Min Sung **Seo**

Postdoctoral Scholar · Cognitive Neuroscience

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Education

Ph.D., Cognitive Psychology, Formal Concentration in Quantitative Psychology

University of North Carolina at Chapel Hill — *Aug 2025*

- *Advisor*: Kelly S. Giovanello, Ph.D.
- *Thesis*: Prediction Error and Subsequent Memory in Younger and Older Adults

Master of Arts, Cognitive Psychology

University of North Carolina at Chapel Hill — *2020 - 2023*

- *Advisor*: Kelly S. Giovanello, Ph.D.
- *Thesis*: Hippocampal Subfield and Whole-Brain Activity During Mnemonic Discrimination Across the Adult Lifespan

Bachelor of Science, Psychology, Neuroscience Option

The Pennsylvania State University, University Park — *2014 - 2020*

- *Honors*: Magna Cum Laude

Publications

- **Seo, M.,** Wahlheim, C. N., & Giovanello, K. S. (in prep). Prediction error and subsequent memory in younger and older adults.
- **Seo, M.,** Miceli, K., Langella, S., Picklesimer, M., Mulligan, N. W., & Giovanello, K. S. (under revision). Multifeatural memory encoding in aging: Neural correlates and functional connectivity.
- Chang, W., Langella, S., **Seo, M.,** Huynh, K., Yap. P., Lin, W., & Giovanello, K. S. (preprint). Cross-layer balance of visuo-hippocampal functional connectivity is associated with episodic memory recognition accuracy.

Talks

- **Seo, M.** (Jan. 2025). Prediction Error and Subsequent Memory in Younger and Older Adults. *Talk given at the the Cognitive Seminar Series at UNC, Chapel Hill.*
- **Seo, M.** (Oct. 2024). Memory and Aging. *Talk given at the Psi Chi Guest Lecture at UNC, Chapel Hill.*
- **Seo, M.** (Feb. 2024). The Effects of Aging on Prediction Error and Subsequent Memory. *Talk given at the Cognitive Seminar Series at UNC, Chapel Hill.*
- **Seo, M.** (Apr. 2023). Hippocampal subfield and whole-brain activity during mnemonic discrimination across the adult lifespan. *Talk given at the Cognitive Seminar Series at UNC, Chapel Hill.*
- **Seo, M.** (Apr. 2022). Hippocampal subfield activity during mnemonic discrimination across the adult lifespan. *Talk given at the Cognitive Seminar Series at UNC, Chapel Hill.*
- **Seo, M.** (Apr. 2021). Multifeatural encoding in aging. *Talk given at the Cognitive Seminar Series at UNC, Chapel Hill.*

Poster Presentations

- **Seo, M.**, Wahlheim, C. N., Giovanello, K. S. (2025). Mnemonic Prediction Error and Memory Updating in Younger and Older Adults. Poster accepted for the Dallas Aging Conference, Dallas, TX.

- **Seo, M.**, Chang, W., Wahlheim, C. N., Giovanello, K. S. (2023). Hippocampal Subfield Activity During Mnemonic Discrimination Across the Adult Lifespan. Poster presented at the North Carolina Cognition Conference, Winston-Salem, NC.
- Chang, W., Langella, S., Huynh, K., **Seo, M.**, Yap, P., Lin. W., Giovanello, K. S. (2022). Investigation of brainwide functional networks associated with hippocampal subfields during memory encoding and retrieval using fMRI with 1-mm isotropic resolution. Poster submitted to the Joint Annual Meeting ISMRM-ESMRMB ISMRT, London, England, UK.
- Gerver, C. R., Overman, A. A., Cowan, J., Jenkins, C., Kautz, B., Long, M., **Seo, M.**, Dennis, N. A. (2020). Manipulating associative encoding strategy impacts neural discriminability at encoding and retrieval. Poster presented virtually at the Cognitive Neuroscience Society Annual Meeting, Boston, MA.

Research Experience

Cognitive Neuroscience of Memory Lab (*PI: Kelly S. Giovanello, Ph.D.)* *UNC - Chapel Hill*

Graduate Student *Aug 2020 - Aug 2025*

- **Cognitive aging study investigating the effects of aging on prediction error and subsequent memory:** Gathered theoretical background for hypotheses testing, designed a novel experimental paradigm focusing on the role of prediction strength. Currently in prep for manuscript.
- **Lifespan study investigating age related alterations in hippocampal subfield to cortical network functional brain connectivity:** Modified the mnemonic similarity task (MST) for use in whole-brain, high resolution fMRI (3T) to investigate hippocampal subfield function and connectivity with cortical regions during pattern separation processes. Data used for Master's thesis.
- **Hippocampal subfield contributions to associative to associative memory:** Data collection and analyses on an associative memory task for use in whole-brain, high-resolution fMRI (7T) study to investigate hippocampal subfield function and connectivity with cortical regions during (a) discrimination and match detection processes and (b) associative encoding and retrieval.
- **Multifeatural episodic memory encoding in aging:** Data analyses on an existing dataset from a neuroimaging (fMRI) study incorporating a memory encoding task where source features vary independently on two intrinsic dimensions. Age-related differences in whole-brain activation and functional connectivity between ROIs during successful memory encoding were investigated. Manuscript currently under revision.

Cognitive Aging and Neuroimaging Lab (*PI: Nancy A. Dennis, Ph.D.)* *Penn State*

Research Assistant *Aug 2018 - May 2020*

- **Role of unitization in successful encoding of two pieces of information:** Data collection and preprocessing (imaging data) on an associative memory task utilizing a unitizing strategy to test unitization's effect on later memory retrieval in younger and older adults.
- **Influence of shcemas on memory for non-shcematic information in younger and older adults:** Data collection on a novel scene memory task paradigm to investigate age-related differences in the influence of schemas on memory for non-schematic information.
- **Effect of culture in associative memory:** Data collection on an associative memory task to investigate the effect of culture on associatve memory.

Center for Language Science (*Primary Advisor: Melinda Fricke, Ph.D.)* *Penn State*

Research Assistant *Jan 2016 - May 2016*

- **Differences in task switching during English-Spanish cognates and non-cognates:** Data collection using EEG and recording of English-Spanish bilinguals to identify differences in neural processes between English-Spanish cognates and non-cognates during L1 - L2 switching.

Honors & Awards

2025	**Awardee**, The Graduate School Summer Research Fellowship, $8000	*UNC - Chapel Hill*
2025	**Awardee**, Graduate Student Transportation Grant, $1400	*UNC - Chapel Hill*
2025	**Awardee**, Sallie P. Asche Award, Dallas Aging Conference, $500	*UT - Dallas*
2025	**Departmental Nominee**, Dean's Distinguished Dissertation Award	*UNC - Chapel Hill*
2024	**Awardee**, Dashiell Dissertation Startup Award, $1000	*UNC - Chapel Hill*
2022,2023	**Awardee**, Dashiell Travel Award, $1000, $200	*UNC - Chapel Hill*
2021	**Departmental Nominee**, The Graduate Education Advancement Board Impact Award	*UNC - Chapel Hill*