Kurt Braunlich

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Education

2015   **Colorado State University**
Ph.D., Cognitive Psychology.
Advisor: Dr. Carol Seger
Dissertation: Categorical Evidence, Confidence, and Urgency during the Integration of Multi-Feature Information

2010   **Western Washington University**
M.S., Experimental Psychology.
Advisor: Dr. Kristi Lemm
Thesis: Thought in the Absence of Attention

2004   **Catholic University of America**
B.A., Cum laude with honors. Experimental Psychology.
Advisor: Dr. Carol Glass

Publications

2022   **Braunlich, K.**, & Love, B. C. (2022). Bidirectional influences of information-sampling and concept learning. *Psychological Review*

2019   Zeithamova, D., Mack, M. L., **Braunlich, K**, Davis, T., Seger, C. A., van Kesteren, M., & Wutz, A. (2019). Brain Mechanisms of Concept Learning. *The Journal of Neuroscience.*

2018   **Braunlich, K**, Seger, C. A., Jentink, K. G., Buard, I., Kluger, B. M., & Thaut, M. H. (2019). Rhythmic auditory cues shape neural network recruitment in Parkinson's disease during repetitive motor behavior. *European Journal of Neuroscience.*

       Braunlich, K. & Love, B. C. (2019). Occipitotemporal representations reflect individual differences in conceptual knowledge. *Journal of Experimental Psychology: General.*

2017   **Braunlich, K.**, Liu, Z. & Seger, C. A. (2017). Occipitotemporal category representations are sensitive to abstract category boundaries defined by generalization demands. *The Journal of Neuroscience*, *37*(32), 7631–7642.

2016   **Braunlich, K.** & Seger, C. A. (2016). Categorical evidence, confidence, and urgency during probabilistic categorization. *NeuroImage*, *107*, 146–162.

2015   Seger, C. A., **Braunlich, K.**, Wehe, H., & Liu, Z. (2015). Generalization in category learning: The roles of representational and decisional uncertainty. *The Journal of Neuroscience*, *35*(23), 8802–8812.

       Braunlich, K., Gomez-Lavin, J., & Seger, C. A. (2015). Frontoparietal networks involved in categorization and item working memory. *NeuroImage*, *107*, 146–162.

       Liu, Z., **Braunlich, K.**, Wehe, H. S., & Seger, C. A. (2015). Neural networks supporting switching, hypothesis testing, and rule application. *Neuropsychologia*, *77*, 19–34.

Seger, C. A., & **Braunlich, K.** (2015). Category learning. In A. W. Toga (Ed.), *Human Brain Mapping: An Encyclopedic Reference* (Vol. 3, 487–492). Elsevier Inc.

2013 **Braunlich, K.**, & Seger, C. A. (2013). The basal ganglia. *Wiley Interdisciplinary Reviews: Cognitive Science*, *4*(2), 135–148.

Papers in Preparation

2022 **Braunlich, K.**, Liu, Z., & Seger, C. A.. Effects of perceptual, decisional, and reward uncertainty across decision epochs. *Paper in preparation.*

Braunlich, K., Merriam, E., & Baker, C.. Elliptical population receptive field modeling in fMRI: A critical evaluation. *Paper in preparation.*

Braunlich, K., & Wheeler, M.. Goal-directed modulation of decision-related time-constants across the sensorimotor hierarchy. *Paper in preparation.*

Braunlich, K., Liu, Z., & Seger, C. A.. Goal-directed temporal modulation of probabilistic decision-making. *Paper in preparation.*

Presentations

2019 **Braunlich, K.**, & Seger, C. A. (2019). Integration of reward and representational information during categorical decision making in the angular gyrus and ventromedial prefrontal cortex. Poster presented at the Society for NeuroEconomics annual meeting.

2018 **Braunlich, K.**, & Seger, C. A. (2018). Goal-directed temporal modulation of probabilistic decision-making. Poster presented at the Society for NeuroEconomics annual meeting.

2017 **Braunlich, K.**, & Love, B. C. (2017). Occipitotemporal Representations are Modulated by Conceptual Knowledge and Interact with a Frontoparietal Network. Poster presented at the Society for Neuroscience annual meeting.

Braunlich, K., & Love, B. C. (2017). Occipitotemporal Representations are Modulated by Conceptual Knowledge and Interact with a Frontoparietal Network. Poster presented at the Cognitive Computational Neuroscience annual meeting.

