# Zöe Steine-Hanson

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*NSF Graduate Research Fellow and PhD Student interested in the intersection of Machine Learning and Neuroscience.*
*http://www.zoesteinehanson.com*

## Education

2019–present **University of Washington**, GPA 3.73.
PhD Student in Computer Science

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

## Experience

Sept 2019–present **PhD Student**, University of Washington, Mentors: Dr. Bingni Brunton and Dr. Rajesh Rao.
- Research Area: Machine Learning and Neuroscience
- Design algorithms to improve generalizability of Brain Computer Interfaces (BCIs) to new patients by leveraging transfer learning techniques from machine learning on large naturalistic brain data
- Analyze and interpret data
- Write and publish peer-reviewed articles
- *Python/Tensorflow*

Sept 2016–June 2019 **Undergraduate Researcher**, Oregon State University, Mentor: Dr. Margaret Burnett.
- Research Area: Human Computer Interaction
- Investigated gender biases in user interfaces and studied effectiveness of explanations for AI behavior
- Conducted and analyzed data from user studies
- Collaborated with companies and other universities to discover gender biases
- Wrote and published peer-reviewed articles
- *HTML/CSS*

Sept 2018–June 2019 **Team Lead for Machine Learning Senior Design Project**, Oregon State University.
- Developed a speech recognition Machine Learning application to detect filler words in speech
- Adapted existing text-to-speech model to recognize filler words
- Developed personalized data set
- Designed user interfaces
- *Python/Pytorch*

June 2018–Aug 2018 **Research Experience for Undergraduates**, University of Washington, Mentor: Dr. Andrea Stocco.
- Research Area: Neural Engineering and Cognitive Science
- Investigated models of intelligent minds with human brain data
- Analyzed and interpreted big data from fMRI studies
- Wrote and published peer-reviewed article
- *Bash/Python/Matlab*

Sept 2016–June 2017 **Undergraduate Teaching Assistant**, Oregon State University, Mentor: Dr. Jennifer Parham-Mocello.
- Instructed student computer science labs
- Compiled and evaluated student programming assignments
- Tutored students in class topics
- *Python/C++/C*

## Publications

Under Review S. Peterson, **Z. Steine-Hanson**, N. Davis, R. Rao, B. Brunton, "Generalized neural decoders for transfer learning across participants and recording modalities", Under Review, Available: `https://www.biorxiv.org/content/10.1101/2020.10.30.362558v1?rss=1`

Under Review A. Stocco, C. Sibert, **Z. Steine-Hanson**, N. Koh, J. Laird, C. Libiere, and P. Rosenbloom, "Analysis of the Human Connectome Data Supports the Notion of A 'Common Model of Cognition' for Human and Human-Like Intelligence", Under Review, Available: `https://doi.org/10.1101/703777`

Jul 2020 C. Hilderbrand, C. Perdriau, L. Letaw, J. Emard, **Z. Steine-Hanson**, M. Burnett, A. Sarma, "Engineering Gender-Inclusivity into Software: Ten Teams' Tales from the Trenches", in *Proceedings of the 42nd International Conference on Software Engineering - ICSE '20.*, Available: `https://doi.org/10.1145/3377811.3380371`

May 2019 Honors Undergraduate Thesis, *Fixing Inclusivity Bugs: Information Processing Styles and Learning Styles*, Available: https://ir.library.oregonstate.edu/concern/honors_college_theses/1n79h977c

May 2019 M. Burnett, A. Oleson, **Z. Steine-Hanson**, "The GenderMag-Teach Project" , CHI'19 Extended Abstracts, May 4-9, 2019, Glasgow, Scotland, UK.

