

Abbie M. Popa, Ph.D.

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EDUCATION **Ph.D.**, University of California at Davis (September 2012 - June 2018)
Major: Cognitive Neuroscience Data Science Initiative Affiliation
Dissertation: Behavior and EEG Testing of Teen Anxiety
Honors Sc.B., Brown University (September 2006-December 2010)
Major: Cognitive Neuroscience

TECHNICAL EXPERIENCE **The Data Institute at the University of San Francisco** San Francisco, CA
Data Science Postdoctoral Fellow August 2018 - Present

- Using self-supervised learning to generate feature embeddings that describe nodes in brain networks from patients with schizophrenia and healthy controls
- Contributing to development of a web-based app for mass processing of EEG files in the cloud
- Classifying nonlinear features in EEG from infants who were born preterm using machine learning techniques including random forests and support vector machines
- Consulting on collaborations with 4 private sector companies
- Contributed to a collaborative reading and practice group on Reinforcement Learning
- Instructed and developed an Introduction to Data Science class for 40 undergraduates

UC Davis MIND Institute Sacramento, CA
PhD Researcher September 2012 - June 2018

- Used techniques including the jack-knife method to derive signal from event-related potentials in electroencephalography (EEG)
- Developed 6 child-friendly computerized behavior tests (disguised as games)
- Used k-means clustering to classify children as "copers" or "strugglers" based on behavioral, eye-tracking, and self-report measures
- Used ICA to isolate brain activity from noise in EEG data
- Used mixed effects linear modeling to classify participants behavior over time
- Used linear regression to correlate trajectories of brain development and children's outcomes in a large (approximately 500 GB) MRI dataset
- Programmed data analyses and visual stimuli using R, Python, and Matlab
- Trained and mentored 6 junior research assistants and 7 volunteer interns

Davis Incubator Group Student organized group at UC Davis
President September 2016 - present
Member January - August 2016

- Completed online coursework in python, SQL, and machine learning
- Completed two collaborative Kaggle image classification challenges using skimage, TensorFlow, tflearn, keras, OpenCV and PIL on an AWS machine to efficiently localize and classify images through convolutional neural networks for datasets up to 100 GB.
- Completed a collaborative Driven Data competition using Pandas and sklearn to finish in the top 10% of competitors
- Developed individual projects using tools including sklearn in Python, and nnet in R
- Organized and scheduled meetings for a group of 6-8 data scientists to practice coding, machine learning, and share data science skills

UC Davis Data Science Initiative Davis, CA
Affiliate April 2016 - present

- Contributed to a collaborative reading group on *Think Python* where we read and discussed the chapters and implemented the exercises as well as elaborated on best practices

- Implementing *An Introduction to Statistical Learning* collaboratively using Python and packages including statsmodels, scipy, numpy, pandas, sklearn, matplotlib, and seaborn
- Consulted with members of the UC Davis community on data science problems from twitter scraping to genomics as part of team un-seminars

TEACHING EXPERIENCE

Software Carpentry

Certified Instructor for bash, git, R, and Python

May 2018 - Present

- Trained and certified in core pedagogical concepts and evidence based teaching practices
- Certified to teach bash, git, R, and python to scientists at workshops

Neurobiology

Dr. Lee M. Miller UC Davis Department of Neurobiology, Physiology, and Behavior, Davis CA

Teaching Assistant

April 2015-June 2015

- Planned nine weeks of discussion sections with two co-TAs. Prepared material for an hour of homework review, practice problems, and discussion of lecture material and readings.
- Independently led 3 one hour discussion sections for a total of 75 students each week.
- Graded two short answer midterms and one short answer final exam for 200 students

Laboratory on Genes and Behavior

Dr. Rebecca D. Burwell

Brown University Department of Psychology, Providence RI

Teaching Assistant

January 2010-May 2010

- Set up equipment for behavioral experiments run on knockout mice, including the Morris Water Maze, tail suspension and basic habituation tasks
- Explained procedures to students and helped them run the tasks

PUBLICATIONS **Popa AM**, Cruz J, Wong L, Harvey D, Angkustsiri K, Leckliter I, Perez-Edgar K, Simon TJ. Seeing Eye to Eye with Threat: Atypical Threat Bias Responses in Children with 22q11.2 Deletion Syndrome. *American Journal of Intellectual and Developmental Disabilities*. Accepted, In Press.

Sharma A, Singh S, Wright B, Perry A, Woodbridge DM, **Popa AM**. Scalable Motor Movement Recognition from Electroencephalography using Machine Learning. *IEEE COMPSAC*. July 2019.

Agrawal P, Bhargavi D, Krishna G, Han X, Tevathia N, **Popa AM**, Ross N, Woodbridge DM, Zimmerman-Bier B, Bosl WJ. A Scalable Automated Diagnosis Feature Extraction System for EEGs. *IEEE COMPSAC*. July 2019.

Submitted: McCabe KL, **Popa AM**, Durdle C, Amato M, Cabaral M, Wong L, Harvey D, Simon TJ. Quantifying the resolution of spatial and temporal representation in children with 22q11.2 deletion syndrome.

Submitted: Wilson JD, Baybay M, Sankar R, **Popa AM**, Stillman P. A Fast Multilayer Network Embedding Algorithm for Analyzing Group fMRI.

In Progress: **Popa AM**, Wilson JD. Functional Embeddings from Resting State fMRI Identify Differences in Schizophrenia.

