories in the real world. Department of Psychology, Bilkent University, Ankara, Turkey.

Lee, H. (Feb 2022). Constructing memories in the real world. Department of Psychology, National University of Singapore, Singapore.

Lee, H. (Dec 2021). Neural correlates of naturalistic narrative recall. Korean Scientists and Engineers Network Virtual Bridge Forum with Overseas Scientists.

Lee, H. (Nov 2021). Building memories in the structured world. Center for Neuroscience Imaging Research & Department of Global Biomedical Engineering, Sungkyunkwan University, Suwon, South Korea.

Lee, H. (Oct 2021). Building memories in the structured world: Discussion on the symposium "Using knowledge to interpret and remember new experiences." Memory Disorders Research Society Virtual Annual Meeting.

Lee, H. (Nov 2017). Decomposing parietal memory reactivation to predict consequences of remembering. Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD.

Contributed talks

Lee, H. & Chen, J. (May 2022). A generalized cortical activity pattern at internally-generated mental context boundaries during unguided narrative recall. Context and Episodic Memory Symposium, Philadelphia, PA.

Lee, Y., **Lee, H.**, & Chen, J. (May 2022). Component brain states in the posterior medial cortex during naturalistic movie viewing. Context and Episodic Memory Symposium, Philadelphia, PA.

Lee, H. & Chen, J. (May 2021). Cortical signal at major boundaries between internally- generated mental contexts during narrative recall. Memory: It's About Time, UC Irvine Center for the Neurobiology of Learning and Memory Virtual Conference.

Lee, H. & Chen, J. (Aug 2019). Narratives as networks: Predicting memory from the structure of naturalistic events. Meeting of Curious Minds, Princeton, NJ.

Chen, J. & **Lee, H.** (May 2019). Behavioral and neural dynamics during naturalistic free spoken recall. Context and Episodic Memory Symposium, Philadelphia, PA.

Long, N. M., **Lee, H**., Chun, M. M., & Kuhl, B. A. (May 2016). Hippocampal mismatch signals are modulated by the similarity between predicted and realized outcomes. Context and Episodic Memory Symposium, Philadelphia, PA.

Lee, H. & Kuhl, B. A. (May 2015). Reconstructing perceived and retrieved face images from activity patterns in posterior parietal cortex. Manhattan Area Memory Meeting, Princeton, NJ.

Lee, H., Bak, Y., & Yi, D-J. (Jan 2013). Subsequent memory effects in ventral visual cortex. Korean Society for Cognitive and Biological Psychology, Gyeongju, South Korea.

Lee, H. & Yi, D-J. (June 2011). Effects of novelty and familiarity on source memory. Korean Society for Cognitive Science, Seoul, South Korea.

Park, J., **Lee, H**., & Suh, E. (Aug 2009). Individual differences in outcomes of ego-depletion: The case of self-perspective taking. Korean Psychological Association, Seoul, South Korea.

Selected posters

Lee, H., Born, S., Honey, C. J., & Chen, J. (Nov 2022). Spontaneous memory recall in the dynamic flow of thoughts. Society for Neuroscience, San Diego, CA.

Lee, H. & Chen, J. (Dec 2021). A generalized cortical activity pattern at internally-generated mental context boundaries during unguided narrative recall. Context and Episodic Memory Symposium International Edition Virtual Meeting.

Born, S., **Lee, H.,** & Chen, J. (Nov 2021). Does narrative network centrality predict both free recall and recognition memory? Context and Episodic Memory Symposium International Edition Virtual Meeting.

Lee, H. & Chen, J. (Mar 2021). Neural signals at boundaries between internally-generated mental states during narrated memory recall. Cognitive Neuroscience Society Virtual Meeting.

Lee, Y., **Lee, H.**, & Chen, J. (Mar 2021). Organization of event-specific fMRI activity patterns during movie-viewing and spoken recall in posterior medial cortex. Cognitive Neuroscience Society Virtual Meeting.

Lee, H. & Chen, J. (Jan 2021). Cortical signal at major boundaries between internally-generated mental contexts during narrative recall. SfN Global Connectome: A Virtual Event.

Lee, Y., **Lee, H.**, & Chen, J. (Aug 2020). Clustering of BOLD activity patterns in the default mode network during movie-viewing reveals strong mean-dependence. Context and Episodic Memory Symposium Virtual Meeting, Philadelphia, PA.

