Catherine Walsh

crewalsh@g.ucla.edu 1285 Psychology Building Box 156304 Los Angeles, CA 90095

EDUCATION

2023	Ph.D Student in Psychology; specialization in Cognitive Neuroscience University of California Los Angeles, Los Angeles, CA Supervisor: Jesse Rissman, Ph.D
2020	Master of Arts, Cognitive Neuroscience University of California Los Angeles, Los Angeles, CA Supervisor: Jesse Rissman, Ph.D Thesis: A non-monotonic relationship between working memory capacity and load-related fMRI activity
2016	Bachelor of Arts, Neuroscience Minor in English Literature Colgate University, Hamilton, NY Neuroscience Honors Thesis: Emotion Modulates the Foveal C1 Component

ACHIEVEMENTS AND AWARDS

2018 - 2019	UCLA Graduate Dean's Scholar Award
2018 - 2023	National Science Foundation Graduate Research Fellowship
2016	Phi Beta Kappa Honor Society
2015	Colgate Summer Undergraduate Research Fellowship
2013	Phi Eta Sigma First-Year Honor Society
2012 - 2016	Colgate University Dean's Award for Academic Excellence Recipient

PUBLICATIONS

Walsh, C., Pochon, J.B., Enriquez, K.D., Truong, H., Lenartowicz, A., Loo, S.K., Sugar, C.A., Bearden, C.E., Bilder, R.M, Rissman, J. (2020). A non-monotonic relationship between working memory capacity and load-related fMRI activity. Manuscript in preparation.

Reimann, G.E., **Walsh, C.,** Csumitta, K.D., McClure, P., Pereira, F., Martin, A., Ramot, M. (2020). Insufficient Eye Tracking Data Leads to Errors in Evaluating Typical and Atypical Fixation Preferences. Manuscript submitted for publication. https://doi.org/10.1101/2020.09.21.306621 Ramot, M., **Walsh, C.,** Reimann, G., Martin, A. (2020). Distinct neural mechanisms of social orienting and mentalizing revealed by independent measures of neural and eye movement typicality. *Communications Biology 3*(48). https://doi.org/10.1038/s42003-020-0771-1.

Ramot, M. **Walsh, C.,** Martin, A. (2019). Multifaceted integration - memory for faces is subserved by widespread connections between visual, memory, auditory and social networks. *Journal of Neuroscience, 10(1523)*. https://doi.org/10.1523/JNEUROSCI.0217-19.2019

Hansen, B.C., Greene, M.R., **Walsh, C.R.**, Goldberg, R.L., Zhang, Y. Decoding the informative value of early and late visual evoked potentials in scene categorization. Journal of Vision 2016; 16(12):259. doi: 10.1167/16.12.259.

RESEARCH EXPERIENCE

2018 – Present	 Graduate Researcher, Rissman Memory Lab, UCLA Supervisor: Jesse Rissman, Ph.D, Assistant Professor of Psychology Communicated novel findings to broad audiences at national meetings (including the Society for Neuroscience and Cognitive Neuroscience Society) and through manuscripts in preparation for publication in scientific journals.
	 Project: Understanding Individual Differences in Working Memory Analyzed behavioral, cognitive, clinical and neuroimaging data from 200 subjects to understand mechanisms underlying individual differences in working memory Conducted statistical and machine learning analyses on high-dimensional, multi-modal data to understand latent factors in working memory capacity and predict associated neural representations during fMRI scans
	 Project: Predicting Performance on a Complex Cognitive Task From Component Tasks Collaborated with international team to develop battery of tasks for project Investigated relationships between behavioral cognitive tasks and predicted performance on new complex, naturalistic task using machine learning methods
	 Project: Comparing the Sculpting of Semantic Space Across Testing and Restudying Word Pairs Synthesized literature across fields of psychology and neuroscience to develop a novel behavioral paradigm Developed first ever Rissman Lab standard operating procedure for collecting behavioral data online

