

Inah Lee

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CONTACT INFORMATION

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EDUCATION

Ph.D. Neuroscience (2002)

Program in Neuroscience, Medical School, University of Utah, Salt Lake City, UT.

Supervisor: Raymond P. Kesner, Ph.D.

Thesis title: *Behavioral probing of hippocampal circuits: Hippocampal subregional functions for encoding and retrieval of spatial memory*

M.A. Biopsychology (1998)

Psychology Department, Seoul National University, Seoul, Korea.

Supervisor: Choongkil Lee, Ph.D.

Thesis title: *Dorsal lateral geniculate body of the dog: Three-dimensional model and anatomical characteristics*

B.A. Psychology (1996)

Psychology Department, Seoul National University, Seoul, Korea.

ACADEMIC POSITIONS

Department of Brain and Cognitive Sciences, Seoul National University, Seoul, Korea.

Departmental Chair (Oct 2015 to present)

Full Professor (Mar 2019 to present)

Associate Professor (Mar 2014 to Feb 2019)

WCU (visiting) Associate Professor (Aug 2009 ~ Feb 2014)

Department of Psychology, University of Iowa, Iowa City, IA.

Assistant Professor (Jan 2006 ~ Aug 2009)

Center for Memory and Brain, Boston University, Boston, MA.

Research Associate (Jun 2004 ~ Dec 2005)

Advisor: Michael Hasselmo, Ph.D. / Howard Eichenbaum, Ph.D.

Department of Neurobiology & Anatomy, University of Texas Medical School at Houston, Houston, TX.

Postdoctoral Research Associate (Jun 2002 ~ May 2004)

Advisor: James J. Knierim, Ph.D.

HONORS AND AWARDS

- SNU Research Fund for Next-Generation Scholars, 2014 to 2015.
- University of Iowa Old Gold Summer Research Fellowship, 2006.
- Pickwick Postdoctoral Fellowship Award, National Sleep Foundation, 2004 to 2005 (extension declined to accept an assistant faculty position).
- James W. Prah Memorial Award for Outstanding Contributions by a Graduate Student at the University of Utah in Biological or Biomedical Sciences, 2002.
- Student Representative, Intermountain Chapter of Society for Neuroscience, 2001 to 2002.
- Multiple Scholarships, Department of Psychology, Seoul National University, Seoul, Korea, 1994 to 1996.

GRANT SUPPORT

- Brain Research Program (PI; NRF-2019R1A2C2088799), The National Research Foundation of Korea (2019-2024)
- Basic Research Laboratory (PI; NRF-2018R1A4A1025616), The National Research Foundation of Korea (2018-2020)
- Brain Research Program (NRF-2017M3C7A1029661), The National Research Foundation of Korea (2017-2021)
- Mid-Career Research Program (PI; NRF-2016R1A2B4008692), The National Research Foundation of Korea (2016-2019)
- Brain Research Program (NRF-2015M3C7A1031969), The National Research Foundation of Korea (2015-2018)
- Advanced Research Center Program (NRF-2014051826), The National Research Foundation of Korea (2014-2017)
- Research Resettlement Fund for the New Faculty of Seoul National University (2014-2015)
- SNU Research Fund for Next-Generation Scholars (2014-2015)
- Brain Korea 21+ Program, The National Research Foundation (2013-present; *Program Director since Aug 2015*)
- Adventure Research Fund, Brain Research Program, The National Research Foundation of Korea (2013-2016)
- World Class University Project, The Korean Ministry of Education, Science and Technology (2009-2013)
- RO1, National Institute of Mental Health (*Functional significance of network dynamics in hippocampal circuits*; R01MH07997, 2007-2013)

ACADEMIC MEMBERSHIPS

- Society for Neuroscience (1998 to present)
- Korean Psychological Association (2010 to present)
- Korean Society for Brain and Neural Science (2010 to present)

