

Austin Z. Henley

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Education

- 2013–2018 **Ph.D. in Computer Science**, University of Memphis
Department of Computer Science Memphis, TN
Dissertation: *Human-Centric Tools for Navigating Code*
Advisor: Dr. Scott D. Fleming
- 2014–2016 **Graduate Cert. in Cognitive Science**, University of Memphis
Institute for Intelligent Systems Memphis, TN
- 2012–2013 **M.S. in Computer Science**, University of Memphis
Department of Computer Science Memphis, TN
- 2008–2011 **B.S. in Computer Science**, Austin Peay State University
Department of Computer Science & Information Technology Clarksville, TN

Academic Work Experience

- 08/2018–*Present* **Assistant Professor**, University of Tennessee
Department of Electrical Engineering & Computer Science Knoxville, TN
- 01/2013–07/2018 **Research Assistant**, University of Memphis
Department of Computer Science Memphis, TN
- 09/2016–12/2016 **Instructor**, University of Memphis
Department of Computer Science Memphis, TN
- 08/2012–12/2012 **Teaching Assistant**, University of Memphis
Department of Computer Science Memphis, TN

Industry Experience

- 06/2019–08/2019 **Visiting Researcher**, Microsoft
AI Platform Bellevue, WA
Hosted by Dr. Titus Barik
- 06/2017–08/2017 **Research Intern**, IBM Research
Cognitive Computing Yorktown Heights, NY
Mentored by Dr. David Piorkowski
- 05/2016–08/2016 **Research Intern**, Microsoft Research
Tools for Software Engineers (TSE) Redmond, WA
Mentored by Dr. Maria Christakis & Dr. Kivanc Muslu
- 06/2015–10/2015 **Research Intern**, National Instruments
Platform Framework Austin, TX

06/2014–08/2014 **Research Intern**, National Instruments
Platform Framework Austin, TX

05/2012–01/2013 **Software Engineer Intern**, First Tennessee Bank
Enterprise Productivity Memphis, TN

Awards

2020 ★ **Honorable Mention Award, ACM SIGCHI CHI** ★

2018 Finalist, Morton Dissertation Award

2017 ★ **Honorable Mention Award, IEEE VL/HCC** ★

2017 Best Presentation, University of Memphis CS Research Day

2016 ★ **Distinguished Paper Award, ACM SIGSOFT FSE** ★

2016 NSF Travel Award for ACM FSE

2016 NSF Travel Award for IEEE ICSME

2016 ★ **Best Paper Award, IEEE VL/HCC** ★

2016 VL/HCC Graduate Consortium Travel Grant

2016 Best Presentation, University of Memphis CS Research Day

2015–2016 Associate Investigator, National Instruments Research Grant

2015 Runner-up, Best Presentation, University of Memphis CS Research Day

2014 VL/HCC Graduate Consortium Travel Grant

2014 Runner-up, Best Presentation, University of Memphis CS Research Day

2008–2011 TN Hope Scholarship

Funding

2020–2023 **National Science Foundation**, CHS: SMALL: Collaborative Research: Adaptive Development Environments: Modeling and Supporting Cognitive Styles of Software Developers. Austin Henley (Lead PI) and Anita Sarma. Award: **\$499,928**.

2019–2021 **National Science Foundation**, CRII: CHS: Overcoming Novice Programmers' Misconceptions of Program Behavior. Austin Henley (Lead PI). Award: **\$174,956**.

Journal Publications

[J2] **EMSE**: Steffen Herbold, Alexander Trautsch, Benjamin Ledel, Alireza Aghamohammadi, ..., **Austin Z. Henley**, ..., Ethem Utku Aktas, Daniel Strüber, and Johannes Erbel. “A Fine-grained Data Set and Analysis of Tangling in Bug Fixing Commits.” In *Empirical Software Engineering*. To appear.

- [J1] **PACMHCI**: Rhema Linder, Chase Hunter, Jacob Mcemore, Senjuti Dutta, Fatema Akbar, Ted Grover, Thomas Breideband, Judith Borghouts, Gloria Mark, **Austin Z. Henley**, and Alex C. Williams. “Characterizing Work-Life for Information Work on Mars: A Design Fiction for the New Future of Work on Earth.” In *Proc. of the ACM on Human-Computer Interaction*. To appear.