May 2019 M. Vorvoreanu, L. Zhang, Y-H. Huang, C.Hilderbrand **Z. Steine-Hanson**, and M. Burnett, "From Gender Biases to Gender-Inclusive Design: An Empirical Investigation" In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19). ACM, New York, NY, USA, Paper 53, 14 pages. 2019. Available: https://doi.org/10.1145/3290605.3300283

Dec 2018 **Z. Steine-Hanson**, N. Koh, and A. Stocco, "Refining the Common Model of Cognition Through Large Neuroscience Data," *Procedia Computer Science,* 2018, p. 813 - 820. Available: `https://doi.org/10.1016/j.procs.2018.11.026`

Oct 2018 C. Mendez, **Z. Steine-Hanson**, A. Oleson, A. Horvath, C. Hill, C. Hilderbrand, A. Sarma, and M. Burnett, "Semi-Automating (or not) a Socio-Technical Method for Socio-Technical Systems," *2018 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*. Libson, Portugal: IEEE Press, 2018, p. 23-32. Available: `https://www.researchgate.net/publication/328520368_Semi-Automating_or_not_a_Socio-Technical_Method_for_Socio-Technical_Systems`

Aug 2018 A. Oleson, C. Mendez, **Z. Steine-Hanson**, C. Hilderbrand, C. Perdriau, M. Burnett, and A. J. Ko, "Pedagogical Content Knowledge for Teaching Inclusive Design," in *Proceedings of the 2018 ACM Conference on International Computing Education Research - ICER '18.* Espoo, Findland: ACM Press, 2018, pp. 69-77. Available: `http://dl.acm.org/citation.cfm?doid=3230977.3230998`

June 2018 C. Mendez, H.S. Padala, **Z. Steine-Hanson**, C. Hilderbrand, A. Horvath, C. Hill, L. Simpson, N. Patil, A. Sarma, and M. Burnett, "Open Source Barriers to Entry, Revisited: A Sociotechnical Perspective," in *Proceedings of the 40th International Conference on Software Engineering - ICSE '18.* Gothenburg, Sweden: ACM Press, 2018, pp. 1004-1015. Available: `http://dl.acm.org/citation.cfm?doid=3180155.3180241`

## Conferences

Canceled 2020 CRA-WP Grad Cohort for Women Workshop

Sept 2018 Grace Hopper Celebration 2018, Houston, TX.

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

## Relevant Coursework

CSE 599B - AI and the Brain

CSE 546 - Machine Learning

BIOEN 566 - Neural Engineering Lab

CSE 521 - Design and Analysis of Algorithms

PSY 330 - Brain and Behavior

## Computer Languages and Skills

Advanced C/C++, Python

Intermediate Bash, CSS, Git/GitHub, HTML, Javascript, LaTeX, Tensorflow

Basic MATLAB, UNIX, JAVA, Pytorch

## Outreach Activities

Sep 2020 - present **Pre-Application Review Service (PARS) Mentor**, Paul G. Allen School of Computer Science and Engineering.
- Review and provide feedback on graduate school applications
- Encourage diverse applicants to apply
- Mentor applicants in research career paths

Sep 2020 - present **Seminar Co-coordinator**, Center for Neurotechnology Student Leadership Council.
- Organize upcoming Center for Neurotechnology grad student podcast
- Brainstorm creative mediums for online seminars
- Attend leadership meetings to plan Center for Neurotechnology events

June 2020 - present **Undergraduate Mentor**, University of Washington, Mentor: Bingni Brunton.
- Train undergraduate students in data analysis and research methods
- Direct undergraduate students on research projects
- Mentor undergraduate students in research career paths

April 2016 - June 2019 **Building Homes and Hope**, Oregon State University Honors College, Mentor: Dave Kovac.
- Engage in community service activities globally
- Traveled to Nepal in March 2018 to help build a community center in a *Dalit* community

June 2017 - Sept 2017 **Apprenticeships in Science & Engineering Mentor**.
- Encouraged high school students to engage in college level research
- Introduced two high school students to Human Computer Interaction research methods
- Directed students to complete their own research projects

## Achievements and Honors

April 2020 NSF GRFP Awardee

April 2019 Honorable Mention for NSF GRFP award

Sept 2018 Received Grandma Honors Travel Grant to attend Brain Informatics Conference

July 2018 Received Oregon State University Electrical Engineering and Computer Science Department scholarship to attend Grace Hopper Celebration 2018

June 2018 Research Experience for Undergraduates at the Center for Neurotechnology

Jan 2018 Nominated for the Honors College's Joe Hendricks Scholarship for Academic Excellence and the Janet Richens Wiesner Scholarship for Undergraduate Women in Science

June 2017 Mentor for Apprenticeships in Science & Engineering program

May 2016 Received Drucilla Shepard Smith Award

Sept 2015 Received Finley Academic Achievement Scholarship