RESEARCH INTERESTS AND EXPERTISE

- Neural mechanisms of event memory in the medial temporal lobe
- Neural mechanisms of contextual behavior
- Neural mechanisms of spatial learning and memory
- Neural mechanisms of working memory in the prefrontal cortex
- Neural mechanisms of object recognition memory
- Neurophysiological and functional assessment of neural circuits in freely moving animals

- Testing computational models using behavioral neurophysiology
- Behavioral neurophysiology in rodents and primates using memory paradigms

PUBLICATIONS

• ***Peer-Reviewed Journal Articles***

- Lee, S.M., Jin, S.W., Park, S.B., Park, E.H., Lee, C.H., Lee, H.W., Lim, H.Y., Yoo, S.W., Ahn, J.R., Shin, J., Lee, S.A., and Lee, I. (under review). Goal-directed interaction of stimulus and task demand in the parahippocampal region. *Hippocampus*.
- Lee, C.H., and Lee, I. (2020). Impairment of pattern separation of ambiguous scenes by single units in the CA3 in the absence of the dentate gyrus. *Journal of Neuroscience* 40(18):3575-3590.
- Ahn, J.R., Lee, H.W., and Lee, I. (2019). Rhythmic pruning of perceptual noise for object representation in the hippocampus and perirhinal cortex in rats. *Cell Reports* 26: 2362-2376.
- Jung, M.W., Lee, H., Jeong, Y., Lee, J.W., and Lee, I. (2018). Remembering rewarding futures: A simulation-selection model of the hippocampus. *Hippocampus* 28: 913-930.
- Lee, H.W., Lee, S.M., and Lee, I. (2018). Neural firing patterns are more schematic and less sensitive to changes in background visual scenes in the subiculum than in the hippocampus. *Journal of Neuroscience* 38: 7392-7408.
- Jeong, Y.S., Huh, N., Lee, J., Lee, J.W., Lee, I., Jung, M.W. (2018). Roles of the hippocampal CA1 region in incremental value learning. *Scientific Reports* 8.
- Park, E.H., Ahn, J.R., and Lee, I. (2017). Interactions between stimulus and response types are more strongly represented in the entorhinal cortex than in its upstream regions in rats. *eLife* 6:e32657.
- Lee, S.H., Huh, N., Lee, J.W., Ghim, J.W., Lee, I., and Jung M.W. (2017). Neural signals related to outcome evaluation are stronger in CA1 than CA3. *Frontiers in Neural Circuits* 11.
- Ahn, J.R., and Lee, I. (2017). Neural correlates of both perception and memory for objects in the rodent perirhinal cortex. *Cerebral Cortex* 27:3856-3868.
- Yoo, S.W., and Lee, I. (2017). Functional double dissociation within the entorhinal cortex for visual scene-dependent choice behavior. *eLife* 6:e21543.
- Lee, C.H., Ryu, J.W., Kim, H.J., Lee, S.H., and Lee, I. (2016). Cross-hemispheric shift between object-place paired associate memory and spatial memory in the human hippocampus. *Hippocampus* 26:1061-1077.
- Park, S.B., and Lee, I. (2016). Increased variability and asymmetric expansion of the spatial representation of the hippocampal neuronal population in a distal cue-dependent memory task. *Hippocampus* 26:1033-1050.
- Ahn, J.R., and Lee, I. (2015). Neural correlates of object-associated choice behavior in the perirhinal cortex of rats. *Journal of Neuroscience* 35:1692-1705.
- Delcasso, S., Huh, N., Byeon, J., Lee, J., Jung, M.W., and Lee, I. (2014). Functional relationships between the hippocampus and dorsomedial striatum in learning a visual scene-based memory task in rats. *Journal of Neuroscience* 34:15534-15547.
- Lee, K.J., Park, S.B., and Lee, I. (2014). Elemental or contextual? It depends: Individual difference in the hippocampal dependence of associative learning for a simple sensory stimulus. *Frontiers in Behavioral Neuroscience* 8:217.
- Ahn, J.R. and Lee, I. (2014). Intact CA3 in the hippocampus is only sufficient for contextual behavior based on well-learned and unaltered visual background. *Hippocampus* 24:1081-1093.
- Lee, I. and Byeon, J.S. (2014). Learning-dependent changes in the neuronal correlates of response inhibition in the prefrontal cortex and hippocampus. *Experimental Neurobiology* 23:178-189.
- Chung, S., Lee, E.J., Yun, S., Choe, H.K., Park, S.B., Son, H.J., Kim, K.S., Diuzen, D.E., Lee, I., Hwang, O., Son, G.H., and Kim, K.J. (2014). Impact of circadian nuclear receptor REV-ERB α on midbrain dopamine production and mood regulation. *Cell* 157:858-868.