Refereed Conference Publications

- [C14] **IEEE/ACM ICSE-SEET’21**: **Austin Z. Henley**, Julian Ball, Benjamin Klein, Aiden Rutter, and Dylan Lee. “An Inquisitive Code Editor for Addressing Novice Programmers’ Misconceptions of Program Behavior.” In *Proc. IEEE/ACM Int’l Conf. on Software Engineering: Software Engineering Education and Training*, Madrid, Spain, May 2021, 1–6. [33% acceptance rate]
- [C13] **IEEE VL/HCC’20**: Marjan Adeli, Nicholas Nelson, Souti Chattopadhyay, Hayden Coffey, **Austin Z. Henley**, and Anita Sarma. “Supporting Code Comprehension via Annotations: Right Information at the Right Time and Place.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Dunedin, New Zealand, August 2020, 1–10. [30% acceptance rate]
- [C12] **ACM CHI’20**: Souti Chattopadhyay, **Austin Z. Henley**, Ishita Prasad, Anita Sarma, and Titus Barik. “What’s Wrong with Computational Notebooks? Pain Points, Needs, and Design Opportunities.” In *Proc. 2020 ACM Conf. on Human Factors in Computing Systems*, Honolulu, Hawaii, April 2020. **Honorable Mention Award**. [24% acceptance rate]
- [C11] **IEEE VL/HCC’19**: Adam C. Short and **Austin Z. Henley**. “Towards an Empirically-Based IDE: An Analysis of Code Size and Screen Space.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Memphis, Tennessee, October 2019. [Short paper]
- [C10] **IEEE VL/HCC’18**: **Austin Z. Henley** and Scott D. Fleming. “CodeDeviant: Helping Programmers Detect Edits That Accidentally Alter Program Behavior.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Lisbon, Portugal, October 2018, 65–73. [29% acceptance rate]
- [C9] **ACM CHI’18**: **Austin Z. Henley**, Kivanc Muslu, Maria Christakis, Scott D. Fleming, and Christian Bird. “CFar: A Tool to Increase Communication, Productivity, and Review Quality in Modern Code Review.” In *Proc. 2018 ACM Conf. on Human Factors in Computing Systems*, Montreal, Canada, April 2018, 157:1–157:13. [25% acceptance rate]

- [C8] **IEEE VL/HCC'17:** David Piorkowski, Sean Penney, **Austin Z. Henley**, Marco Pistoia, Margaret Burnett, Omer Tripp, and Pietro Ferrara. “Foraging Goes Mobile: Foraging While Debugging on Mobile Devices.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Raleigh, North Carolina, October 2017, 9–17. **Honorable Mention Award.** [29% acceptance rate]
- [C7] **ACM CHI'17:** **Austin Z. Henley**, Scott D. Fleming, and Maria V. Luong. “Toward Principles for the Design of Navigation Affordances in Code Editors: An Empirical Investigation.” In *Proc. 2017 ACM Conf. on Human Factors in Computing Systems*, Denver, Colorado, May 2017, 5690–5702. [25% acceptance rate]
- [C6] **ACM FSE'16:** David Piorkowski, **Austin Z. Henley**, Tahmid Nabi, Scott D. Fleming, Christopher Scaffidi, and Margaret Burnett. “Foraging and Navigations, Fundamentally: A Developer Problem of Predicting Value/Cost.” In *Proc. ACM SIGSOFT Int'l Symp. on the Foundations of Software Engineering*, Seattle, Washington, November 2016, 97–108. **Distinguished Paper Award.** [27% acceptance rate]
- [C5] **IEEE ICSME'16:** Alka Singh, **Austin Z. Henley**, Scott D. Fleming, and Maria V. Luong. “An Empirical Evaluation of Models of Programmer Navigation.” In *Proc. IEEE Int'l Conf. on Software Maintenance and Evolution*, Raleigh, North Carolina, October 2016, 9–19. [29% acceptance rate]
- [C4] **IEEE VL/HCC'16:** **Austin Z. Henley** and Scott D. Fleming. “Yestercode: Improving Code-Change Support in Visual Dataflow Programming Environments.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Cambridge, United Kingdom, September 2016, 106–114. **Best Paper Award.** [33% acceptance rate]
- [C3] **IEEE ICSME'15:** David Piorkowski, Scott D. Fleming, Christopher Scaffidi, Margaret Burnett, Irwin Kwan, **Austin Z. Henley**, Jamie Macbeth, Charles Hill, and Amber Horvath. “To Fix or to Learn? How Production Bias Affects Developers Information Foraging during Debugging.” In *Proc. IEEE Int'l Conf. on Software Maintenance and Evolution*, Bremen, Germany, September/October 2015, 11–20. [22% acceptance rate]
- [C2] **IEEE VL/HCC'14:** **Austin Z. Henley**, Alka Singh, Scott D. Fleming, and Maria V. Luong. “Helping Programmers Navigate Code Faster with Patchworks: A Simulation Study.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Melbourne, Australia, July/August 2014, 77–80. [Short paper]
- [C1] **ACM CHI'14:** **Austin Z. Henley** and Scott D. Fleming. “The Patchworks Code Editor: Toward Faster Navigation with Less Code Arranging and Fewer Navigation Mistakes.” In *Proc. 2014 ACM Conf. Human Factors in Computing Systems*, Toronto, Canada, April/May 2014, 2511–2520. [23% acceptance rate]

