# Zöe Steine-Hanson

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🖥 http://www.zoesteinehanson.com

*NSF Graduate Research Fellow and PhD Student developing*
*generalized machine learning models for biological sensor data*

## Education

**Sept 2019 –**
**Anticipated**
**June 2024**
**University of Washington**, GPA 3.82.
PhD Student in Computer Science
Masters of Computer Science - Completed June 2021

**Sept 2015 –**
**June 2019**
**Oregon State University**, GPA 3.96, Summa Cum Laude.
Honors Bachelor of Science in Computer Science

## Research Experience

**Sept 2019 –**
**present**
**Graduate Researcher**, University of Washington, Mentors: Dr. Bingni Brunton & Dr. Rajesh Rao.
- *Article:* Generalized Neural Decoders for Transfer Learning Across Participants & Recording Modalities
- Developed generalizable CNN model to decode neural data from unseen participants
- Our neural network performed 8% better than SOTA when generalizing to an unseen participant

**Sept 2022 –**
**Mar 2023**
**Research Scientist Intern**, Meta, CTRL Labs.
- Implemented generalization techniques in LSTM models to detect movement classes from EMG wearables
- Analyzed model performance and trends for explainability
- Improved model performance in key user experience metrics

**Sept 2018 –**
**June 2019**
**Team Lead for Machine Learning Senior Design Project**, Oregon State University.
- Fine-tuned existing text-to-speech machine learning model to detect filler words in speech within .4-.8 seconds of latency

**June 2018 –**
**Aug 2018**
**Research Experience for Undergraduates**, University of Washington, Mentor: Dr. Andrea Stocco.
- *First Authored Article:* Refining the Common Model of Cognition Through Large Neuroscience Data
- Discovered model of intelligent minds that best explains human brain data out of comparable models

## Additional Relevant Publications

**In Prep** "Neural Manifolds of Human Intracranial Recordings During Naturalistic Arm Movements", In Preparation

**July 2021** NeuroImage: *Analysis of the Human Connectome Data Supports the Notion of A 'Common Model of Cognition' for Human and Human-Like Intelligence* `https://doi.org/10.1101/703777`

## Skills and Coursework

**Skills** C/C++, Python, Tensorflow, Pytorch, Pandas, Matplotlib, Scikit-learn, Jupyter, Bash, Matlab, Git, AWS

**Research Areas** Transfer Learning, Machine Learning, Convolutional Neural Networks, LSTM, ECoG, EEG, EMG

**Grad Courses** Neural Engineering, Computational Biology, Data Visualization, Natural Language Processing, AI and the Brain, Machine Learning, Neural Engineering Lab, Design and Analysis of Algorithms

## Conferences and Awards

**March 2023** Cosyne 2023, Montreal, Canada. Presented abstract: "Neural Manifolds Underlying Naturalistic Human Movements in Electrocorticography"

**April 2020** Awardee - National Science Foundation's Graduate Research Fellowship Program

**Dec 2018** Brain Informatics 2018, Arlington, TX. Presented abstract: "Refining the Common Model of Cognition Through Large Neuroscience Data"

**Sept 2018** Grace Hopper Celebration 2018, Houston, TX