- Lee, I.** and Park, S.B. (2013). Impaired object-in-place memory and disruption in task-dependent firing correlates of CA1, but not CA3, in the hippocampus with perirhinal cortical inactivation. *Frontiers in Neural Circuits*. 7:134. doi:10.3389/fncir.2013.00134.
- Lee, I.** and Lee, C.H. (2013). Contextual behavior and neural circuits. *Frontiers in Neural Circuits* 7:84. doi:10.3389/fncir.2013.00084.
- Lee, I.** and Lee, S.H. (2013). Putting an object in context and acting on it: Neural mechanisms of goal-directed response to contextual object. *Reviews in the Neurosciences* 24:27-49.
- Kim, S., Lee, J., and **Lee, I.** (2012). The hippocampus is required for visually cued contextual response selection, but not for visual discrimination of contexts. *Frontiers in Behavioral Neuroscience*. 6:66. doi:10.3389/fnbeh.2012.00066.
- Lee, I.** and Shin, J.Y. (2012). Medial prefrontal cortex is involved in response selection using visual context in the background. *Learning and Memory* 20:247-250.
- Yoon, J., Seo, Y., Kim, J., and **Lee, I.** (2012). Hippocampus is required for paired associate memory with neither delay nor trial uniqueness. *Learning and Memory* 19:1-8.
- Kim, J., Delcasso, S., and **Lee, I.** (2011). Neural correlates of object-in-place learning in hippocampus and prefrontal cortex. *Journal of Neuroscience* 31:16991-17006.
- Kim, J. and **Lee, I.** (2011). Hippocampus is necessary for spatial discrimination using distal cue-configuration. *Hippocampus* 21:609-621
- Campolattaro, M., Kashef, A., **Lee, I.**, and Freeman, J.H. (2011). Neural correlates of cross-modal transfer in the cerebellum and pontine nuclei. *Journal of Neuroscience* 31:4051-4062.
- Byun, J. and **Lee, I.** (2010). Disambiguation of similar object-place paired associations and the roles of the brain structures in the medial temporal lobe. *Experimental Neurobiology* 19:15-22.
- Lee, I.** and Kim, J. (2010). The shift from a response strategy to object-in-place strategy during learning is accompanied by a matching shift in neural firing correlates in the hippocampus. *Learning and Memory* 17:381-393
- Jo, Y.S. and **Lee, I.** (2010). Disconnection of the hippocampal-perirhinal cortical circuits severely disrupts object-place paired associative memory. *Journal of Neuroscience* 30:9850-9858
- Halverson, H., **Lee, I.** and Freeman, J.H. (2010). Associative plasticity in the medial auditory thalamus and cerebella interpositus nucleus during eyeblink conditioning. *Journal of Neuroscience* 30:8787-8796
- Lee, I.** and Solivan, F. (2010). Dentate gyrus is necessary for disambiguating similar object-place representations. *Learning and Memory* 17:252-258.
- Jo, Y.S. and **Lee, I.** (2010). Perirhinal cortex is necessary for acquiring, but not for retrieving, object-place paired association. *Learning and Memory* 17:97-103.
- Lee, I.** and Solivan, F. (2008). The roles of the medial prefrontal cortex and hippocampus in a spatial paired-association task. *Learning and Memory* 15:357-367.
- Lee, I.** and Knierim, J.J. (2007). The relationship between the field-shifting phenomenon and representational coherence of place cells in CA1 and CA3 in a cue-altered environment. *Learning and Memory* 14:807-815.
- Lee, I.**, Griffin, A.L., Zilli, E.A., Eichenbaum, H., and Hasselmo, M.E. (2006). Gradual translocation of spatial correlates of neuronal firing in the hippocampus towards prospective reward locations. *Neuron* 51:639-650.
- Knierim, J.J., **Lee, I.**, and Hargreaves, E.L. (2006). Hippocampal Place Cells: Parallel Input Streams, Subregional Processing, and Implications for Episodic Memory. *Hippocampus* 16:755-764.
- Yu, X., Knierim, J.J., **Lee, I.**, and Shouval, H.Z. (2006). Simulating place field dynamics using spike timing-dependent plasticity. *Neurocomputing* 69:1253-1259.
- Jerman, T.S., Kesner, R.P., **Lee, I.**, and Berman, R.F. (2005). Patterns of hippocampal cell loss based on subregional lesions of the hippocampus. *Brain Research* 1065:1-7.
- Lee, I.**, Jerman, T.S., and Kesner, R.P. (2005) Disruption of delayed memory for a sequence of spatial locations following CA1- or CA3-lesions of the dorsal hippocampus. *Neurobiology of Learning and Memory*. 84:138-147.