	Compared efficacy of learning manipulation using statistical methods including ANOVA
2016 – 2018	 Post-Baccalaureate IRTA Research Fellow, National Institutes of Health Supervisor: Alex Martin, Ph.D, Chief of the Section on Cognitive Neuropsychology, Laboratory of Brain and Cognition (LBC) Assisted in the development, data collection and analysis of behavioral (including eye-tracking), fMRI and DTI data for projects relating to the categorization of abstract semantic memory and face processing in typically developing (TD) and Autism Spectrum Disorder (ASD) patients
2015 – 2016	 Senior Honors Thesis, Neuroscience Department, Colgate University Supervisor: Bruce C. Hansen, Ph.D, Associate Professor of Psychology and Neuroscience Designed, collected data for and analyzed data for an EEG experiment studying the effects of emotion and attention on the foveal C1 component Awarded high honors for outstanding written thesis and oral defense
2015	 Summer Research Fellow, Visual Perception Laboratory, Colgate University Supervisor: Bruce C. Hansen, Ph.D, Associate Professor of Psychology and Neuroscience Worked full time for 10 weeks designing, running and analyzing data from an EEG experiment focusing on how the brain categorizes images • Results from the summer presented at the Vision Sciences Society Annual Conference in May 2016
2013 - 2016	 Research Assistant, Visual Perception Laboratory, Colgate University Prepared Visual Perception Laboratory's EEG technology for use in experiments Kept the research project running smoothly by ensuring participants were on task and focused on the experiments

POSTERS AND PRESENTATIONS

Walsh, C., Pochon, J.B., Enriquez, K.D., Truong, H., Lenartowicz, A., Loo, S.K., Sugar, C.A., Bearden, C.E., Bilder, R.M, Rissman, J. Understanding the non-monotonic relationship between working memory capacity and maintenance-related fMRI activity. Bay Area Memory Meeting. Remote. November 2020.

Walsh, C., Pochon, J.B., Enriquez, K.D., Truong, H., Lenartowicz, A., Loo, S.K., Sugar, C.A., Bearden, C.E., Bilder, R.M, Rissman, J. A non-monotonic relationship between working memory capacity and load-related increases in brain activity. Annual Meeting of the Society for Neuroscience, Chicago, IL. October 2019.

Reimann, G.E., Ramot, M., **Walsh, C.**, McClure, P., Pereira, F., Martin, A. Social Processing in Autism Spectrum Disorders Using a Machine Learning Approach to Visual Segmentation. Annual Meeting of the Society for Neuroscience, Chicago, IL. October 2019.

Ramot, M., **Walsh, C.,** Reimann, G.E., Martin, A. Neural Mechanisms of Shared Social Attention Revealed by Independent Measures of Eye Movement Typicality. Annual Meeting of the Society for Neuroscience, Chicago, IL. October 2019.

Reimann, G.E., Ramot, M., **Walsh, C.,** McClure, P., Pereira, F., Martin, A. Social Processing in Autism Spectrum Disorders Using a Machine Learning Approach to Visual Segmentation. Flux Society. New York City, NY. August 2019.

Ramot, M., **Walsh, C.,** McClure, P., Reimann, G., Pereira, F., Martin, A. A machine learning approach to image segmentation – enhancing eye tracking as a behavioral tool. Roverto Workshop on Concepts, Actions and Objects: Functional and Neural Perspectives. May 2019.

Walsh, C., Pochon, J.B., Enriquez, K.D., Truong, H., Lenartowicz, A., Loo, S.K., Sugar, C.A., Bearden, C.E., Bilder, R.M, Rissman, J. Characterizing the Relationship Between Working Memory Capacity and Load-Related Increases in fMRI Activity. Cognitive Neuroscience Annual Meeting, San Francisco, CA. March 2019.

Ramot, M., **Walsh, C.**, Martin, A. Face memory performance is predicted by the strength of resting state functional connectivity between task-defined face patched and medial temporal lobe structures. Cognitive Neuroscience Society Annual Meeting, Boston, MA. March 2018.