Juried Conference Publications

- [S3] **IEEE VL/HCC'16: Austin Z. Henley.** “Designing Affordances for Navigating Information Spaces in Code Editors.” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Cambridge, United Kingdom, September 2016, 254–255. [Graduate Consortium]
- [S1] **IEEE VL/HCC'14: Austin Z. Henley.** “Improving Source Code Navigation with Patchworks” In *Proc. IEEE Symp. Visual Languages and Human-Centric Computing*, Melbourne, Australia, July/August 2014, 187–188. [Graduate Consortium]

Invited Talks

- 10/5/2021 “A *Human-Centric Approach to More Usable Developer Tools* ”
Microsoft
- 6/15/2021 “*Information Foraging: The tactics great developers use to find solutions*”
The Stack Overflow Podcast
“*Human-Centric Tools for Software Maintenance*”
- 3/5/2018 University of Delaware
- 2/28/2018 University of Tennessee
- 2/26/2018 Colorado State University
- 2/22/2018 Wayne State University
- 2/15/2018 University of Memphis
- 2/13/2018 New Jersey Institute of Technology
- 2/6/2018 University of Nebraska-Lincoln

Teaching

Instructor

- Fall 2021 Software Engineering (COSC 340)
- Spring 2021 Software Development Tools (COSC 494/594)
Online due to COVID-19, 24 undergraduates, 17 graduates, 4.4/5.0
- Fall 2020 Software Engineering (COSC 340)
Online due to COVID-19, 55 undergraduates, 4.3/5.0
- Spring 2020 Web Application Development (COSC 493)
3 undergraduates
- Spring 2020 Programming Languages (COSC 365)
42 undergraduates, 4.7/5.0

- Fall 2019 Software Engineering (COSC 340)
62 undergraduates, 3.9/5.0
- Spring 2019 Human-Centric Software Engineering (COSC 494/594)
18 undergraduates, 10 graduates, 4.8/5.0
- Spring 2019 Machine Learning for Software Engineering (COSC 493)
4 undergraduates
- Spring 2019 CPU Emulation (COSC 493)
5 undergraduates
- Fall 2018 Software Engineering (COSC 340)
68 undergraduates, 4.7/5.0
- Fall 2016 Operating Systems (COMP 4270)
37 undergraduates, 4.5/5.0

Guest Lecturer

- Spring 2021 Data Structures and Algorithms II (COSC 302)
- Spring 2019 Junior Seminar (ECE 395)
 - Fall 2018 Senior Design Practicum (ECE/COSC 402)
 - Fall 2018 Senior Design Theory (ECE/COSC 401)
- Fall 2013, 2014 Information Retrieval and Web Search (COMP 7130)

Teaching Assistant

- Fall 2012 Discrete Structures (COMP 2700)

Mentorship

Postdoctoral Researchers

- 2020–present Rhema Linder (co-mentored with Dr. Alex Williams)