- Hargreaves, E.L., Rao, G., Lee, I., and Knierim, J.J. (2005) Major dissociation between medial and lateral entorhinal input to dorsal hippocampus. *Science* 308:1792-1794.
- Lee, I., Hunsaker, M.R., and Kesner, R.P. (2005) The role of hippocampal subregions in detecting spatial novelty. *Behavioral Neuroscience* 119:145-153. (comment article by Hasselmo, M.E. appears in the same issue pp.342-345).
- Kesner, R.P., Lee, I., Gilbert, P. (2004) A behavioral assessment of hippocampal function based on a subregional analysis. *Reviews in Neurosciences* 15:333-351.
- Lee, I., Yoganarasimha, D., Rao, G., and Knierim, J. J. (2004) Comparison of population coherence of place cells in hippocampal subfields CA1 and CA3. *Nature* 430:456-459.
- Lee, I., Rao, G., and Knierim, J. J. (2004) A double dissociation between hippocampal subfields: Differential time course of CA3 and CA1 place cells for processing changed environments. *Neuron* 42:803-815.
- Lee, I. and Kesner, R. P. (2004) Encoding versus retrieval of spatial memory: Double dissociation between the dentate gyrus and the perforant path inputs into CA3 in the dorsal hippocampus. *Hippocampus* 14:66-76.
- Lee, I. and Kesner, R. P. (2004) Differential contributions of hippocampal subregions to memory acquisition and retrieval in contextual fear conditioning. *Hippocampus* 14:301-310.
- Lee, I. and Kesner, R. P. (2003) Differential roles of hippocampal subregions in spatial working memory with short versus intermediate delay. *Behavioral Neuroscience* 117:1044-1053.
- Lee, I. and Kesner, R. P. (2003) Time-dependent relationship between the hippocampus and the medial prefrontal cortex in spatial memory. *Journal of Neuroscience* 23:1517-1523.
- Lee, I. and Kesner, R. P. (2002) Differential contribution of NMDA receptors in hippocampal subregions to spatial working memory. *Nature Neuroscience* 5:162-168.
- Gilbert, P. E., Kesner, R. P., and Lee, I. (2001) Dissociating hippocampal subregions: A double dissociation between dentate gyrus and CA1. *Hippocampus* 11:626-636.
- Lee, I., Kim, J., and Lee, C. (1999) Anatomical characteristics and three-dimensional model of the dog dorsal lateral geniculate body. *Anat. Rec.* 256:29-39.

