NICASIA BEEBE-WANG

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EDUCATION

University of Washington — Seattle, WA
PhD Student, Computer Science and Engineering — 2017 - Present
M.S. in Computer Science — 2019

Advisor: Su-In Lee
Research interests: machine learning and artificial intelligence with applications in health and biology
Current project: using multi-task deep learning and interpretability methods to reveal underlying biological mechanisms of Alzheimer's disease and molecular targets for intervention

Harvard University — Cambridge, MA
B.A. with Honors in Computer Science; minor in Statistics — 2017
Certificate in Mind Brain Behavior

SKILLS

Programming Languages: Python, JavaScript, HTML/CSS/PHP, R; familiar with C/C++, MATLAB and SQL

Analysis: machine learning, deep learning (Scikit-learn, PyTorch, TensorFlow, Keras)

Other: GPU & cluster computing, web scraping, Unix/Linux/Windows, data visualization

Relevant Coursework: machine learning, artificial intelligence, data visualization, data science, theory of computation, probability, theoretical statistics, linear algebra, differential equations, computational biology

RESEARCH EXPERIENCE

Paul Allen School of Computer Science & Engineering, University of Washington — Seattle, WA
Graduate Research Assistant — 2017 - Present
- Employing machine learning models to gain insights from gene expression and health data for individuals with Alzheimer's disease, advised by Professor Su-In Lee.

Harvard University Department of Molecular and Cellular Biology — Cambridge, MA
Undergraduate Research Fellow — 2016 - 2017
- Employed deep learning pipelines to process large, next-generation sequencing data on Harvard's high-performance computing cluster. Advised by Professor Sean Eddy.
- Senior thesis: "Towards Learning Regulatory Elements of Promoter Sequences with Deep Learning"

Beth Israel Deaconess Medical Center, Center for Sleep and Cognition — Boston, MA
Undergraduate Research Fellow — 2015 - 2016
- Led a study to collect and analyze polysomnography and EEG datasets to investigate the relationship between dysfunctional sleep architecture and abnormal neural responses to stimuli.

Mt. Sinai Medical School: Neuropsychoimaging of Addiction & Related Conditions Group — New York, NY
Undergraduate Research Fellow — Summer 2014
- Integrated genetic and fMRI datasets to identify key relationships between a proenkephalin gene polymorphism, error processing, and behavioral traits in cocaine-addicted individuals. Advised by Professors Rita Goldstein and Scott Moeller.

Neuropsychoimaging Group, Brookhaven National Laboratory — Upton, NY
Research Assistant — 2011 - 2013
- Investigated the relationship between single nucleotide polymorphisms in the dopamine transporter gene and neural responses to drug-related stimuli via EEG.
- Analyzed longitudinal data from cocaine addicted individuals to identify predictors of relapse. Advised by Professors Rita Goldstein and Scott Moeller.

PUBLICATIONS

Beebe-Wang N, Celik S, Sturmfels P, Lee S-I, "MD-AD: Multi-task deep learning for Alzheimer's disease neuropathology," *ICML Workshop on Computational Biology*, 2019 (Poster; Spotlight Talk)

Beebe-Wang N, Celik S, Lee S-I, "MD-AD: Multi-task deep learning for Alzheimer's disease neuropathology," *ICML & IJCAI Workshop on Computational Biology*, 2018 (Poster; Preprint available on *BioRxiv*)

Moeller SJ, **Beebe-Wang N**, Schneider K, Konova A, Parvaz M, Alia-Klein, N, Hurd Y, Goldstein R. "Effects of an opioid (proenkephalin) polymorphism on neural response to errors in health and cocaine use disorder," *Behavioural Brain Research*, 2015

Moeller SJ, Parvaz MA, Shumay E, Wu S, **Beebe-Wang N**, Konova AB, Misyrlis M, Alia-Klein N, Goldstein RZ. "Monoamine polygenic liability in health and cocaine dependence: Imaging genetics study of aversive processing and associations with depression symptomology," *Drug and Alcohol Dependence*, 2014

Moeller SJ, **Beebe-Wang N**, Woicik PA, Konova AB, Maloney T, Goldstein RZ. "Choice to view cocaine images predicts concurrent and prospective drug use in cocaine addiction," *Drug and Alcohol Dependence*, 2013

Moeller SJ, Parvaz MA, Shumay E, **Beebe-Wang N**, Konova AB, Alia-Klein N, Volkow ND, Goldstein RZ. "Gene × abstinence effects on drug cue reactivity in addiction: multimodal evidence," *Journal of Neuroscience*, 2013

TEACHING

University of Washington

CSE 547: Machine Learning for Big Data — Spring, 2019
CSE 427: Computational Biology — Winter, 2020

AWARDS

ICML Workshop on Computational Biology Travel Award — 2019
Jeff Dean - Heidi Hopper Endowed Regental Fellowship in Computer Science & Engineering — 2017
Valedictorian of Westhampton Beach High School — 2013
National Intel Science Talent Search Semifinalist — 2013
National Merit Scholarship Recipient — 2013
National AP Scholar with Distinction — 2013
Paul Harris Fellowship for Outstanding Commitment to the Community — 2013

ACTIVITIES

New Graduate Student Orientation Committee — 2018
Organizer

- Organize welcome events that help incoming PhD students learn about campus resources, departmental policies, and opportunities for community involvement.

Mentorship

Society for Women Engineers Mentor — 2017 - 2018

- Advise undergraduate women at the University of Washington who aspire to pursue engineering careers.
- Met monthly to discuss coursework, how to become involved in research, graduate school options, etc.

UW CSE Peer Mentor — 2018 - Present

- Meet monthly with new PhD students to offer advice and experiences with adjusting to graduate school.

Radcliffe Varsity Lightweight Crew — 2013 - 2015
Rower