

Griffin E. Koch, PhD

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EDUCATION

- 2017 - 2023 University of Pittsburgh and Center for the Neural Basis of Cognition
Ph.D., Psychology, Minor in Quantitative Methodology
Advisor: Marc Coutanche, Ph.D.
Dissertation Title: *Using Virtual Reality to Unpack the Benefits of Context-Dependent Memory*
- 2017 - 2020 M.S., Psychology
Advisor: Marc Coutanche, Ph.D.
Master's Thesis Title: *Neural Representations of Numerical Processing across Semantic, Phonological, Visual, and Manual formats*
- 2012 - 2015 University of Pittsburgh
B.Phil., Psychology (Honors) and German
Honors Thesis Advisor: Natasha Tokowicz, Ph.D.
Honors Thesis Title: *Translation Ambiguity and Individual Differences in L2 Vocabulary Learning between Mono- and Bilinguals*

RESEARCH INTERESTS

- Broad: Cognitive neuroscience, memory, learning, brain imaging, language
- Specific: Neural basis of semantic/episodic/spatial memory, learning, sleep, fMRI methods, multivariate pattern analysis, virtual reality

HONORS AND AWARDS

- 2020 Tim Post Award for Research Excellence
- *Recognizes a graduate student pursuing a Ph.D. in cognitive or developmental psychology for excellence in research*
- 2019 Trainee Professional Development Award, Society for Neuroscience
- *Recognizes undergraduate and graduate students and postdoctoral fellows who demonstrate scientific merit and excellence in research*
- 2019 Outstanding Presenter Award, Grad Expo 2019
- *Awarded through the Dietrich School of Arts and Sciences Graduate Student Organization*

- 2018 - 2020 Behavioral Brain (B²) Research Training Program Fellowship
- *Awarded through the Center for the Neural Basis of Cognition at the University of Pittsburgh and Carnegie Mellon University, funded by National Institutes of Health*
- 2018 Outstanding Presenter Award, Grad Expo 2018
- *Awarded through the Dietrich School of Arts and Sciences Graduate Student Organization*
- 2016 Lore Foltin Award for Academic Excellence
- *Recognizes a graduating senior who has excelled academically in study of German language and culture*
- 2015 Willis Honors College Visiting Fellows Scholarship
- *Awarded through the University of Pittsburgh Honors College to fund research toward the degree of Bachelor of Philosophy*

PEER-REVIEWED PUBLICATIONS

Koch, G.E. & Coutanche, M.N. (2024). Context Reinstatement Requires a Schema Relevant Virtual Environment to Benefit Object Recall. *Psychonomic Bulletin & Review*.
<https://doi.org/10.3758/s13423-024-02472-w>

Koch, G.E., Libertus, M.E., Fiez, J.A., & Coutanche, M.N. (2023). Representations within the intraparietal sulcus distinguish numerical tasks and formats. *Journal of Cognitive Neuroscience*, 35(2), 226-240.

Koch, G.E., Akpan, E., & Coutanche, M.N. (2020). Image memorability is predicted by discriminability and similarity in different stages of a convolutional neural network. *Learning & Memory*, 27(12), 503-509.

Coutanche, M.N., **Koch, G.E.**, & Paulus, J.P. (2020). Influences on memory for naturalistic visual episodes: Sleep, familiarity, and traits differentially affect forms of recall. *Learning & Memory*, 27(7), 284-291.

Koch, G.E., Paulus, J.P., & Coutanche, M.N. (2020). Neural patterns are more similar across individuals during successful memory encoding than during failed memory encoding. *Cerebral Cortex*, 30(7), 3872-3883.

Popov, V., Zhang, Q., **Koch, G.E.**, Calloway, R.C., & Coutanche, M.N. (2019). Semantic knowledge influences whether novel episodic associations are represented symmetrically or asymmetrically. *Memory & Cognition*, 47(8), 1567-1581.

Coutanche, M.N. & **Koch, G.E.** (2018). Creatures great and small: Real-world size of animals predicts visual cortex representations beyond taxonomic category. *NeuroImage*, 183, 627-634.

Coutanche, M.N. & **Koch, G.E.** (2017). Variation across individuals and items determine learning outcomes from fast mapping. *Neuropsychologia*, 106, 187-193.

CONFERENCE PRESENTATIONS

Koch, G.E. & Coutanche, M.N. (2023, November). Using virtual reality to unpack how context reinstatement aids memory. Poster presented at the Annual Meeting of the Psychonomic Society, San Francisco, CA.

Koch, G.E. & Coutanche, M.N. (2023, July). Unpacking how context reinstatement aids memory using virtual reality. Poster presented at the Annual Meeting of the Cognitive Science Society, Sydney, Australia.

Koch, G.E., Durisko, C., Liu, R., Libertus, M. E., Fiez, J. A., & Coutanche, M.N. (2020, June). Neural representations of number across semantic, phonological, visual, and manual formats. Poster presented at the BRAIN Initiative Investigators Meeting, Bethesda, MD.