- **Book Chapters**

- 또 다른 지능, 다음 50 년의 행복 장병탁, 권호정, 권영선, 이인아 (저), “AI 시대, 뇌의 변화, 인지의 변화” (pp.93-163). (2019). 서울: 아시아.
- Lee, I., and Lee, C.H. (2016). Attribute memory model and behavioral neurophysiology of memory. In P.A. Jackson, A.A. Chiba, R.F. Bergman, & M.E. Ragozzino (Eds.), *The neurobiological basis of memory: A system, attribute, and process analysis*. A festschrift in honor of Raymond P. Kesner. Springer, New York.
- Lee, I., Kesner, R.P., and Knierim, J.J. (2008). The roles of hippocampal subfields in processing spatial contexts of events: Neurophysiological and behavioral analyses. In Mizumori, S.J.Y. (Ed). *Hippocampal place fields: Relevance to learning and memory*, Oxford University Press, Oxford, U.K.
- Kesner, R. P., Gilbert, P. E. and Lee, I. (2002) Subregional analysis of hippocampal function in the rat. Squire, L.R. and Schacter, D.L.(Eds). *Neuropsychology of Memory*, Third Edition, Guilford press, NY.

INVITED TALKS

“뇌인지과학은 인공지능(AI)의 발전에 무엇을 기여할 수 있는가?”(서울대학교 인공지능 연구원, <https://www.youtube.com/watch?v=bO0mlu9wESA&t=240s>; 2020.11.21)

- “Back to behavior to learn how the brain works” (Dept. of Bio and Brain Engineering, KAIST, Daejeon; Sep 23, 2020)
- “해마와 편도체를 통한 학습과 기억” (제 40 차 지체근 교수의 신경해부통합강좌, 서울대학교 병원 의생명연구원; 2020.1.11)
- “There’s a place” (Neuroscience Institute, KIST, Seoul; Dec 18, 2019)
- “과연 인공지능이 뇌를 흉내낼 수 있을까?” (서울대학교 자연과학대학 토요과학 공개강좌; 2019.12.7)
- “인공지능 시대, 뇌의 변화와 인지의 변화” (POSTECH 박태준 미래전략연구소 제 7 회 미래전략 포럼, 포항, 2019.11.29)
- “Hoping for better AI: Advice from the Brain” (XAIENCE symposium, Seoul National University, College of Natural Sciences; Nov 8, 2019)
- “The hippocampus remembers eventful everything” (McGovern Institute for Brain Research, Peking University, China; Nov 5, 2019)
- “The hippocampus remembers eventful everything” (Dept. of Psychology, University of Washington at Seattle, USA; Oct 17, 2019)
- “Do place and its value codes reside separately in the hippocampus?” in *Current Topics in Hippocampal Memory Systems* (SNU BCS International Symposium; Sep 26, 2019)
- “The hippocampal memory system as an episodic storyteller in the brain” (CNIR at SKKU IBS; Sep 6, 2019)
- “101 ways to do brain sciences” (Public lecture for high school students in Shi-Heung education center for gifted students; May 25, 2019)
- “Physiological part and parcel of episodic memory in the hippocampal systems” (Department of Physiology, Seoul National University Medical School; Apr 29, 2019)
- “Dissociating memory systems during goal-directed navigation and object manipulation” (Winter Conference for Neural Plasticity, Moorea; Feb 12, 2019)
- “Functional segregation of neural circuits in the medial temporal lobe for visual contextual behavior in rats” (Annual Meeting for the Korean Society for Brain and Neural Sciences; Aug 30, 2018)
- “You are not alone – Social cognition and behavior” (Systems Neuroscience Symposium, SKKU; Jul 20, 2018)
- “Walking down scene memory lane in the brain” (Advanced Institute of Convergence Technology, Seoul National University; Apr 23, 2018)
- “Brain as the portal to the world” (Judicial Research and Training Institute; Mar 12, 2018)
- “The present and future of Brain Science” (Public Lecture, College of Natural Science, Seoul National University; Nov 11, 2017)
- “Neural firing patterns in the hippocampal formation in visual contextual environment” (The 69th Annual Meeting of the Korean Physiological Society; Nov 3, 2017)
- “Brain Oddity: Noisy Process to Clean Action” (Fall Workshop of the Korean Society for Cognitive Science; Oct 14, 2017)
- “The hippocampal mechanisms of recognition memory for objects and scenes” (Department of Biological Sciences, KAIST; Sep 26, 2017)
- “Differential rate remapping in the subiculum and hippocampus” (Annual Meeting for the Korean Society for Brain and Neural Sciences; Aug 31, 2017)
- “Differential rate remapping in the subiculum and hippocampus in visual scene-recognition memory” (The Korean-American Kavli Frontiers of Science Symposium, Irvine, CA, U.S.A.; Jun 28, 2017)
- “Shaping the future by the past: The hippocampus and contextual behavior” (Neuroscience Program, Seoul National University; Jun 1, 2017)
- “Brain’s memory and memory’s behavior” (Army Headquarters; May 12, 2017)

