NICASIA BEEBE-WANG

nicasia.github.io
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EDUCATION

University of Washington — Seattle, WA
PhD Student, Computer Science and Engineering — 2017 - Present

Advisor: Su-In Lee
Research interests: machine learning and artificial intelligence with applications in health and biology

University of Washington — Seattle, WA
M.S. of Computer Science and Engineering — 2019

Harvard University — Cambridge, MA
B.A. Computer Science, minor in Statistics — 2017
Honors: *cum laude* in field

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

EXPERIENCE

Paul Allen School of Computer Science & Engineering, University of Washington — Seattle, WA
Graduate Research Assistant — 2017 - Present

- Employing machine learning models and interpretability methods to gain insights from brain gene expression for Alzheimer's Disease drug discovery.
- Using explainable AI to efficiently predict dementia risk in elderly adults.

Facebook – Dangerous Content Team — Seattle, WA
Machine Learning Software Engineer Intern — Summer, 2020

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 AND PROJECTS

Beebe-Wang N, Celik S, Weinberger E, Sturmfels P, De Jager P.L., Mostafavi S*, Lee S-I*, "Unified AI framework to uncover deep interrelationships between gene expression and Alzheimer's disease neuropathologies." *Nature Communications* (Revise and resubmit; Preprint available on *BioRxiv*).

Beebe-Wang N*, Okeson A*, Althoff T**, Lee-S-I**, "Efficient and Explainable Risk Assessments for Imminent Dementia in an Aging Cohort Study." *IEEE Journal of Biomedical and Health Informatics* (Accepted).

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

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.

SELECTED AWARDS & ACHIEVEMENTS

Microsoft Research PhD Fellowship Nomination 2019
CRA-W Grad Cohort Workshop Participant 2018
Jeff Dean - Heidi Hopper Endowed Regental Fellowship in Computer Science & Engineering 2017-2018

TEACHING

Computational Biology (Teaching Assistant) Winter, 2020
Machine Learning for Big Data (Teaching Assistant) Spring, 2019

ACTIVITIES

Service & Leadership

Grad, VGrad, & Postdoc Advisory Council (G5PAC) 2019 – Present

- Meet regularly with Allen School leadership about policies & issues related to masters students, PhD students, and postdoctoral researchers in the Allen School.

Women's Events Coordinator 2019 – Present

- Organize quarterly events to promote community among women and non-binary individuals in the department

New Graduate Student Orientation Committee 2018

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

Reviewer

- MLCSB track at Internal Society for Computational Biology (ISMB), 2020

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.