Zöe Steine-Hanson

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NSF Graduate Research Fellow and PhD Student interested in the intersection of Machine Learning and Neuroscience.

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 **Grad Research Assistant**, University of Washington, Mentors: Dr. Bingni Brunton & Dr. Rajesh Rao.
- Research Area: Neural Engineering
- Developed a machine learning algorithm to decode neural data that generalizes to unseen patients with minimal fine-tuning
- Our machine learning algorithm performed 8% better than SOTA when generalizing to an unseen subject
- Execute signal processing techniques on time-series data
- *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 discovered 7 best practices for unbiased interfaces
- Collaborated with companies and more than 10 universities to teach about gender biases in software
- Conducted and analyzed qualitative data from user studies

Sept 2018 – June 2019 **Team Lead for Machine Learning Senior Design Project**, Oregon State University.
- Developed a speech recognition machine learning application that could detect filler words in speech within .4-.8 seconds of latency
- Fine-tuned existing text-to-speech model to recognize filler words
- Developed personalized data set containing filler words
- 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
- Discovered model of intelligent minds that best explains human brain data out of comparable models
- Analyzed and interpreted data from 172 fMRI participants
- Published first-author 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`
Apr 2020	S. H. Padala, C. Mendez, L. Dias, I. Steinmacher, **Z. Steine-Hanson**, C. Hilderbrand, A. Horvath, C. Hill, L. Simpson, M. Burnett, A. Sarma, "How Gender-biased Tools Shape Newcomer Experiences in OSS Projects," in *IEEE Transactions on Software Engineering*, Available: `https://ieeexplore.ieee.org/abstract/document/9055190`
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".

Skills and Coursework

Languages	C/C++, Python, HTML, CSS, Javascript, Bash, Matlab, java
Technologies	Tensorflow, Pytorch, Jupyter, Git/GitHub, LaTeX, UNIX
Courses	AI and the Brain, Machine Learning, Neural Engineering Lab, Design and Analysis of Algorithms, Brain and Behavior, Introduction to Usability Engineering, Research Methods in Psychology

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
- Collaborate across neural engineering and computational neuroscience centers at UW to organize 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