Braunlich, K., Jentik, K., Kluger, B. Thaut, M. H., & Seger, C. A. (2017). Rhythmic Auditory Cues Shape Neural Network Plasticity Underlying Motor Control in Parkinson's Disease. Poster presented at the International Basal Ganglia Society annual meeting.

2015 Thaut, M. H., **Braunlich, K.**, Kluger, B., McIntosh, G., & Seger, C. A. (2015). The Beneficial Effects of Rhythmic Auditory Stimuli for the Production of Voluntary Motor Movements in Parkinsons Disease. Poster presented at the Society for Neuroscience annual meeting.

Braunlich, K. & Seger, C. A. (2015). The Accumulation of Probabilistic Categorical Information. Poster presented at the Organization of Human Brain Mapping annual meeting.

Braunlich, K. & Seger, C. A. (2015). The Accumulation of Probabilistic Categorical Information. Poster presented at the Cognitive Neuroscience Society annual meeting.

Seger, C. A. & **Braunlich, K.** (2015). Decision Making and the Strategic Control of Generalization. Poster presented at the Cognitive Neuroscience Society annual meeting.

Braunlich, K. & Seger, C. A. (2015). The Accumulation of Probabilistic Categorical Information. Poster presented at the Front-Range Neuroscience Group annual meeting.

2013   Dimond, A. J., **Braunlich, K.**, & Seger, C. A. (2013). FMRI and Behavioral Investigation of Categorical Evidence Integration. Poster presented at the Association for Psychological Sciences annual meeting.

2012   **Braunlich, K.**, Fan, G., & Seger, C. A. (2012). The Accumulation of Information for Categorization. Poster presented at the Society for Neuroscience annual meeting.

Braunlich, K., Gomez-Lavin, J., & Seger, C. A. (2012). Shared and Distinct Frontal, Parietal and Striatal Bases for Item and Category Working Memory. Poster presented at the Organization for Human Brain Mapping annual meeting.

Gomez-Lavin, J., **Braunlich, K.**, Seger, C. A. & Horwitz, Z. (2012). Frontal-Parietal Network Differences for Item and Category Working Memory. Poster presented at the CURC Annual Conference at CSU.

Gomez-Lavin, J., **Braunlich, K.** & Seger, C. A. (2012). Frontal-Parietal Network Differences for Item and Category Working Memory. Poster presented at the Cognitive Neuroscience Society annual meeting.

Gomez-Lavin, J., **Braunlich, K.** & Seger, C. A. (2012). Frontal-Parietal Network Differences for Item and Category Working Memory. Poster presented at the Southern Society of Philosophy and Psychology annual meeting.

2011   Spiering, B. J., **Braunlich, K.** & Seger, C. A. (2011). An fMRI Study of the Basal Ganglia's Role in Multiple Category-Learning Systems. Poster presented at the Cognitive Neuroscience Society annual meeting.

Spiering, B. J., **Braunlich, K.**, & Seger, C. A. (2011). Switching Between Category Learning Systems: An fMRI Study. Poster presented at the Executive Function and Emotion Conference at the University of Colorado, Boulder.

Spiering, B. J. **Braunlich, K.**, & Seger, C. A. (2011). Switching Between Category-Learning Systems: An fMRI Study. Molecular, Cellular and Integrative Neuroscience Conference at Colorado State University.

Invited Talks and Lectures

2021   Exploring representational similarities in Human and Macaque using fMRI. *Talk presented to the Laboratory of Sensorimotor Research at the National Institute of Mental Health.*

2020   A data-driven approach to identify and characterize functional similarities between human and macaque brains. *Talk presented to the Laboratory of Brain and Cognition at the National Institute of Mental Health.*

2018   Category Learning. *Talk presented to masters students enrolled in "Knowledge Learning and Inference" at the University College London.*

2017   Category Learning in the brain: The relationship between memory system and category structure. *Talk presented to masters students enrolled in "Knowledge Learning and Inference" at the University College London.*

2016   Differentiating signals related to categorical evidence, confidence and urgency during probabilistic categorization. *Talk presented at the Center for Advanced Neuroimaging at the Georgia Institute of Technology.*

2010	Thought in the absence of attention. *Talk presented at the Northwest Cognition and Memory annual meeting.*

Awards

2015	**David P. McCabe Award for Excellence in Research.** Colorado State University. Fort Collins, CO.
2015	**Travel Award.** Colorado State University. Fort Collins, CO. To attend the annual meeting of the Cognitive Neuroscience Society
2009	**Graduate Student Research Grant.** Western Washington University. Bellingham, WA. $600 to support my research concerning the development of preference in the absence of attention
2004	**Development Coach of the Year.** United States Olympic Committee. Colorado Springs, CO. For my work with the US Whitewater Slalom Team