Walsh, C.R., Gotts, S.J., Martin, A. Searching for the Categorical Structure of Abstract Concepts. Society for Neuroscience Annual Meeting, Washington, DC. November 2017.

Walsh, C.R., Gotts, S.J., Martin, A. Clustering Abstract Concepts into Distinct Categories. Annual Meeting for the Society for the Neurobiology of Language, Baltimore, MD. November 2017.

Hansen, B.C., Greene, M.R., **Walsh, C.R.**, Goldberg, R.L., Zhang, Y. Decoding the Relative Contribution of Early and Late Visual Evoked Potential to Diverse Scene Categorization. *Vision Sciences Society Annual Conference*, St. Pete's Beach, FL. May 2016.

ADDITONAL PROFESSIONAL DEVELOPMENT

2020 – Present Women Doing Science Instagram Identify aspects of identity that followers engage with to facilitate diversity efforts through social media and support inclusive recruitment of women in STEM fields Manage and visualize demographic information from featured scientists and page followers using R, in addition to relating this information to likes, comments and content from captions from 650+ posts

2020	 HackSC, University of Southern California Integrated emotion recognition algorithm from webcam photos and physical health data from AppleWatch in proof-of-concept website allowing tracking of trends in emotional health Developed presentation and pitched project to judges of Hackathon competition
2019	 Neurohackademy, University of Washington eScience Institute Two-week intensive training in the intersection between data science, including machine learning techniques, and neuroimaging with a focus on open and reproducible science. Designed, developed and implemented a project augmenting functionality of fMRIQC, an open source quality control tool for fMRI data
2017	 Foundation for Advanced Education in the Sciences Graduate School, National Institutes of Health, Bethesda, MD Attend weekly lectures in Linear Algebra for Statistics and Neurobiology of Mental Illness Review current literature about the pathology and treatment of mental illnesses, including autism, major depressive disorder and schizophrenia
2017	AFNI Bootcamp, National Institutes of Health, Bethesda, MD,Five-day intensive training in using AFNI for fMRI data analysis

TEACHING EXPERIENCE

University of California, Los Angeles

Introduction to Behavioral Neuroscience (Spring 2021) Introduction to Behavioral Neuroscience Lab (Spring 2020) Introductory Psychology (Fall 2018)

Colgate University

Quantitative Methods in Behavioral Research (Spring 2016)

VOLUNTEER WORK

2018 – Present	Bruin Mental Health Advisory Committee • Identified mental health needs of minority groups through analysis of
	surveys from the Undergraduate Students Association Council and posts
	from "UCLA Secrets" Facebook page
	• Developed a map of resources outlining mental health and basic needs
	resources for students on the UCLA campus
	• Acted as liaison between UCLA Counseling and Psychological Services
	and community by providing trainings and resources to student groups

2017 – 2018	 Turning the Page Program Assisted in the development of educational activities about infectious disease to engage middle school students from Washington, D.C. public schools Facilitated an activity geared for middle school students during an event at the Koshland Science Museum in Washington, D.C. about the spread of bacteria and viruses
2016 – 2018	 Health Education Outreach Program Designed and presented health education materials for the bi-weekly lectures on topics relating to health education, including chronic disease, nutrition and preparing for doctor's appointments • Dorothy Day Men's Shelter in Bethesda, MD Facilitated discussion and engage with the men in the shelter to tailor lessons to meet their specific needs Acted as primary point of contact for shelter administration coordinating scheduling
ADDITIONAL S	SKILLS

<u>Coding Languages:</u> R (including tidyverse, caret and Shiny packages), Python (Pandas, Numpy, sci-kit learn)

<u>Statistical Analysis:</u> regression, ANOVA, multi-level modeling, structural equation modeling, principal component analysis, machine learning (SVM, k-means clustering, linear and logistic regression)

<u>Additional Data Skills:</u> data cleaning and management, data visualization, Git and version control, Unix scripting (bash, tcsh)

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience Cognitive Neuroscience Society American Psychological Society