

Emily Wall

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Education

PhD in Computer Science

GEORGIA INSTITUTE OF TECHNOLOGY

Advised by Dr. Alex Endert

Atlanta, GA

2015 - present

B.S. in Computer Science and Mathematics

UNIVERSITY OF GEORGIA

summa cum laude

Athens, GA

2015

Research

Georgia Institute of Technology

GRADUATE RESEARCH ASSISTANT

- Advised by Dr. Alex Endert.
- Researching the detection and mitigation of cognitive bias in visual analytic systems based on user interaction patterns.

Atlanta, GA

2015-present

Microsoft Research

INTERN (MACHINE TEACHING GROUP)

- Mentored by Gonzalo Ramos.
- Modeled how experts use machine teaching to train ML classifiers. Developed systematic guidelines to help novices train ML classifiers.

Seattle, WA

Summer 2018

Pacific Northwest National Laboratory

INTERN (NATIONAL SECURITY INTERNSHIP PROGRAM, VISUAL ANALYTICS GROUP)

- Mentored by Lyndsey Franklin and Kris Cook.
- Developed heuristic metrics for detecting a user's bias in visual analytics systems based from interaction patterns.

Richland, WA

Summer 2016

Jet Propulsion Laboratory

INTERN (SPACE GRANT PROGRAM, SYSTEMS ENGINEERING GROUP)

- Mentored by Marc Sarrel.
- Automated and visualized the determination of data flow across ground system. Used SysML and principles of Model-Based Systems Engineering to model the ground system of Lockheed Martin's Orion Capsule.

Pasadena, CA

2013-2015

University of Georgia

RESEARCH ASSISTANT

- Dr. Don Potter, Professor of Computer Science and director of the Institute for Artificial Intelligence.
- Used artificial neural networks to predict solar radiation in Georgia. Funded by the Georgia Power Advanced Solar Initiative.

Athens, GA

Fall 2014

University of Georgia

RESEARCH ASSISTANT

- Dr. Liming Cai, Professor of Computer Science and Computational Biology and director of the RNA Informatics Lab.
- Used sequence alignment of RNA for detecting coevolution in species with a common ancestor.

Athens, GA

Fall 2013

University of Georgia

RESEARCH ASSISTANT

- Dr. Prashant Doshi, Professor of Computer Science and director of the THINC Lab.
- Extended GaTAC (Georgia Testbed for Autonomous Control of vehicles) by creating simulation and programmable interface for quadcopters. Applications to autonomous decision-making in UAVs in multi-agent setting using Parrot A.R. Drone quadcopters.

Athens, GA

Spring 2013

Publications

2019

- **E. Wall**, J. Stasko, and A. Endert, “Toward a Design Space for Mitigating Cognitive Bias in Vis”, *IEEE Information Visualization (VIS) Short Papers*, 2019. [conference-short, 32% papers accepted]
- **E. Wall**, A. Arcalgud, K. Gupta, and A. Jo, “A Markov Model of Users’ Interactive Behavior in Scatterplots”, *IEEE Information Visualization (VIS) Short Papers*, 2019. [conference-short, 32% papers accepted]
- **E. Wall**, L. Blaha, C. Paul, and A. Endert, “A Formative Study on Interactive Bias Metrics in Visual Analytics Using Anchoring Bias”, *Proceedings of the 17th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT’19)*, 2019. [conference, 29% papers accepted]
- **E. Wall**, S. Ghorashi, and G. Ramos, “Using Expert Patterns in Assisted Interactive Machine Learning: A Study in Machine Teaching”, *Proceedings of the 17th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT’19)*, 2019. [conference, 29% papers accepted]
- **E. Wall**, M. Agnihotri, L. Matzen, K. Divis, M. Haass, A. Endert, and J. Stasko, “A Heuristic Approach to Value-Driven Evaluation of Visualizations”, *IEEE Transactions on Visualization and Computer Graphics (Proc. InfoVis’18)*, 2019. [journal, 25% papers accepted]