- “*Visual contextual behavior and hippocampal memory networks*” (Annual Meeting for the Korean Society for Cognitive & Biological Psychology; Jan 19, 2017)
- “*Functional circuits for remembering visual scenes and objects*” (The 3rd International Conference on the Functional Architecture of Memory, Germany; May 25, 2016)
- “*What are you looking for in the brain? – Neural circuit-level analysis of behavior*” (Systems Neuroscience Symposium, SKKU; May 10, 2016)
- “*Categorical neural firing for ambiguous visual objects in the perirhinal cortex*” (The Annual Meeting for the Korean Society for Brain and Neural Sciences; Sep 28, 2016)
- “*The hippocampal formation in a visual scene-based memory task*” (The Center for Neuroscience, KIST; Oct 12, 2015)
- “*The hippocampal formation in a visual scene-based memory task*” (IBS, SKKU; Oct 7, 2015)
- “*The hippocampal formation in a visual scene-based memory task*” (Department of Psychology, University of Edinburgh, U.K.; Sep 17, 2015)
- “*The hippocampal formation in a visual scene-based memory task*” (IBS-UK Neuroscience Symposium, Cambridge, U.K.; Sep 16, 2015)
- “*The hippocampal system in scene-dependent choice behavior*” (IBS, SKKU; Sep 10, 2015)
- “*Episodic memory and the self*” (B-Brown Korea; June 29, 2015)
- “*Scene event memory in the hippocampal formation*” (Korea-France Neuroscience Symposium; June 23, 2015)
- “*쥐의 뇌를 통한 인지과정의 이해(Understanding cognitive processes through the rodent brain)*” (The Korean Society for Cognitive Science; May 30, 2015)
- “*뇌연구, 나와 우리에게 무엇을 의미하는가?(Significance of brain research)*” (W:AZIT, Shinsa-dong, LAB ADDLIP Mar 28, 2015)
- “*일화기억과 장소세포(Episodic memory and place cells)*” (Lecture for the significance of the Nobel Prize, 서현고등학교, Nov 24, 2014)
- “*Visual object, scene, and the hippocampal system*” (Bodian seminar lecture, Krieger Mind/Brain Institute, Johns Hopkins University, U.S.A.; Nov 21, 2014)
- “*일화기억과 장소세포(Episodic memory and place cells)*” (Lecture for the significance of the Nobel Prize, 도림고등학교, Nov 3, 2014)
- “*공간기억과 장소세포(Spatial memory and place cells)*” (Lecture for the significance of the Nobel Prize, 평내고등학교, Oct 29, 2014)
- “*Visual object, scene, and the hippocampal system*” (Dept. of Brain and Cognitive Sciences, Ewha Women’s University; Oct 29, 2014)
- “*What is the occasion? – Neural networks for scene-dependent contextual behavior*” (The 7th Korea-UK Neuroscience Symposium, KAIST, Daejeon; Oct 22, 2014)
- “*Independence and interdependence of hippocampal networks in episodic memory*” (Science Research Center, Seoul National University Medical School; Jun 20, 2014)
- “*Brain mechanisms for cognition and behavior*” (Korean Academy of Orofacial Pain and Oral Medicine; Mar 15, 2014)
- “*Brain’s Dilemma – Coding the Rainbow with One Arm*” (DGIST mini-symposium by graduate students in DGIST Brain Science; Nov 29, 2013)
- “*Hippocampal and perirhinal cortical functions in memory*” (Department of Neurology, Ewha Woman’s University Medical Center; Oct 28, 2013)