In Progress: **Popa AM**, McCabe KL, Morgan H, Garner J, Harvey D, Amato M, Simon TJ. Children with 22q11.2 Deletion Syndrome show Visuospatial Impairments on Bisection Tasks.

PRESENTATIONS AND POSTERS

Selected from 14 Posters (5 first author, 1 last author) and 5 Presentations (4 first author) at International Conferences

- Sharma A, Singh S, Wright B, Perry A, Woodbridge DM, **Popa AM**. Scalable Motor Movement Recognition from Electroencephalography using Machine Learning. Poster Accepted at the 2nd Data Institute Conference 2019, University of San Francisco, San Francisco, CA.
- **Popa AM**, Mayo D, Durdle C, Morgan H, Shapiro H, Ferrer E, Niendam T, Luck S, Carter C, Simon TJ. Attention and Inhibition Deficits in Youth with 22q11.2DS are Associated with Symptoms of Psychosis Proneness (an IBBC abstract). Poster Accepted at the 17th International Congress of the European Society for Child and Adolescent Psychiatry 2017, Geneva, Switzerland.
- **Popa AM**, Durdle C, Morgan H, Shapiro H, Niendam T, Carter C, Luck S, Simon TJ. Highly Psychosis-Prone Adolescents show Increased Capture by Distractor Stimuli and More Effort to Inhibit Emotional Stimuli than Typically Developing Controls. Oral Accepted at the 16th International Congress on Schizophrenia Research 2017, San Diego, CA.
- **Popa AM**, Shapiro H, Harvey D, Amato M, Cruz J, Cung N, Reyes D, Simon TJ. Children with 22q11.2 Deletion Syndrome Show Lower Spatial and Temporal Acuity Than TD Children In Continuously Varying Tasks. Abstract Accepted at the 10th Biennial International 22q11.2 Conference 2016, Sirmione, Italy.
- **Popa AM**, Hunsaker N, Deng M, Garner J, Cruz J, Cung N, Reyes D, Simon TJ. Cortical Tissue Volumes Correlate to Cavum Septum Pellucidum Size in Children with 22q11.2 Deletion Syndrome and Typical Controls. Oral Accepted at the 71st Annual Meeting of the Society of Biological Psychiatry 2016, Atlanta, GA.
- **Popa AM**, Beaton E, Cruz J, Wong L, Cung N, Harvey D, Simon TJ. Adaptation to a Mild Stressor in Initially Anxious Children was related to their Attention to Perceived Threat in a Dot Probe Experiment. Poster Presented at the 70th Annual Meeting of the Society of Biological Psychiatry 2015, Toronto, ON, Canada.

LEADERSHIP EXPERIENCE

Neuroscience Initiative to Enhance Diversity

Davis, CA

Student Organizer

Event held April 2016

- Organized event that recruits 25 undergraduates from historically black and Hispanic serving colleges to increase representation in PhD programs
- Coordinated 10 workshops led by faculty and students
- Led a student data blitz and student panel on preparing your best application
- Conducted mock interviews with the students

Explorations, UC Davis Undergraduate Research Journal

Davis, CA

Editor

February 2015 - August 2015

Managing Editor, Physical and Life Sciences

September 2015 - June 2017

- Found appropriate faculty reviewers for student submitted publications
- Communicated faculty reviewer comments to student authors
- Assessed the reviewed and edited papers for acceptance in a yearly UC Davis publication
- Copy-edited and formatted student articles for publication

COMMUNITY SERVICE

Intertational Rescue Committee

Sacramento, CA

Refugee Empowerment Volunteer

January 2017 - October 2017

- Assisted recent refugees to the United States in preparing resumes and job applications
- Helped organize the first cohort of Women's Empowerment Programming, including survey design, focus group summary, and working with the women in the program
- Organized paperwork including financial forms to ensure compliance

Women in Science and Engineering

Davis, CA

Mentor, Workshop Organizer, and Presenter

September 2015 - June 2017

- Mentored an undergraduate woman interested in pursuing an engineering graduate degree
- Designed and presented a workshop on graduate school to 20 undergraduate women

The Graduate Academic Achievement and Advocacy Program Davis, CA
Graduate Student Volunteer and Mentor September 2013 - June 2015

- Advised and assisted students from underrepresented minorities on topics including graduate school applications and science writing
- Planned and ran workshops for students from underrepresented minorities on topics including graduate school applications, research assistantships, and gap years
- Mentored a student

Graduate Student Assembly Davis, CA
Departmental Representative September 2013 - June 2015

- Attended meetings and voted on policy affecting graduate students at UC Davis and in the wider UC graduate student assembly
- Publicized information to graduate group

AWARDS AND CERTIFICATES	UC Davis Graduate Student Assembly Travel Award	2015-16 Academic Year
	UC Davis FUTURE Certificate Track	2015-16 Academic Year
	UC Davis Graduate Student Assembly Travel Award	2014-15 Academic Year
	ERP Boot Camp (Dr. Steven J. Luck)	Completed July 2014
	UC Davis Graduate Student Assembly Travel Award	2013-14 Academic Year

TECHNICAL SKILLS	Software including: Python, R, Matlab, Jupyter, git, SPSS, DataGraph, L ^A T _E X
	Packages including: sklearn, pandas, numpy, scipy, matplotlib, TensorFlow, keras, ggplot, nlme