Graduate Students as Chair

- present Benjamin Klein, PhD
- present Adam Tutko, PhD
 - Tennessee Fellowship for Graduate Excellence
- present Dylan Lee, PhD
 - 2021 EECS Outstanding Graduate Teaching Assistant
- present Julian Ball, MS
- present Aiden Rutter, MS
- present Damian Seals, MS
 - 2021 Joseph Connor, PhD (co-advised with Dr. Max Schuchard)
 - Dissertation: *Improved Architectures for Secure Intra-Process Isolation*
 - First position: Research Scientist at Facebook

- 2020 Ethan Hicks, MS
- 2020 Alan Grant, MS
 - Tennessee Fellowship for Graduate Excellence

Graduate Students as Committee Member

- present Prachi Patel, MS
- present Ruiqi Shen, PhD (Informatics, New Jersey Institute of Technology)
 - 2020 Andrey Karnauch, MS
 - 2020 Dakota Sanders, MS
 - 2020 Pengxiang Xu, MS
 - 2020 Tapajit Dey, PhD
 - 2019 Rayhan Hossain, MS

Undergraduate Students

- 2021–present Cade Brown
 - 2020–2021 Aiden Rutter
 - 2020–2021 Jonathan Bryan
 - 2019–2021 Benjamin Klein
 - 2020 Julian Ball
 - 2020 Zackary Strickland
 - 2019 Jacob Rutherford
 - Tickle Graduate Fellowship (offered)
 - 2019 Thomas Keyes
 - 2018–2019 Hayden Coffey
 - 2018–2019 Adam Short
 - 2019 EECS Outstanding Undergraduate Teaching Assistant
 - 2018 Joshua Dunkley
 - 2018 Kristina Bridgwater
 - 2016–2017 Kathryn Bridson, University of Memphis
 - 2013–2015 Maria Luong, University of Memphis

Service

- 2022 Program Committee, IEEE VL/HCC
- 2021–2022 Coach, Interdisciplinary Senior Design
 - 2021 Search Committee, EECS IT
 - 2020 Panelist, Graduate Consortium, IEEE VL/HCC
 - 2020 Posters Co-Chair, IEEE VL/HCC
 - 2020 Judge, Student Research Competition, ACM/IEEE ICSE

- 2020 Program Committee, SEIS Track, ACM/IEEE ICSE
- 2019–Present Faculty Advisor, Local ACM Chapter
- 2019–2020 CS101 Committee
- 2019 Panelist, Grant Proposal Review Panel, NSF
- 2019 Program Committee, Industry Track, IEEE ICSME
- 2019 Program Committee, Artifacts, IEEE ICSME
- 2019 Program Committee, Late Breaking Ideas, IEEE ICSME
- 2019 Program Committee, IEEE VL/HCC
- 2019 Peer Teaching Evaluation Committee
- 2019 Organizer, New Faculty Symposium, ACM ICSE
- 2019 Publicity & Social Media Chair, IEEE VL/HCC
- 2018 Judge, Student Research Competition, ACM ESEC/FSE
- 2018 Program Committee, ACM PLATEAU
- 2018 Mentor, Undergraduate Senior Capstone
- 2017 Publications Chair, IEEE VL/HCC
- 2015–2017 President, CS Graduate Student Association
- 2015–2016 CS Faculty Search Committee
- 2014–2016 Graduate Recruitment Fair
- 2015 Mentor, National Society of Black Engineers Regional Conference
- 2015 Student Volunteer, VL/HCC
- 2013, 2014 CS Open House for Middle/High School Students
- 2013 CS Graduate Program Review Committee

Reviewing

- 2021 TOCHI
- 2021 IEEE Open Journal of the Computer Society
- 2021 ACM Computing Surveys
- 2019, 2020 ACM SIGCSE
- 2019, 2020 JSS
- 2019, 2020 IEEE TSE
- 2019, 2020, 2021 IEEE Software
- 2019, 2021 ACM UIST
- 2018–2022 ACM CHI
- 2018, 2019 ACM TOCE
- 2017, 2018 IEEE VL/HCC, Showpieces

Sub-Reviewing

2018 IEEE/ACM ICPC
2014–2018 ACM CHI
2014–2018 IEEE VL/HCC
2014 ACM DIS