September 12th, 2023

Emily Lauren Schwartz

Doctoral Candidate

Email els615@gmail.com

Phone 305-582-7826

Website https://els615.github.io/

EDUCATION

BOSTON COLLEGE — Chestnut Hill, MA
Ph.D. Student in Psychology and Neuroscience
Advisor: Dr. Stefano Anzellotti

Master of Arts, Cognitive Neuroscience — May 2022
Advisor: Dr. Stefano Anzellotti

- GPA: 4.0/4.0

NEW YORK UNIVERSITY — New York, NY
Bachelor of Arts, Psychology — May 2017

- Minors in Chemistry, Child and Adolescent Mental Health
- Cumulative GPA: 3.63/4.00 (Dean's List for Academic Year Fall 2015 - Spring 2017)
- Major GPA: 3.97/4.00 (9 courses)

FELLOWSHIPS AND AWARDS

2019 – Present	University Presidential Fellowship: Merit-Based Award, Boston College
2023	Dissertation Fellowship, Morrisey College of Arts and Sciences
2023	National Eye Institute Early Career Scientist Travel Grant
2020	Donald J. White Teaching Excellence Award for Graduate Teaching
2020	Cognitive Neuroscience Society Annual Meeting Graduate Student Award
2016	J.S. Sinclair Research Scholar
2016	Dean's Undergraduate Research Fund Grant

RESEARCH AND WORK EXPERIENCE

Fall 2019 – Present — *Graduate Student and Teaching Assistant*
Social and Cognitive Computational Neuroscience Lab, Boston College

- Lead end-to-end research on custom-coded experiments that leverage data collection, preprocessing, and machine

learning to quantify human brain data and behavior in social perception and vision.
- Develop and train deep learning models (e.g., facial expression recognition) from scratch using multiple architectures (e.g., ResNet, DenseNet) in PyTorch to transfer network weights to other tasks as well as use deep neural networks to model neural data.
- Perform Bayesian and frequentist statistical analysis using supervised and unsupervised methods to extract insights from data sets and test hypotheses.
- Generate data visualizations using Python (seaborn, matplotlib) and R (ggplot2) to communicate findings to both technical and non-technical audiences.
- Perform literature reviews on multiple topics including disentangling individual variation in precision psychiatry.
- Teaching assistant for undergraduate courses, leading weekly recitation classes (e.g., Introduction to Behavioral Statistics and Research).

Summer 2023

Translational Neuroscience Intern
Sage Therapeutics

- Worked with the Translational Medicine team to identify sleep-related biomarkers for drug response in MDD population.
- Analyzed EEG sleep data from polysomnography to identify neural biomarkers related to drug changes using deep learning models.
- Trained neural network (reimplementation of U-Sleep) to accurately label sleep stages of MDD population sleep recordings that matched human expert concordance.
- Implemented automated sleep spindle detection model to identify sleep spindles in MDD population.
- Calculated various sleep parameters using hand score and automated hypnograms.
- Incorporated EEG and pharmacokinetic data to analyze sleep spindles as biomarker for treatment in MDD and insomnia populations.
- Participated in QEEG biosignal meetings to coordinate joint efforts for standardizing preclinical and clinical EEG data for effective preprocessing pipelines.

Spring 2018 – Summer 2019

Psychology Assistant
Division of Motor and Cognitive Aging, Department of Neurology, Albert Einstein College of Medicine

- Investigated anatomical and functional brain structures in motoric cognitive risk syndrome.

- Designed in-depth approach to preprocess and analyze structural neuroimaging data, evaluating anatomical segmentation and surface reconstruction.
- Conducted behavioral and fMRI studies on at-risk populations for dementia to study association between gait, motor changes and cognitive decline.

Spring 2018 – Summer 2019

Weekend Research Assistant Volunteer
Lab for the Developing Mind, New York University
Research Area: Geometric understanding and spatial sensitivity development in humans.

