

Education

Duke University

Ph.D. Student

Cognitive Neuroscience Admitting Program (CNAP)

Durham, NC, USA

August 2025 – Present

New York University

M.A. in Experimental Psychology

Emphasis in Cognitive Neuroscience

Advisor: David Poeppel, Ph.D.

Thesis: *Memory for taxonomic and thematic conceptual relations*

New York, NY, USA

September 2021 – May 2023

University of Wisconsin-Madison

B.A. in Psychology

B.A. in Statistics (double-major)

Minor in French

Madison, WI, USA

September 2017 – May 2021

University of California, Los Angeles

Summer Session in Psychology and Philosophy

Los Angeles, CA, USA

June 2016 – August 2016

Research experience

Mnemology Lab, Duke University

Ph.D. Student

Advisors: Roberto Cabeza, Ph.D.; Simon Davis, Ph.D.

- Conduct univariate analyses and representational similarity analyses (RSA) and write up behavioral and neuroimaging (fMRI) experiments to study the hippocampal and cortical correlates of relational memory types

Durham, NC, USA

August 2025 – Present

Memory and Concepts Lab, Drexel University

Lab Manager

Advisor: Alexa Tompary, Ph.D.

Philadelphia, PA, USA

August 2023 – Present

Research:

- Conceptualized, designed, implemented, analyzed results, and wrote up:
 - behavioral experiments on the impacts of semantic relations on memory
 - behavioral and transcranial magnetic stimulation (TMS) on the effects of concreteness, context, and semantic control on episodic memory
- Designed and implemented behavioral and TMS experiments to understand the timing of the influence of category knowledge on memory retrieval
- Collaborated on neuroimaging (fMRI) experiment to study the interplay between mind wandering and episodic memory

Administrative:

- Assembled and submitted grant applications and IRB documentation
- Scheduled lab meetings and lab events and reserved venues
- Recruited, trained, and managed undergraduate research assistants
- Purchased supplies, equipment, and services for the laboratory
- Documented expenses and submitted reports
- Designed and maintained lab website

Poeppel Lab, New York University
Research Assistant
Advisor: David Poeppel, Ph.D.

New York, NY, USA
September 2021 – May 2023

- Conceptualized, designed, implemented, analyzed results, and wrote up behavioral experiments to understand memory for linguistic information
- Implemented and analyzed results for behavioral and electrophysiological (MEG) experiments to study music perception and cognition
- Collaborated on MEG experiments to study real-time somatosensory feedback in speech production using auditory feedback perturbation

Cognitive Development and Media Lab, University of Wisconsin-Madison
Madison, WI, USA
Research Assistant
Advisor: Heather Kirkorian, Ph.D.

September 2021 – May 2023

- Calibrated and analyzed eye gaze and visual fixation data
- Collaborated on behavioral experiments to study the relationship between children's cognitive development and media interactivity

Publications

Thematic relations outperform taxonomic relations in a cued recall task.
Cao, W., Raccach, O., Chen, P., & Poeppel, D. (2023)
Proceedings of the Annual Meeting of the Cognitive Science Society, 45.

The privileged role of thematic conceptual relations in episodic memory.
Cao, W., Raccach, O., Chen, P., Poeppel, D.*, & Tompary, A.* (2024)
Submitted to Cognition

Ongoing projects

Timing of anterior temporal lobe function in semantic distortions of episodic memory.
Cao, W., Raina, R., Coslett, H. B., & Tompary, A. (In preparation)

The effects of contextual specificity and semantic control on memory of abstract and concrete concepts.
Cao, W., & Tompary, A. (In preparation)

Selected conference abstracts

Hippocampal and cortical coding of relational memory types. submitted
Cao, W., Bogdan, P.C., Howard, C.M., Davis, S.W., & Cabeza, R.
The 33rd Annual Meeting of the Cognitive Neuroscience Society. Vancouver, BC, Canada