Lee, H. & Chen, J. (Oct 2019). Narratives as networks: Predicting memory from the structure of naturalistic events. Society for Neuroscience, Chicago, IL.

Bellana, B., **Lee, H**., Zuo, X., & Chen, J. (Oct 2019). Measuring behavioral and neural responses to real-world predictability. Society for Neuroscience, Chicago, IL.

Lee, H. & Chen, J. (May 2019). Narratives as networks: Predicting memory from the structure of naturalistic events. Context and Episodic Memory Symposium, Philadelphia, PA.

Lee, H., Sweigart, S. C., & Kuhl, B. A. (Nov 2018). Organization of content representations and episodic memory signals in human posterior parietal cortex. Society for Neuroscience, San Diego, CA.

Drascher, M. L., **Lee, H**., & Kuhl, B. A. (Nov 2018). Evaluating approaches for reconstructing face images from distributed patterns of fMRI activity. Society for Neuroscience, San Diego, CA.

Lee, H., Sweigart, S. C., & Kuhl, B. A. (Nov 2017). Parietal cortex combines information about semantic content and mnemonic processes. Society for Neuroscience, Washington, DC.

Lee, H., Samide, R., Richter, F. R., & Kuhl, B. A. (Nov 2016). Parietal memory reactivation and retrieval-induced modification of long-term memories. Society for Neuroscience, San Diego, CA.

Park, S., Do, J-R., **Lee, H**., Tark, K-J., Kim, K., Jeon, M., & Yi, D-J. (Apr 2016). Dissociating the effects of pre-experimental vs. intra-experimental familiarity on source memory: An fMRI study. Cognitive Neuroscience Society, New York, NY.

Samide, R., **Lee, H**., Richter, F. R., & Kuhl, B. A. (Apr 2016). Effects of retrieval practice on the modification of long-term memories. Cognitive Neuroscience Society, New York, NY.

Lee, H., Cowen, A., & Kuhl, B. A. (May 2015). Reconstructing perceived and retrieved face images from activity patterns in posterior parietal cortex. Vision Sciences Society, St. Pete Beach, FL. Abstract published in the *Journal of Vision*, *15*(12), pp. 301.

Lee, H., Cowen, A., & Kuhl, B. A. (Nov 2014). Decoding face retrieval and reconstructing face perception from activity patterns in posterior parietal cortex. Society for Neuroscience, Washington, DC.

Tark, K-J., **Lee, H**., Bak, Y., & Yi, D-J. (Nov 2014). The activity in the default-mode network region can predict subsequent forgetting. Society for Neuroscience, Washington, DC.

Lee, H., & Yi, D-J. (July 2012). The effect of item repetition on item-context association depends on the prior exposure of items. Asia-Pacific Conference on Vision, Inchon, South Korea.

Lee, H., Jung, J., & Yi, D-J. (May 2012). Pre-experimental familiarity modulates the effects of item repetition on source memory. Vision Sciences Society, Naples, FL. Abstract published in the *Journal of Vision*, *12*(9), pp. 298.

Park, J., Suh, E., & **Lee, H**. (May 2010). Energy as a prerequisite for sociability. Association for Psychological Science, Boston, MA.

Park, J., **Lee, H**., & Suh, E. (Jan 2010). Individual differences in outcomes of ego-depletion: The case of self-perspective taking. Society for Personality and Social Psychology, Las Vegas, NV.

FELLOWSHIPS & AWARDS

2022	Association of Korean Neuroscientists Outstanding Research Award *National level:* $500
2020	Society for Neuroscience Trainee Professional Development Award *International level:* Free registration of SfN Global Connectome
2018	Methods in Neuroscience at Dartmouth Computational Summer School Fellowship *International level:* Free registration and housing for the MIND summer school
2014 & 2016	New York University Dean's Student Travel Grant *Institution level:* $500
2013	New York University MacCracken Fellowship *Institution level:* Full tuition, stipend, & fees for five years
2013	New York University Dean's Start-up Fellowship *Institution level:* $1,000
2012	Korea Foundation for Advanced Studies Doctoral Study Abroad Fellowship *National level:* approx. $70,000
2009	Yonsei Honor Student Scholarship for Graduate Studies *Institution level:* Full tuition, stipend, & fees for two years
2006	Korea Foundation for Advanced Studies Undergraduate Fellowship *National level:* approx. $12,000
2004	Yonsei Honor Student Scholarship for Undergraduate Studies *Institution level:* Full tuition, stipend, & fees for four years

