

Jane Hoffswell, Ph.D.

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RESEARCH INTERESTS

My research aims to improve how people write, manage, understand, and reuse both code and data through the design of new programming languages and visualization tools. By focusing new languages and tools on the domain-specific details relevant to the user, we can improve how users interact with systems to better promote program understanding, and proactively surface surprising or incorrect results.

EDUCATION

- 2020 **PHD COMPUTER SCIENCE AND ENGINEERING**
SEATTLE, WA Paul G. Allen School of Computer Science & Engineering
University of Washington (UW)
Advisor: Jeffrey Heer
- 2016 **MS COMPUTER SCIENCE AND ENGINEERING**
SEATTLE, WA Paul G. Allen School of Computer Science & Engineering
University of Washington (UW)
Advisor: Jeffrey Heer
- 2014 **BS COMPUTER SCIENCE**
CLAREMONT, CA Harvey Mudd College (HMC)
Advisor: Ben Wiedermann

PROFESSIONAL EXPERIENCE

- 2020 - present **RESEARCH SCIENTIST, ADOBE RESEARCH**
SEATTLE, WA Conducted research at the intersection of visualization and human-computer interaction.
- 2020 - present **LECTURER, UNIVERSITY OF WASHINGTON**
SEATTLE, WA Taught courses on visualization (CSE442, CSE412) in the UW Allen School of Computer Science & Engineering. Developed course curriculums and managed a group of teaching assistants.
- 2014 - 2020 **GRADUATE RESEARCH ASSISTANT, UW ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA *Languages and Visualization Tools for Data-Centric End-User Programming of Interactive Visualizations.*
Advisor: Jeffrey Heer. Conducted research on the design and development of new systems and program understanding techniques for visualization design. Conducted interviews with experts to inform research directions and performed user evaluations of the proposed systems.
- Summer 2019 **RESEARCH INTERN, ADOBE RESEARCH**
SEATTLE, WA *Techniques for Flexible Responsive Visualization Design*
Advisors: Leo Zhicheng Liu and Wilmot Li. Conducted research on the design of responsive visualizations for news articles, which adapt the visualization to different types of devices.
- Summer 2018 **RESEARCH INTERN, ADOBE RESEARCH**
SEATTLE, WA *Interactive Repair of Tables Extracted from PDF Documents on Mobile Devices*
Advisor: Leo Zhicheng Liu. Conducted research on the future of dynamic PDF documents, focusing on the analysis & reuse of tabular data for dynamic applications on mobile devices.

- Summer 2013
CLAREMONT, CA **UNDERGRADUATE RESEARCH ASSISTANT, HMC COMPUTER SCIENCE DEPARTMENT**
Visualizing the Graphical Execution of Abstract Program Traces
Advisor: Ben Wiedermann. Modified the UC Santa Barbara JavaScript Abstract Interpreter to output runtime information about the abstract program trace and implemented a tool for visualizing program traces using D3.js.
- Summer 2012
CLAREMONT, CA **UNDERGRADUATE RESEARCH ASSISTANT, HMC COMPUTER SCIENCE DEPARTMENT**
Large Scale, Educational Video Games for Middle School Students
Advisor: Elizabeth Sweedyk. Developed a math-based game for the iPad that teaches children about ratios by taking advantage of the ratio-based behavior of mixing paint.

THESIS

- 2020 Languages and Visualization Tools for Data-Centric End-User Programming of Interactive Visualizations.
Jane Hoffswell. Committee: Jeffrey Heer (Advisor), Alan Borning, Amy J. Ko
PhD Thesis from the University of Washington. hdl.handle.net/1773/45922