The Primacy of Thematic Conceptual Relations in Shaping Episodic Memory. November 2024
Cao, W., Raccach, O., Chen, P., Poeppel, D.*, & Tompary, A.*
The Psychonomic Society's 65th Annual Meeting. New York, NY, USA

The Privileged Role of Thematic Conceptual Relations in Shaping Episodic Memory. November 2024
Cao, W., Raccach, O., Chen, P., Poeppel, D.*, & Tompary, A.*
The 32nd Annual Workshop on Object Perception, Attention, and Memory. New York, NY, USA

Thematic relations outperform taxonomic relations in episodic memory.
Cao W., Racciah O., Chen P., Tomparry A., & Poeppel D. April 2024
The 31st Annual Meeting of the Cognitive Neuroscience Society. Toronto, ON,
 Canada

Thematic relations outperform taxonomic relations in a cued recall task.
Cao W., Racciah O., Chen P., & Poeppel D. July 2023
The 44th Annual Meeting of the Cognitive Science Society. Sydney, NSW, Australia

The mnemonic basis of taxonomic and thematic conceptual relations.
Cao W., Racciah O., Chen P., & Poeppel D. April 2023
The 2023 International Conference on Learning and Memory. Huntington Beach,
 CA, USA

**The effect of interactivity on toddler's object retrieval: Comparing the
 live and video situations.** April 2021
 Jing, M., **Cao, W.,** Kaplan, B., Nunez, A., & Kirkorian, H.
University of Wisconsin-Madison's Undergraduate Symposium. Madison, WI, USA

Honors and scholarships

Graduate Student Conference Award (\$500), New York University	2023
Master's Research Conference Second Place Finish (\$150), New York University	2022
Germaine Mercier Scholarship (\$500), University of Wisconsin-Madison	2021
Larkin Burl Price Memorial Scholarship (\$1,000), University of Wisconsin-Madison	2020
Undergraduate Scholarship for Summer Study (\$1,000), University of Wisconsin-Madison	2019
Fall 2018 Dean's List, University of Wisconsin-Madison	2019

Teaching experience

Department of Psychology, New York University	New York, NY, USA
Teaching Assistant and Grader	January 2023 – May 2023
PSYCH-UA11: Advanced Psychological Statistics	

Skills and others

Programming: Python, R, MATLAB, JavaScript, LaTeX, Markdown, GitHub
Experimental Design: PsychoPy, PsychoJS, Qualtrics
Data Analysis: NumPy, scikit-learn, PyTorch, SPSS, MS Excel
Neuroscience: TMS, MRI/fMRI, MEG
Eye-tracking: GazeTag, Datavyu
Technical coursework: Mathematical Tools for Neural and Cognitive Science,
 Probability, Applied Regression Analysis, Nonparametric Statistics, Machine
 Learning and Statistical Pattern Classification, Deep Learning and Generative
 Models
Technical course projects: Deep-Learning Based Speech Emotion Recognition
 (CNN, RNN, Transformer Neural Networks), Machine-Learning Based
 Authorship Identification in Web Fictions (kNN, C4.5 Decision Tree, Random
 Forests, Multinomial Naive Bayes, Bagging)

Language: Wu-Chinese (native), Mandarin-Chinese (native), English (fluent), French (intermediate)
Other: Musical instruments (gu zheng, recorder), video editing (Adobe Premiere), audio editing (Audacity, Adobe Audition), image editing (Adobe Photoshop)

**Service and
outreach**

Chair of Event Planning August 2019 – May 2021
Yuan-Shan Study Society, University of Wisconsin-Madison, Madison, WI, USA
Scientific Expedition Coordinator April 2018
Friends of the Preserve, University of Wisconsin-Madison, Madison, WI, USA
Volunteer Language Tutor September 2017 – May 2018
Chinese Language and Culture Club, University of Wisconsin-Madison, Madison, WI, USA