"Hippocampal and perirhinal cortical functions in memory" (The 3rd Korea-UK Collaborative Alzheimer's Disease Research Symposium; Oct 7, 2013)

"Remember what to choose here? Event memory in the hippocampus" (Department of Neurosurgery, Seoul National University Medical School; Jun 4, 2013)

"Implicit Memory" (Annual Meeting for the Korean Neurological Association; Apr 12, 2013)

"Friend or Foe?: Striatum as a contextual ally of the hippocampus" (Department of Life Science, POSTECH; Dec 7, 2012)

"Neural correlates of contextual information processing in the hippocampus and dorsomedial striatum" (Neural Circuit Basis of Behavior and its Disorders, Cold Spring Harbor Asia Conference; Nov 7, 2012)

"Neural correlates of contextual information processing in the hippocampus and dorsomedial striatum" (Korean Society for Computational Neuroscience, Korea University; Aug 20, 2012)

"Episodic Memory" (Korean Ministry of Education, Science and Technology; Jun 8, 2012)

"Neural correlates of contextual information processing in the hippocampus and dorsomedial striatum" (CFC, Korean Institute for Science and Technology, Korea; May 5, 2012)

"Neural correlates of contextual information processing in the striatum and hippocampus" (Seoul National University Medical School, Korea; Mar 21, 2012)

"Striatum, an Unexpected Rival for Hippocampus for Contextual Information Processing" (CFC, Korean Institute for Science and Technology, Korea; Dec 21, 2011)

"Recording single units simultaneously in behaving animals" (The 3rd Pioneer Research Center Workshop, Yonsei University, Korea; Dec 21, 2011)

"Cognitive Neuroscience on the Contextual Event-Memory System" (Symposium for Cognitive Neuroscience and Medicine, Ajou University, Korea; Dec 3, 2011)

"Contextual information processing in the brain" (Annual Meeting for the Korean Society for Brain and Neural Science, Seoul, Korea; Sep 19, 2011; Co-organizer for the entire academic program of the conference)

"Using visual stimuli on LCD screens for testing associative memory in rats" (Brain and Cognitive Science Conference, Seoul, Korea; Sep 3, 2011)

"The contextual brain" (Department of Psychology, Korea University, Seoul, Korea; May 26, 2011)

"Investigation of a functional significance of a network of single units for cognition" (Meeting for Brain Fusion, Seoul, Korea; Apr 22, 2011)

"I as my memory" (Brain Awareness Week, Seoul National University, Korea; Mar 19, 2011)

"Common pitfalls in behavioural neurophysiology" (Workshop for Molecular Cognition Society, Seoul, Korea; Feb 11, 2011)

"Neural activity in prefrontal cortex in light of hippocampus in contextual object discrimination" (Annual Meeting for the Korean Society for Brain and Neural Science, Seoul, Korea; Dec 10, 2010)

"Neural firing in the hippocampus and prefrontal cortex in a goal-directed event memory task" (Annual Meeting for the Korean Physiological Society, Seoul, Korea; Oct 28, 2010)

"Putting together events in the medial temporal lobe" (Department of Biological Sciences, Konkuk University, Seoul, Korea; May 25, 2010)

"Unlimited events in a limited space – The hippocampal dilemma" (Distinguished Lecturer Series, Seoul National University, Seoul, Korea; Nov 4, 2009)

"Where did I see Spider Man? – The hippocampus, perirhinal cortex, and object-place binding in event memory." (Mini-symposium, Korean Brain Society, Seoul National University, Seoul, Korea; Sep 5, 2009)

