

Jane Hoffswell

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RESEARCH STATEMENT

My research aims to help end user programmers more effectively *author, understand, and reuse* code and data through the design of new languages and program visualization tools. New declarative programming languages can raise the level of abstraction to focus on relevant domain-specific details. Improved tools can better align with and enrich end user programmers' mental models. Visualizing program state and behavior promotes program understanding, and can proactively surface surprising or incorrect results.

EDUCATION

2016 - present **PHD CANDIDATE 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

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.

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.

Summer 2013 **UNDERGRADUATE RESEARCH ASSISTANT, HMC COMPUTER SCIENCE DEPARTMENT**
CLAREMONT, CA *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 **UNDERGRADUATE RESEARCH ASSISTANT, HMC COMPUTER SCIENCE DEPARTMENT**
CLAREMONT, CA *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.

HONORS AND AWARDS

- 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

PUBLICATIONS

- 2020 Techniques for Flexible Responsive Visualization Design.
Jane Hoffswell, Wilmot Li, and Zhicheng Liu.
ACM Human Factors in Computing Systems (CHI), 2020. doi.org/10.1145/3313831.3376777
- 2019 Interactive Repair of Tables Extracted from PDF Documents on Mobile Devices.
Jane Hoffswell and Zhicheng Liu.
ACM Human Factors in Computing Systems (CHI), 2019. doi.org/10.1145/3290605.3300523
- 2018 SetCoLa: High-Level Constraints for Graph Layout.
Jane Hoffswell, Alan Borning, Jeffrey Heer.
Computer Graphics Forum (Proc. EuroVis), 2018. doi.org/10.1111/cgf.13440

Augmenting Code with In Situ Visualizations to Aid Program Understanding.
Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer.
ACM Human Factors in Computing Systems (CHI), 2018. doi.org/10.1145/3173574.3174106
- 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. *ACM Computer-Supported Cooperative Work (CSCW)*, 2017. doi.org/10.1145/2998181.2998276
- 2016 Visual Debugging Techniques for Reactive Data Visualization.
Jane Hoffswell, Arvind Satyanarayan, Jeffrey Heer.
Computer Graphics Forum (Proc. EuroVis), 2016. doi.org/10.1111/cgf.12903

Reactive Vega: A Streaming Dataflow Architecture for Declarative Interactive Visualization.
Arvind Satyanarayan, Ryan Russell, **Jane Hoffswell**, Jeffrey Heer. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis '15)*, 2016. doi.org/10.1109/TVCG.2015.2467091

WORKSHOP PUBLICATIONS

- Spring 2019 **LANGUAGES & VISUALIZATIONS TO ENABLE EFFECTIVE END USER PROGRAMMING.**
GLASGOW, UK Jane Hoffswell. *ACM Human Factors in Computing Systems Extended Abstracts (CHI EA)*, 2019. doi.org/10.1145/3290607.3299067
- Spring 2015 **DEBUGGING VEGA THROUGH INSPECTION OF THE DATA FLOW GRAPH.**
CAGLIARI, ITALY 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.*

PRESENTATIONS

- Spring 2014* **VISUALIZING THE GRAPHICAL EXECUTION OF PROGRAMS FOR JAVASCRIPT ABSTRACT INTERPRETATION.**
SAN DIEGO, CA *Southern California Celebration for Women in Computing.*
- Fall 2013* **VISUALIZING THE GRAPHICAL EXECUTION OF PROGRAMS FOR JAVASCRIPT ABSTRACT INTERPRETATION.**
LOS ANGELES, CA *Southern California Programming Languages and Systems Workshop.*

TEACHING EXPERIENCE

- 2016-2017* **TEACHING ASSISTANT, UW PAUL. G. ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING**
SEATTLE, WA *Professor: Jeffrey Heer. Graded coursework, held office hours, and led tutorial sessions for the graduate (Spring 2016) and undergraduate (Spring 2017) Data Visualization courses.*
- Winter 2014* **TEACHING ASSISTANT, UW MASTERS IN HUMAN COMPUTER INTERACTION + DESIGN**
SEATTLE, WA *Professor: Jeffrey Heer. Helped to develop the course curriculum. Tutored and graded coursework for students studying User Interface Software & Technology (Winter 2014).*
- 2012-2014* **TUTOR AND GRADER, HMC COMPUTER SCIENCE DEPARTMENT**
CLAREMONT, CA *Tutored and graded for Programming Languages (SP 2014), Artificial Intelligence (SP 2014), Software Development (SP 2013, FA 2013), and the Principles of Computer Science (FA 2012).*

LEADERSHIP AND VOLUNTEER EXPERIENCE

- 2017 - present* **REVIEWER** for ACM Conference on Human Factors in Computing Systems (CHI 2020, CHI 2019, CHI 2017), IEEE Visualization Conference (VIS 2019, VIS 2018), ACM Symposium on User Interface Software and Technology (UIST 2019, UIST 2018, UIST 2017), and Transactions on Visualization and Computer Graphics (TVCG 2018).
- 2018 - present* **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 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.*
- Fall 2015* **PROJECT MANAGER, USLI ROCKETRY TEAM, HARVEY MUDD COLLEGE**
SEATTLE, WA *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.*