Research

2019 -	**National Institute of Mental Health** Postdoctoral Fellow. Advisors: Dr. Chris Baker & Dr. Bevil Conway Project: Functional Homologies/Homoplasies between Human and Macaque Visual Processing
2016 - 19	**University College London** Postdoctoral Research Associate. Advisor: Dr. Bradley Love Project: Computational Modeling of Category Learning
2015 - 16	**Georgia Institute of Technology** Postdoctoral Scholar. Advisor: Dr. Mark Wheeler Project: Neurobiological Mechanisms of Decision-Making
2010 - 15	**Colorado State University** Graduate Student Researcher. Advisor: Dr. Carol Seger Project: Neurobiological Mechanisms of Categorization
2009 - 10	**Western Washington University** Graduate Student Researcher. Advisor: Dr. Kristi Lemm Project: Thought in the Absence of Attention
2004	**National Institute of Mental Health:** Research Assistant. Advisor: Dr. Terry Goldberg

Teaching Experience

Fall 2013; Spring 2014

> **Cognitive Neuroscience Laboratory.** Colorado State University, Fort Collins, CO.

Instructor for an undergraduate laboratory course (approx. 16 students) in Cognitive Neuroscience. The class focused on neuroanatomy, and the basic logic, theory and methodology underlying the study of cognitive neuroscience. Class format included traditional lectures and lab-projects, through which students gained hands-on experience with electrophysiological data collection and analysis (EEG & ERPs), fMRI data analysis, as well as dissections of post-mortem brains. Grades were based on quizzes, a final paper, and a final presentation.

Summer 2013; Fall 2014

Cognitive Psychology Laboratory. Colorado State University, Fort Collins, CO. Instructor for an undergraduate laboratory course (approx. 16 students) in Cognitive Psychology. The class was designed to give students experience conducting and evaluating empirical research in cognitive psychology. Students collected data from each other using preprogrammed cognitive experiments, shared data with one another, created simple plots (using MATLAB), and learned how to conduct statistical tests. Grades were based on homework assignments, lab-reports, a final paper, and a final presentation.

Spring 2015

Biological Psychology Laboratory. Colorado State University, Fort Collins, CO. Instructor for an undergraduate laboratory course (approx. 16 students) in Biological Psychology. The class explored interactions between biology, cognition, and behavior. Students learned about invasive and non-invasive neuroscience methods, and gained hands-on experience with measurement and analysis of electrodermal activity, heart-rate and electroencephalography. Grades were based on daily lab-reports and homework, as well as an independent project involving a final presentation to the class.

Spring 2015

Introduction to fMRI Analysis. Colorado State University, Fort Collins, CO. Instructor for an undergraduate seminar (5 students) designed to provide an overview of fMRI data analysis for students considering a career in cognitive neuroscience. Students learned to use MATLAB and Statistical Parametric Mapping software (SPM) for preprocessing and univariate analyses.

Fall 2009

Research Methods Laboratory. Western Washington University., Bellingham, WA. Instructor for an undergraduate laboratory course (approx. 15 students) designed to provide an introduction to basic statistical concepts and analyses. Students learned how to use SPSS to conduct basic descriptive statistics, as well as t-tests and one-way ANOVA's.

Teaching Assistantships

Fall 2010

Introduction to Psychology. Colorado State University, Fort Collins, CO. Teaching assistant for an undergraduate course (approx. 30 students) designed to provide a general introduction to the field of psychology.

Spring 2010

Research Methods. Colorado State University, Fort Collins, CO. Teaching assistant for an undergraduate course (approx. 20 students) designed to introduce students to basic descriptive and inferential statistics.

Spring, 2009

Introduction to Psychology. Western Washington University. Teaching assistant for an undergraduate psychology course (approx. 20 students) designed to provide a general introduction to the field of psychology.

Fall, 2008

Experimental Approaches in Research. Western Washington University.
Teaching assistant for an undergraduate course (approx. 15 students) designed to introduce students to basic descriptive and inferential statistics.

Peer Review

• Human Brain Mapping • Memory and Cognition • NeuroImage • The Journal of Neuroscience • Journal of Cognitive Neuroscience • Psychonomic Bulletin & Review • Psychological Review

Professional Organizations

• Society for Neuroscience • Cognitive Neuroscience Society

Programming

• Python • MATLAB • R