Koch, G.E., Akpan, E., & Coutanche, M.N. (2020, May). Image memorability is predicted by activity across stages of convolutional neural networks and the human ventral stream. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.

Colvin, M., **Koch, G.E.**, Dresang, H., Warren, T., Dickey, M.W., & Coutanche, M.N. (2020, March). fMRI evidence for the existence and function of animacy prediction. Poster presented at the Annual CUNY Human Sentence Processing Conference, Amherst, MA.

Akpan, E., **Koch, G.E.**, & Coutanche, M.N. (2019, November). A novel method that integrates open MRI resources to track the gray matter footprints of cognitive functions. Poster presented at the CMU Open Science Symposium 2019, Pittsburgh, PA.

Akpan, E., **Koch, G.E.**, & Coutanche, M.N. (2019, October). Distributed gray matter footprints predict cognitive abilities: Successful prediction of memory recall in older adults. Poster presented at the University of Pittsburgh Computational Medicine Conference, Pittsburgh, PA.

Koch, G.E., Liu, R., Libertus, M.E., Fiez, J., & Coutanche, M.N. (2019, October). Neural representations of number across semantic, phonological, visual, and manual formats. Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.

Akpan, E., **Koch, G.E.**, & Coutanche, M.N. (2019, October). Tracking gray matter footprints of neurally distributed cognitive functions. Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.

Popov, V., Zhang, Q., **Koch, G.E.**, Calloway, R.C., & Coutanche, M.N. (2019, July). The effect of semantic relatedness on associative asymmetry in memory. Oral presentation presented at the Annual Meeting of the Cognitive Science Society, Montreal, Canada.

Liu, R., **Koch, G.E.**, Coutanche, M.N., Fiez, J., & Libertus, M. (2019, June). Representing numerical information across different formats in the adult brain. Poster presented at the Mathematical Cognition and Learning Society Conference, Ottawa, Canada.

Colvin, M., Dresang, H., **Koch, G.E.**, Warren, T., Dickey, M.W., & Coutanche, M.N. (2019, June). fMRI evidence for the existence and function of animacy predictions. Talk at Psycholinguistics in Iceland - Parsing and Prediction, Reykjavik, Iceland.

Coutanche, M.N., **Koch, G.E.**, & Paulus, J.P. (2019, May). Using neural representations during encoding to predict subsequent retrieval of dynamic events. Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

Coutanche, M.N., **Koch, G.E.**, & Paulus, J.P. (2019, May). A common neural signature for encoding success and failure for dynamic episodes. Poster presented at the Concepts, Actions, and Objects Symposium, Rovereto, Italy.

Libertus, M. E., Coutanche, M.N., Fiez, J., **Koch, G.E.**, & Liu, R. (2019, April). Neural integration of visual and semantic number knowledge in 4th graders and adults. Poster presented at the BRAIN Initiative Investigators Meeting, Bethesda, MD.

Koch, G.E., Paulus, J.P., & Coutanche, M.N. (2019, March). How neural representations during encoding predict recall success and failure for dynamic episodes. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Koch, G.E., Paulus, J.P., & Coutanche, M.N. (2019, March). How neural representations during encoding predict recall success and failure for dynamic episodes. Poster presented at the 19th Annual University of Pittsburgh Kenneth P. Dietrich School of Arts and Sciences Grad Expo, Pittsburgh, PA.

Paulus, J.P., **Koch, G.E.**, & Coutanche, M.N. (2018, November). A role of sleep in the consolidation of dynamic episodes. Poster presented at the Annual Meeting of the Psychonomic Society, New Orleans, LA.

Koch, G.E., Paulus, J.P., & Coutanche, M.N. (2018, November). A role of sleep in the consolidation of dynamic episodes. Poster presented at the University of Pittsburgh Center for Sleep and Circadian Science Research Day, Pittsburgh, PA.

Koch, G.E., Paulus, J.P., & Coutanche, M.N. (2018, October). Investigating how neural representations during encoding predict later memory retrieval. Poster presented at the University of Pittsburgh Brain Institute's 4th Annual Brain Day, Pittsburgh, PA.

Zhang, Q., Popov, V., **Koch, G.E.**, Calloway, R.C., & Coutanche, M.N. (2018, July). Fast Memory Integration Facilitated by Schema Consistency. Poster presented at the Annual Meeting of the Cognitive Science Society, Madison, WI.

Koch, G.E. & Coutanche, M.N. (2018, June). Neural correlates for trait memory differences. Poster presented at the 6th Annual International Workshop on Advanced Learning Sciences, Pittsburgh, PA.

Paulus, J., **Koch, G.E.** & Coutanche, M.N. (2018, June). The role of sleep in the consolidation of dynamic episodes. Poster presented at the 6th Annual International Workshop on Advanced Learning Sciences, Pittsburgh, PA.