- Conducted behavioral studies examining how intuitions about planar forms develop during childhood.

Summer 2017 – Spring 2018

Research Associate
Jha Lab, University of Miami

- Created testing batteries to evaluate sustained attention and working memory.
- Conducted behavioral studies to evaluate effect of mindfulness training in military population.

Fall 2016 – Spring 2017

Student Research Intern
Multiple Sclerosis Comprehensive Care Center, NYU Langone Medical Center

- Documented adverse events during a clinical trial in MS population and helped with neuropsychological evaluations.

Spring 2016 – Spring 2017

Undergraduate Research Assistant
West Interpersonal Perception Lab, New York University

- Ran behavioral studies and collected physiological measurements to evaluate intergroup perception and dyadic interactions.

Summer 2015

Summer Intern
Child Study Center, NYU Langone Medical Center

- Found reduction in cortical thickness and grey matter volume in adolescents with history of significant alcohol usage during development.

PUBLICATIONS

Schwartz, E., Alreja, A., Richardson, R. M., Ghuman, A., Anzellotti, S. (2023). Intracranial electroencephalography and deep networks reveal shared substrates for representations of face identity and expressions. *Journal of Neuroscience.* 7 June 2023, 43 (23) 4291-4303.

Zhou, M., **Schwartz, E.,** Alreja, A., Richardson, R. M., Ghuman, A., Anzellotti, S. (2023) Reinforcement learning models of face perception correlate with neural responses to faces. *In prep.*

Aglinskas, A., **Schwartz, E.,** Anzellotti S. (2023). Disentangling disorder-specific variation is key for Precision Psychiatry in Autism. *Frontiers in Behavioral Neuroscience 17.*

Schwartz, E.*, O'Nell, K.*, Saxe, R., Anzellotti, S. (2023). Challenging the Classical View: Recognition of Identity and Expression as Integrated Processes. *Brain Sciences, 13(2):296.* [* Indicates shared authorship]

Blumen, H., **Schwartz, E.**, Allali, G., Beauchet, O., Brickman, A., Callisaya, M., Takehiko, D., Lipton, R., Shimada, H., Srikanth, V., Verghese, J. (2021). Cortical Volume, Thickness, and Surface Area in the Motoric Cognitive Risk Syndrome. *Journal of Alzheimer's Disease, 81*(2).

PRESENTATIONS

Schwartz, E., Alreja, A., Richardson, RM., Ghuman, A., Anzellotti, S. (2023, May 19-24). *Comparing iEEG responses and deep networks with Bayesian statistics challenges the view that lateral face-selective regions are specialized for facial expression recognition over identity recognition.* Talk given at Vision Sciences Society Meeting, St. Pete Beach, FL.

Schwartz, E., O'Nell, K., Saxe, R., Anzellotti, S. (2022, August 25-28). *Spontaneous Learning of Face Identity in Expression-Trained Deep Nets*. Poster presented at Conference on Cognitive Computational Neuroscience, San Francisco, CA.

Schwartz, E., O'Nell, K., Alreja, A., Ghuman, A., Anzellotti, S. (2021, May 21-26). *Deep networks trained to recognize facial expressions predict ventral face-selective ECoG responses as well as networks trained to recognize identity.* Poster submitted for presentation at Vision Sciences Society Meeting, St. Pete Beach, FL.

Schwartz, E., O'Nell, K., Anzellotti, S. (2020, August 18). *Investigating the emergence of expression and identity representations in a neural network trained to discriminate identities.* Poster presented at Center for Brains, Minds, and Machines virtual summer program.

Schwartz, E., O'Nell, K., Anzellotti, S. (2020, June 19-24). *Emergence of expression representations in a neural network trained to discriminate identities.* Poster presented at Vision Sciences Society Meeting, St. Pete Beach, FL.

Schwartz, E., O'Nell, K., Anzellotti, S. (2020, March 2-5). *Investigating the emergence of expression representations in a neural network trained to discriminate identities.* Poster presented at Cognitive Neuroscience Society Annual Meeting, Boston, MA.