PUBLICATIONS

- 2020 Techniques for Flexible Responsive Visualization Design.
Jane Hoffswell, Wilmot Li, and Zhicheng Liu.
CHI 2020. doi.org/10.1145/3313831.3376777
[24% Acceptance Rate, **Best Paper (Top 1%)**]
- 2019 Interactive Repair of Tables Extracted from PDF Documents on Mobile Devices.
Jane Hoffswell and Zhicheng Liu.
CHI 2019. doi.org/10.1145/3290605.3300523
[24% Acceptance Rate]
- 2018 SetCoLa: High-Level Constraints for Graph Layout.
Jane Hoffswell, Alan Borning, Jeffrey Heer.
EuroVis 2018. doi.org/10.1111/cgf.13440
[29% Acceptance Rate]
- Augmenting Code with In Situ Visualizations to Aid Program Understanding.
Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer.
CHI 2018. doi.org/10.1145/3173574.3174106
[26% Acceptance Rate]
- 2017 Supporting Patient-Provider Collaboration to Identify Individual Triggers using Food and Symptom Journals.
Jessica Schroeder, **Jane Hoffswell**, Chia-Fang Chung, James Fogarty, Sean Munson, Jasmine Zia.
CSCW 2017. doi.org/10.1145/2998181.2998276
[35% Acceptance Rate]
- 2016 Visual Debugging Techniques for Reactive Data Visualization.
Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer.
EuroVis 2016. doi.org/10.1111/cgf.12903
[27% Acceptance Rate]
- Reactive Vega: A Streaming Dataflow Architecture for Declarative Interactive Visualization.
Arvind Satyanarayan, Ryan Russell, **Jane Hoffswell**, Jeffrey Heer.
InfoVis 2016. doi.org/10.1109/TVCG.2015.2467091
[22% Acceptance Rate]

HONORS AND AWARDS

- 2020 ACM CHI Best Paper Award (for "Techniques for Flexible Responsive Visualization Design")
- 2019 ACM CHI 2019 Doctoral Consortium Award
- Hopper x 1 Seattle 2019 Scholarship Award Recipient
- 2014 Jeff Dean - Heidi Hopper Endowed Regental Fellowship Recipient
- Harvey Mudd College Computer Science Clinic Poster Award
- Honorable Mention CRA Undergraduate Research Award Competition
- 2011-2014 Harvey Mudd College Dean's List
- 2010 International Baccalaureate Diploma

LEADERSHIP AND VOLUNTEER EXPERIENCE

- 2018 - 2020 **GRAD, VGRAD, & POSTDOC ADVISORY COUNCIL, UW COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA Participated as a council member of the G5PAC to discuss and address the needs of researchers and teaching assistants in the Paul G. Allen School.
- Winter 2020 **PRACTICE TALKS SEMINAR ORGANIZER (CSE591L), UW COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA Organized and lead a new weekly seminar focused on presenting and providing feedback on practice talks from graduate students in the Paul G. Allen School.
- 2017 - present **REVIEWER**
 - ACM CHI – ACM Human Factors in Computing Systems 2017, 2019-2021
 - IEEE VIS – IEEE Visualization 2018-2020
 - ACM UIST – ACM User Interface Software and Technology 2017-2020
 - IEEE TVCG – IEEE Trans. on Visualization and Computer Graphics 2018

Recognition for Outstanding Reviews: CHI 2019
- Winter 2018 **HCI VISIT DAYS COORDINATOR, UW COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA Organized group activities and one-on-one meetings for admitted graduate students.
- Fall 2016 **GRADUATE STUDENT ADMISSIONS VOLUNTEER, UW COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA Reviewed graduate student admissions applications.
- Fall 2015 **NEW GRADUATE ORIENTATION LEADER, UW COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA Coordinated talks from current students and faculty for incoming graduate students, organized activities for the event, and hosted the two-day orientation.
- 2013-2014 **PROJECT MANAGER, CAPSTONE PROJECT, HMC COMPUTER SCIENCE DEPARTMENT**
CLAREMONT, CA *Visualizing and Exploring Performance Data alongside VMware*
Advisor: Melissa O'Neill. Acted as project manager for a senior capstone project with VMware in which we developed a dashboard for visualizing system performance using D3.js.
- Fall 2015 **PROJECT MANAGER, USLI ROCKETRY TEAM, HARVEY MUDD COLLEGE**
CLAREMONT, CA Founder and project manager of a NASA sponsored rocketry team for the University Student Launch Initiative (USLI). Designed and launched a rocket with a scientific payload.