Koch, G.E. & Coutanche, M.N. (2018, March). Perceptual and conceptual dimensions impacting animate items in the human ventral stream. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.

Koch, G.E. & Coutanche, M.N. (2018, March). Perceptual and conceptual dimensions impacting animate items in the human ventral stream. Poster presented at the 18th Annual University of Pittsburgh Kenneth P. Dietrich School of Arts and Sciences Grad Expo, Pittsburgh, PA.

Coutanche, M.N. & **Koch, G.E.** (2017, October). Neural correlates for trait memory differences. Poster presented at the University of Pittsburgh Brain Institute's 3rd Annual Brain Day, Pittsburgh, PA.

Coutanche, M.N. & **Koch, G.E.** (2017, May). The interaction of conceptual dimensions for animate items in the human ventral stream. Workshop on Concepts, Actions and Objects: Functional and Neural Perspectives, Rovereto, Italy.

Coutanche, M.N. & **Koch, G.E.** (2017, March). Neural correlates for trait memory differences. Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Koch, G.E., Tokowicz, N., & Warren, T. (2016, November). Translation ambiguity and individual differences affect L2 vocabulary learning in bilinguals and monolinguals. Poster presented at the Annual Meeting of the Psychonomic Society, Boston, MA.

Coutanche, M.N. & **Koch, G.E.** (2016, November). The neural basis for trait memory differences. Poster presented at the University of Pittsburgh Brain Institute's 2nd Annual Brain Day, Pittsburgh, PA.

Srinivasan, P., McDowell, G., **Koch, G.**, & Tokowicz, N. (2016, April). Just bilingual advantage in language learning? Poster presented at the Annual Psychology Department Research Poster Session at the University of Pittsburgh, Pittsburgh, PA.

Koch, G., Eddington, C., & Tokowicz, N. (2015, April). Individual Differences in Learning Translation-Ambiguous Words. Poster presented at the Annual Psychology Department Research Poster Session at the University of Pittsburgh, Pittsburgh, PA.

RESEARCH AND WORK EXPERIENCE

2016 - 2017 Lab Coordinator, Cognitive Neuroscience laboratory
University of Pittsburgh
Advisor: Marc Coutanche, Ph.D.

2014 - 2015 Undergraduate Research Assistant, Cognitive Psychology laboratory
University of Pittsburgh
Advisor: Natasha Tokowicz, Ph.D.

2013 - 2015 Undergraduate Research Assistant, Developmental Psychology laboratory
University of Pittsburgh
Advisor: Jana Iverson, Ph.D.

TEACHING EXPERIENCE

Fall 2020 –
Summer 2023

Instructor, University of Pittsburgh

- Cognitive Psychology Lab
 - Fall 2020
 - Spring 2021
 - Fall 2022
 - Spring 2023
- Introduction to Psychology: Intro 360
 - Fall 2021
 - Spring 2022
- Research Methods Lab
 - Summer 2022
 - Summer 2023

Fall 2017

Teaching Assistant, University of Pittsburgh

- Introduction to Psychology (Instructor: Marc Coutanche, Ph.D.)

PROFESSIONAL AFFILIATIONS

Cognitive Science Society
Cognitive Neuroscience Society
Psi Chi International Honor Society
Psychonomic Society
Society for Neuroscience
Women in Cognitive Sciences

PROFESSIONAL SERVICE

Peer-reviewing for *NeuroImage*, *Neuropsychologia*, *PeerJ Computer Science*, and *PLOS ONE*

RELEVANT COMPUTER SKILLS

MATLAB; R; SPSS; SQL; Python; Psychophysics Toolbox; E-Prime; AFNI; FreeSurfer; GIMP; Qualtrics; Google Cloud and Firebase; Unity; Prolific; Amazon Mechanical Turk (MTurk)

DEPARTMENTAL SERVICE

2019 - 2020

Learning Research and Development Center Graduate Student Council Member

- Elected by fellow graduate students
- Responsible for organizing events and coordinating internal grant for travel funds

2019

LRDC Summer Internship Mentor

- Provided mentoring and research advice to undergraduate student pursuing B.Phil. degree at University of Pittsburgh

2018 - 2019

University of Pittsburgh Psychology Department Cognitive Student Representative

- Elected by fellow graduate students

- Responsible for organizing events and coordinating interview weekend for candidates in the cognitive program
- 2018 Summer Undergraduate Psychology Research Experience (SUPRE)
- Assisted in directing summer research program in psychology for underrepresented students
- 2016 - 2018 Panelist
- University of Pittsburgh Psi Chi Research Panel
 - University of Pittsburgh Psychology Club Research Panel
 - University of Pittsburgh Graduate School Q & A Panel
- 2017 Learning Research and Development Center: High school visit to University of Pittsburgh Psychology
- Presenter and guide

REFERENCES

Dr. Marc Coutanche
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Dr. Natasha Tokowicz
Professor of Psychology and
Linguistics
University of Pittsburgh
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