Blumen, H., **Schwartz, E.**, Allali, G., Beauchet, O., Brickman, A., Callisaya, M., Takehiko, D., Lipton, R., Shimada, H., Srikanth, V., Verghese, J. (2019, July 14-17). *Cortical Thinning in the Motoric Cognitive Risk (MCR) Neuroimaging Consortium.* Poster presented at Alzheimer's Association International Conference, Los Angeles, CA.

Schwartz, E., Schwartz, B., Zhao, Y. (2015, August 12). *The effect of alcohol on adolescent brain structure.* Poster presented at the 4th Annual NYU CSC Poster Conference, New York, NY.

SKILLS

Programming: Python (subset of libraries include PyTorch, TensorFlow, MNE, Scikit-Learn, Pandas, Numpy), MATLAB, R, Linux (Ubuntu), SQL/PySpark (beginner)
Neuroimaging software/analysis: FreeSurfer, SPM12, FSL, fMRIprep, EEG time continuous data analysis
Data collection methods: Functional magnetic resonance imaging (fMRI), PsychToolbox3, E-Prime Suite, BIOPAC for physiological measurements, Behavioral
Other: Linux cluster computing, Git, Databricks (beginner), Adobe Illustrator, SPSS, Microsoft Office Suite

OUTREACH & OTHER ACTIVITIES

Fall 2023	Treasurer, Psychology and Neuroscience Graduate Student Association
Summer 2020 – Present	Boston College Diversity & Inclusion: Support Working Group
Fall 2019 – Present	BC Technological & Methodological Training Committee
Fall 2020 – Spring 2022	Boston College Psychology Colloquium Committee
Spring 2020 – Fall 2021	Asperger/Autism Network, *Volunteer*
Fall 2019 – Spring 2022	Boston College Psychology Outreach Committee

TEACHING EXPERIENCE

Spring 2023	Cognitive Neuroscience, *Teaching Assistant*, Boston College
Fall 2022	Clinical Psychology, *Teaching Assistant*, Boston College
Spring 2022	Social Psychology, *Teaching Assistant*, Boston College
Fall 2021	Developmental Psychology, *Teaching Assistant*, Boston College
Spring 2021	Social Psychology, *Teaching Assistant*, Boston College
Fall 2020	Social Psychology, *Teaching Assistant*, Boston College
Spring 2020	Cognitive and Neural Bases of Person Knowledge, *Teaching Assistant*, Boston College
Fall 2019	Introduction to Behavioral Statistics and Research, *Teaching Assistant*, Boston College

GUEST LECTURES

Spring 2013	Social Cognition
Fall 2021	Emotion Identification in Preverbal Infants

MEMBERSHIPS

Fall 2019 – Present	Cognitive Neuroscience Society
Fall 2019 – Present	Vision Sciences Society

RELEVANT COURSEWORK

Graduate: Current Topics in Moral Psychology, Experimental Design and Statistics, Advanced Brain Systems: Motivation & Emotion, Advanced Topics in the Neuroscience of Memory, Introduction to Machine Learning, Cognitive Neuroscience of Memory, Computational Models of Cognition (audited)
Undergraduate: Intro to Neural Science, Neural Data Analysis with MATLAB, Advanced Psychological Statistics, Intro to Computer Programming, Child and Adolescent Brain Development, Cognitive Neuroscience, Developmental Psychology, Perception, Abnormal Psychology, Social Psychology, Lab in Personality and Social Psychology, Texts & Ideas: Getting a Life, Human Evolution, Physics I/II, Biology I/II, Organic Chemistry I/II, Biochemistry I, Calculus II
Other: Center for Brains, Minds, and Machines Summer Course 2020 (virtual), FreeSurfer Tutorial and Workshop (MGH training course), Linear Algebra, Introduction to Bayesian Statistics (online course), Neuromatch Academy: Deep Learning