TEACHING EXPERIENCE

- 2020 - present
SEATTLE, WA **LECTURER, UW PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING**
CSE412 – Data Visualization (Winter 2020)
CSE442 – Data Visualization (Fall 2020) *Co-Instructor: Jeffrey Heer*
Developed curriculum, taught lecturers, graded coursework, managed teaching assistants.
- 2016-2017
SEATTLE, WA **TEACHING ASSISTANT, UW PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING**
CSE442 – Data Visualization (Spring 2017). *Professor: Jeffrey Heer*
CSE512 – Data Visualization (Spring 2016). *Professor: Jeffrey Heer*
Graded coursework, held office hours, and taught extra tutorial sessions.
- Winter 2014
SEATTLE, WA **TEACHING ASSISTANT, UW MASTERS IN HUMAN COMPUTER INTERACTION + DESIGN**
HCID520 – User Interface Software & Technology (Wi 2014). *Professor: Jeffrey Heer*
Helped to develop the course curriculum. Tutored and graded coursework.
- 2012-2014
CLAREMONT, CA **TUTOR AND GRADER, HMC COMPUTER SCIENCE DEPARTMENT**
CS131 – Programming Languages (Spring 2014). *Professor: Melissa O'Neill*
CS151 – Artificial Intelligence (Spring 2014). *Professor: Jim Boerkoel*
CS121 – Software Development (Fall 2013). *Professor: Mike Erlinger*
CS121 – Software Development (Spring 2013). *Professor: Elizabeth Sweedyk*
CS60 – Principles of Computer Science (Fall 2012). *Professor: Zach Dodds*
Graded coursework and held office hours.

TALKS

- Spring 2020
SEATTLE, WA **TECHNIQUES FOR FLEXIBLE RESPONSIVE VISUALIZATION DESIGN.**
DUB Shorts, University of Washington. vimeo.com/418215216
Conference Presentation Series, Adobe. research.adobe.com/conference-presentation-series/
- Spring 2020
SEATTLE, WA **HOW PEOPLE UNDERSTAND SYSTEMS.**
UW Allen School Women's Research Day. youtu.be/EJtakt7l3BQ
- Spring 2014
SAN DIEGO, CA **VISUALIZING THE GRAPHICAL EXECUTION OF PROGRAMS FOR JAVASCRIPT ABSTRACT INTERPRETATION.**
Southern California Celebration for Women in Computing.
- Fall 2013
LOS ANGELES, CA **VISUALIZING THE GRAPHICAL EXECUTION OF PROGRAMS FOR JAVASCRIPT ABSTRACT INTERPRETATION.**
Southern California Programming Languages and Systems Workshop.
- Summer 2012
SANTA ANA, CA **HARVEY MUDD COLLEGE NASA UNIVERSITY STUDENT LAUNCH INITIATIVE TEAM PRESENTATION.**
AIAA Southern California Aerospace Systems and Technology (ASAT) Conference.

WORKSHOP PUBLICATIONS

- Spring 2019
GLASGOW, UK **LANGUAGES & VISUALIZATIONS TO ENABLE EFFECTIVE END USER PROGRAMMING.**
Jane Hoffswell.
CHI Extended Abstracts 2019.
doi.org/10.1145/3290607.3299067
- Spring 2015
CAGLIARI, ITALY **DEBUGGING VEGA THROUGH INSPECTION OF THE DATA FLOW GRAPH.**
Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer.
EuroVis Workshop on Reproducibility, Verification, and Validation in Visualization (EuroRV3), 2015.
doi.org/10.2312/eurorv3.20151144

POSTERS

- Spring 2019* **LANGUAGES & VISUALIZATIONS TO ENABLE EFFECTIVE END USER PROGRAMMING.**
GLASGOW, UK *ACM Human Factors in Computing Systems Doctoral Consortium Poster, 2019.*
- Fall 2016* **VISUAL DEBUGGING TECHNIQUES FOR REACTIVE DATA VISUALIZATION.**
SEATTLE, WA *University of Washington Computer Science & Engineering Affiliates, 2016.*

GRADUATE COURSEWORK

- 2019 Research Methods and Data Analysis in Software Systems Research
- 2017 Accurate Computing · Constraint Programming
- 2016 Advanced Topics in HCI · Computer-Aided Reasoning for Software · Research Design
- 2015 Computer Systems · Data Visualization · Principles of Database Management Systems
- 2014 Machine Learning

RELEVANT SKILLS

- Coding:* JavaScript, Python, HTML/CSS, D3.js, Vega/Vega-Lite
- User Research:* Semi-Structured Interviews, Surveys, Experimental Design
- Leadership:* Project Management, Scientific & Technical Writing, Presentations
- Tools:* GitHub, Tableau, LaTeX, Keynote, Microsoft Excel, OmniGraffle