2018

- **E. Wall**, L. Blaha, C. Paul, K. Cook, and A. Endert, “Four Perspectives on Human Bias in Visual Analytics”, *Cognitive Biases in Visualizations*, Ed. G. Ellis, Springer, 2018, Chapter 3, pp. 29-42. [book chapter]
- **E. Wall**, S. Das, R. Chawla, B. Kalidindi, E. Brown, and A. Endert, “Podium: Ranking Data Using Mixed-Initiative Visual Analytics”, *IEEE Transactions on Visualization and Computer Graphics (Proc. VAST’17)*, 2018. [journal, 30% papers accepted]

2017

- **E. Wall**, L. Blaha, L. Franklin, and A. Endert, “Warning, Bias May Occur: A Proposed Approach to Detecting Cognitive Bias in Interactive Visual Analytics”, *IEEE Visual Analytics Science and Technology (VAST)*, 2017. [conference, 33% papers accepted]
- **E. Wall**, L. Blaha, C. Paul, K. Cook, and A. Endert, “Four Perspectives on Human Bias in Visual Analytics”, *DECISive: Workshop on Dealing with Cognitive Biases in Visualizations (at InfoVis’17)*, 2017. [workshop]
- S.K. Badam, Z. Zeng, **E. Wall**, A. Endert, and N. Elmqvist, “Supporting Team-First Visual Analytics through Group Activity Representations”, *Graphics Interface*, 2017. [conference, 50% papers accepted]
- B.C. Kwon, H. Kim, **E. Wall**, J. Choo, H. Park, and A. Endert, “AxiSketcher: Interactive Nonlinear Axis Mapping through User’s Drawing on Visualization”, *IEEE Transactions on Visualization and Computer Graphics (Proc. VAST’16)*, 2017. [journal, 21% papers accepted]

Teaching

Guest Lectures

- *Introduction to Javascript*, Guest Lecture, Introduction to Information Visualization (CS 4460), Georgia Tech, Atlanta, GA, February 2019.
- *Cognition in Visualization*, Guest Lecture, Information Visualization (CS 7450), Georgia Tech, Atlanta, GA, December 2017.
- *Visual Analytics*, Guest Lecture, Information Visualization (CS 7450), Georgia Tech, Atlanta, GA, November 2017.
- *Visualization Design: Do’s and Don’ts*, Guest Lecture, Introduction to Information Visualization (CS 4460), Georgia Tech, Atlanta, GA, June 2017.

Teaching Assistant

- Introduction to Information Visualization (CS 4460), Georgia Tech, Atlanta, GA, Spring 2019. 133 students.
- Information Visualization (CS 7450), Georgia Tech, Atlanta, GA, Fall 2017. 74 students.
- Introduction to Computing and Programming (CSCI 1301), University of Georgia, Athens, GA, Fall 2012 and Fall 2013.

Presentations

Invited Talks

- **E. Wall**, Left, Right, and Gender: Mitigating Implicit Human Bias in Visual Analytics, Invited Talk, *Georgia Tech Gvu Brown Bag*, Atlanta, GA, January 2020. (viewable at <https://smartech.gatech.edu/handle/1853/62417>)
- **E. Wall** and A. Endert, The Interactive Analytics Library: Treating Interaction as Data, Invited Talk, *Pacific Northwest National Laboratory*, Richland, WA, May 2017.

Posters and Demonstrations

- **E. Wall**, Warning, Bias May Occur: Detecting and Mitigating Cognitive Bias in Visual Analytics, Demonstration. Presented at:
 - *Georgia Tech Gvu Demo Showcase*, Atlanta, GA, October 2019.
 - *Summer Institute on Bounded Rationality*, Berlin, Germany, June 2019.

- *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2019.
- **E. Wall**, L. Blaha, and L. Franklin, and A. Endert, Warning, Bias May Occur: A Proposed Approach to Detecting Cognitive Bias in Interactive Visual Analytics, Demonstration. Presented at:
 - *CRA-W Grad Cohort*, San Francisco, CA, April 2018.
 - *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2018.
 - *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2017.
- **E. Wall**, S. Das, B. Kalidindi, R. Chawla, E. Brown, and A. Endert, *Podium: Ranking Data Using Mixed-Initiative Visual Analytics*, Poster and Demonstration. Presented at:
 - *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2018.
 - *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2017.
 - *CRA-W Grad Cohort*, San Diego, CA, April 2016.
 - *Georgia Tech GVU Demo Showcase*, Atlanta, GA, April 2016.

