NICASIA BEEBE-WANG

nicasia.github.io
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EDUCATION

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

M.S. of Computer Science and Engineering — 2019

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

Harvard University — Cambridge, MA
B.A. Computer Science (Mind, Brain, and Behavior Honors Track), minor in Statistics — 2017
Honors: *cum laude* in field

EXPERIENCE

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

- PhD student in Computer Science and Engineering, employing machine learning models and interpretability methods for biological and medical problems. Advised by Professor Su-In Lee.

Recursion Pharmaceuticals — Salt Lake City, UT
Data Science Intern — Autumn, 2021

- Developing machine learning models for analyzing high-throughput gene expression datasets and incorporating them with Recursion's imaging-based assays.

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

- Developed a data processing and ML pipelines to identify networks of bad actors for the Dangerous Content team.

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 and Peter Koo.
- Undergraduate honors 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 single nucleotide polymorphisms, error processing, and behavioral traits in cocaine-addicted individuals.

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.

PUBLICATIONS

Nicasia Beebe-Wang, Ayse B. Dincer, Su-In Lee. "An automatic integrative method for learning interpretable communities of biological pathways." *NAR Genomics and Bioinformatics*, 2022.

Ethan Weinberger, **Nicasia Beebe-Wang,** Su-In Lee. "Moment matching deep contrastive latent variable models." *25th International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

Nicasia Beebe-Wang, Safiye Celik, Ethan Weinberger, Pascal Sturmfels, Philip De Jager, Sara Mostafavi S*, and Su-In Lee*. "Unified AI framework to uncover deep interrelationships between gene expression and Alzheimer's disease neuropathologies." *Nature Communications*, 2021.

Nicasia Beebe-Wang*, Alex Okeson*, Tim Althoff**, and Su-In Lee**. "Efficient and Explainable Risk Assessments for Imminent Dementia in an Aging Cohort Study." *IEEE Journal of Biomedical and Health Informatics*, 2021.

Nicasia Beebe-Wang, Safiye Celik, Pascal Sturmfels, Sara Mostafavi S*, and Su-In Lee*. "MD-AD: Multi-task deep learning for Alzheimer's disease neuropathology." *ICML Workshop on Computational Biology*, 2019 (Spotlight Talk).

Scott Moeller, **Nicasia Beebe-Wang**, Kristin Schneider, Anna Konova, Muhammad Parvaz, Nelly Alia-Klein, Yasmin Hurd, and Rita Z. Goldstein. "Effects of an opioid (proenkephalin) polymorphism on neural response to errors in health and cocaine use disorder." *Behavioural Brain Research*, 2015.

Scott Moeller, Muhammad Parvaz, Elena Shumay, Salina Wu, **Nicasia Beebe-Wang**, Anna Konova, Michail Misyrlis, Nelly Alia-Klein, and Rita Z. Goldstein. "Monoamine polygenic liability in health and cocaine dependence: Imaging genetics study of aversive processing and associations with depression symptomology." *Drug and Alcohol Dependence*, 2014.

Scott Moeller, **Nicasia Beebe-Wang**, Patricia Woicik, Anna Konova, Thomas Maloney, and Rita Z. Goldstein. "Choice to view cocaine images predicts concurrent and prospective drug use in cocaine addiction." *Drug and Alcohol Dependence*, 2013.

Scott Moeller, Muhammad Parvaz, Elena Shumay, **Nicasia Beebe-Wang**, Anna Konova, Nelly Alia-Klein, Nora D. Volkow, and Rita Z. Goldstein. "Gene × abstinence effects on drug cue reactivity in addiction: multimodal evidence." *Journal of Neuroscience*, 2013.

SELECTED AWARDS & ACHIEVEMENTS

Microsoft Research PhD Fellowship Departmental 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 – 2021

- 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 – 2021

- 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

- Machine Learning in Computational and Systems Biology track at ISMB, 2020
- Neural Information Processing Systems (NeurIPS), 2021 and 2022

Mentorship

Society for Women Engineers Mentor 2017 - 2018

- Advise undergraduate women at the University of Washington who aspire to pursue engineering careers.

UW CSE Peer Mentor 2018 - Present

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