"Functional significance of hippocampal circuits" (Department of Biological Sciences, Seoul National University, Seoul, Korea; July, 2008)

“To choose or not to choose: The prefrontal cortex, hippocampus, and event memory” (Center for Neural Science, Korea Institute of Science and Technology, Seoul, Korea; June, 2008)(Institute of Medical Science, Ajou University School of Medicine, Suwon, Korea; June, 2008)(Department of Psychology, Seoul National University, Seoul, Korea; June, 2008)(Department of Physiology, College of Medicine, Seoul National University, Seoul, Korea; June, 2008)(Department of Psychology, Yonsei University, Seoul, Korea; May, 2008)

“Neural mechanisms of decision making in ambiguous contexts: The roles of the prefrontal cortex and hippocampus” (Department of Pharmacology, Kirksville College of Osteopathic Medicine, A.T. Still University of Health Sciences, Kirksville, Missouri; April, 2008)(Department of Molecular Physiology and Biophysics, Carver College of Medicine, University of Iowa, Iowa City, IA; Dec, 2007)

“Episodic memory in the medial temporal lobe” (Department of Psychology, Korea University, Seoul, South Korea; August, 2005)(Department of Biosystems, Korea Advanced Institute of Science & Technology, Daejeon, Korea; August, 2005)(Center for Neural Science, Korea Institute of Science and Technology, Seoul, Korea; July, 2005)(Institute of Medical Science, Ajou University School of Medicine, Suwon, Korea; July, 2005)(Department of Life Science, Pohang University of Science & Technology, Pohang, Korea; July, 2005)

“Hippocampal memory...the rest are details” (Winter Conference for Learning and Memory, Park City, UT, U.S.A.; January, 2005)

Job Talks

“Hippocampal memory...the rest are details” (Department of Psychology, University of Oregon, Eugene, OR, U.S.A.; January, 2005)(Department of Psychology, Cornell University, Ithaca, NY, U.S.A.; January, 2005)(Department of Psychology, University of Iowa, Iowa City, IA, U.S.A.; January, 2005)(Department of Psychology, Yale University, New Haven, CT, U.S.A.; December, 2004)

“Differential functions of hippocampal subregions in spatiotemporal memory” (Center for Memory and Brain, Boston University, Boston, MA, U.S.A.; November, 2003)

PROFESSIONAL CONSULTATIVE ROLES and SERVICES

• Journal Editorial board:

Frontiers in Behavioral Neuroscience (Review Editor)

Frontiers in Decision Neuroscience (Review Editor)

Frontiers in Neural Circuits (Review Editor)

Experimental Neurobiology (Review Editor)

Ad hoc reviewer in other journals (e.g., Hippocampus, Cerebral Cortex, Neurobiology of Learning and Memory, Frontiers in Psychology, Nature Communications, Neuroscience, Neuroscience & Biobehavioral reviews, Journal of neurophysiology, Learning & Memory, European Journal of Neuroscience, Behavioral Neuroscience, etc.)

• Ad hoc Reviewer for Grant Agencies:

National Science Foundation, U.S.A.

Korean Ministry of Education, Science and Technology

National Research Foundation of Korea

• Organizational Committee Member for Academic Conferences:

2020.11.16-17. Secretary General for the Korean Society for Brain and Neural Sciences (Organizer for the annual meeting online; http://ksbnsconference.org/register/2020_23/program/sub01.html)

2020.4.29~12.11. AI 영재학교 충북과학고 전환 타당성 및 운영모델 연구과제 (책임연구원, 충청북도교육청)

2019.12.30. Organizer for the Symposium “Toward Brain-like AI” (Seoul National University)
2018-2019. International sub-committee of the Local Organizing Committee of the IBRO 2019
2015. Chair of the organizing committee for the 1st Korean-France Neuroscience Symposium
2015. Policy coordinator, The Korean Society for Brain and Neural Sciences
2014. Academic session coordinator, The Korean Society for Brain and Neural Sciences
2011. Academic session coordinator, The Korean Society for Brain and Neural Sciences