Honors & Awards

2019-2020	GVU Foley Scholar , Recipient, Georgia Institute of Technology	Atlanta, GA
2018-2019	GVU Foley Scholar , Finalist, Georgia Institute of Technology	Atlanta, GA
2019	D.E. Shaw Exploration Fellowship , Recipient	Atlanta, GA
2019	Siemens FutureMaker Fellowship , Recipient	Atlanta, GA
2017	Graduate Student Symposium , Participant, AT&T Labs	New York, NY
2017	Doctoral Colloquium , Participant, IEEE Vis	Phoenix, AZ
2017-2020	Graduate Fellowship for STEM Diversity (GFSD) , Recipient	Atlanta, GA
2017	NSF Graduate Research Fellowship Program , Honorable Mention	Atlanta, GA
2017	Department of Defense SMART Fellowship , Recipient (Declined)	Atlanta, GA
2015-2019	President's Fellowship , Recipient, Georgia Institute of Technology	Atlanta, GA
2015	CURO Symposium Best Paper Award , Recipient, University of Georgia	Athens, GA
2014	CURO Research Assistantship , Recipient, University of Georgia	Athens, GA
2014	Hahn Family Scholarship for Computer Science , Recipient, University of Georgia	Athens, GA
2013	John G. Hollingsworth Award for Excellence in Mathematics , Recipient, University of Georgia	Athens, GA
2012-2015	Zell Miller Scholarship , Recipient, University of Georgia	Athens, GA

Mentoring

2020	Jamal Paden , B.S. Computer Science, Class of 2020, Usability testing for bias mitigation	Georgia Tech
2017-2018	Yingxiao Ouyang , M.S. HCI, Class of 2019, Usability testing and prototyping for bias mitigation	Georgia Tech
2017	Qiaochu Mu , M.S. HCI, Class of 2018, Usability testing and prototyping for bias mitigation	Georgia Tech
2016-2017	Bharath Kalidindi , B.S. Computer Science, Class of 2018, Ranking data based on user interaction	Georgia Tech

Service

- **Program Committee Member**. VIS Short Papers 2020. VISxAI Workshop at IEEE VIS 2019. CHI Late Breaking Work 2018.
- **Graduate Student Council Chair**, School of Interactive Computing. 2018-2020. Representative of graduate students in the School of Interactive Computing.
- **Reviewer**. EuroVis 2020. CHI 2020. VIS 2019. CHI 2019. International Journal of Human-Computer Studies 2019. TVCG 2018. VIS 2018. CHI 2018. KDD IDEA 2017. VIS 2017. VAST Challenge 2016.
- **Panelist**. Advancing Visualization Inclusion and Diversity (AVID) Workshop, *IEEE Vis*, Phoenix, AZ, October 2017.
- **Graduate Student Council Travel Committee**. 2017-2018. Responsible for awarding travel grants to graduate student applicants.

Other Professional Activities

- NextProf Nexus Workshop, *Atlanta, GA*, October 2019.
- Summer Institute on Bounded Rationality, *Berlin, Germany*, June 2019.
- CRA-W Grad Cohort Workshop, *San Francisco, CA*, April 2018.
- Grace Hopper Celebration of Women in Computing, *Houston, TX*, October 2016.
- CRA-W Grad Cohort Workshop, *San Diego, CA*, April 2016.

Selected Media

- Multiple Views on Visualization Research Explained, Blog Post. Michael Correll, *A Reflection on VIS2019: Or, How Doomed Are We?*, Nov. 2019. (<https://bit.ly/2r7emGd>)
- Uncharted Software, Blog Post. Rosa Romero-Gómez, *Highlights from IEEE VIS 2019*, Nov. 2019. (<https://bit.ly/2qwNOOD>)
- Tech Unbound Podcast, Ep. 3: *Battling Bias*, May 2019. (<https://www.spreaker.com/user/10751784/ep3-battling-bias>)

Graduate Coursework

- Information Visualization
- Human-Computer Interaction
- Machine Learning
- Cognitive Psychology
- Computability and Algorithms
- Educational Technology Foundations
- Cognitive Science
- Statistical Methods