RESEARCH GRANTS

2022 – 2027	National Research Foundation of Korea Mid-Career Researcher Program *Title*: How do we form and employ narrative representations in the brain? *Role*: External consultant (PI: Min-Suk Kang, Sungkyunkwan University) *Status*: Awarded (approx. $100,000 per year)
2020	Google Faculty Research Award *Title*: Predicting memory from the network structure of naturalistic events *Role*: Co-author and lead researcher (PI: Janice Chen, Johns Hopkins University) *Status*: Awarded ($80,000)

TEACHING

Primary Instructor

Fall 2023	Introduction to Cognitive Neuroscience Department of Psychological Sciences, Purdue University
Winter 2020 & 2022	The Cognitive Neuroscience of Unconstrained Thinking Department of Psychological & Brain Sciences, Johns Hopkins University

Joint Instructor

Spring 2020	Real-World Human Data: Analysis and Visualization Department of Psychological & Brain Sciences, Johns Hopkins University

Fall 2016 Human fMRI Data Collection and Analysis Boot Camp
Institute of Neuroscience, University of Oregon

Guest Lecturer

Fall 2019 Human Memory Psychology
Department of Psychological & Brain Sciences, Johns Hopkins University
Lecture title: Methods for studying human memory in the brain

Fall 2018 Real-World Human Data: Analysis and Visualization
Department of Psychological & Brain Sciences, Johns Hopkins University
Lecture title: Exploring text-analytics: Alternatives & applications

Teaching Assistant

Fall 2009 & Spring 2009 Introduction to Psychology
Department of Psychology, Yonsei University

MENTORSHIP

Johns Hopkins University

Colette Youstra, Lab Manager, 2023
Xian Li, Ph.D. Candidate, 2021 – 2023
Subin Han, Undergraduate Research Assistant, 2021
Kathy Shi, Undergraduate Research Assistant, 2020 – 2021
Leila Connolly, Undergraduate Research Assistant, 2020
Yoonjung Lee, Ph.D. Candidate, 2019 – 2023
Savannah Born, Undergraduate Research Assistant, 2019 – 2023
Yiyuan Zhang, Master's Candidate, 2019
Elly Yeom, Undergraduate Research Assistant, 2018 – 2021

University of Oregon

Maxwell Drascher, Ph.D. Candidate, 2017 – 2018
Sarah Sweigart, Lab Manager, 2017 – 2018
Rosalie Samide, Lab Manager, 2016

PROFESSIONAL ACTIVITIES & SERVICE

Journal peer review

Science, Nature Communications, Scientific Reports, Journal of Neuroscience, Human Brain Mapping, Journal of Neurophysiology, Neuropsychologia, Psychonomic Bulletin & Review, Memory & Cognition, Memory, Journal of Memory and Language

Conference peer review

Cognitive Computational Neuroscience 2019

Memberships

Society for Neuroscience, Cognitive Neuroscience Society

University service

Fall 2010	Administrative Assistant for the Brain Korea 21 Project Department of Psychology, Yonsei University

Community outreach

2022 – 2023	Women in Science and Engineering Program Mentor Garrison Forest School, Owings Mills, MD
2022	Edith Hamilton Scholars Program Research Project Mentor The Bryn Mawr School, Baltimore, MD
2021 – 2023	Volunteer Graduate School Admissions Consultant Project SHORT Team (https://www.project-short.com)
2019	Public Speaker Science in Action Day for the Science of Teaching and School Leadership Academy Baltimore, MD *Talk title:* Predicting event memory from the network structure of stories
2018	Public Speaker Science in Action Day for the Science of Teaching and School Leadership Academy Baltimore, MD *Talk title:* Networks in stories and brains

OTHER TRAINING AND EXPERIENCES

2021	Justice, Equity, Diversity, and Inclusion Training Teaching Academy, Johns Hopkins University
2019 – 2020	Teaching Academy Certificate of Completion Program Teaching Academy, Johns Hopkins University
2016 – 2018	Visiting Graduate Researcher Department of Psychology, University of Oregon, Eugene, OR
2011 – 2013	Post-Masters Researcher Department of Psychology, Yonsei University, Seoul, South Korea
2007	Student Exchange Program University of California Berkeley, Berkeley, CA