

Earl W. Huff, Jr.

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EDUCATION

Ph.D., Human-Centered Computing, Clemson University, Expected 2022

Advisor: Dr. Julian Brinkley

M.S., Computer Science, Rowan University, 2013

B.S., Computer Science, Rowan University, 2011

Specializations: Artificial Intelligence, Information Technology, Software Engineering,
Programming Languages and Compilers

RESEARCH INTERESTS

Current Research

Accessible tools and curricula in K-12 computing education for blind or visually impaired students

Research Areas

Human-computer interaction, user experience, accessibility, computer science education, broadening participation in computing

PUBLICATIONS

Peer-Reviewed Journal Articles

Cummings, R. T., **Huff, E. W.**, Mack, N. A., Womack, K., Reid, A., Ghoram, B., Gosha, K., Gilbert, J. E. (2020). An Exploration of Black Students Interacting with Computing College and Career Readiness Vlog Commentary Social Media Influencers. *Computing in Science & Engineering*, vol. 22, no. 5, pp. 29-40, 1 Sept.-Oct. 2020, doi: 10.1109/MCSE.2020.3005635.

Brinkley, J., **Huff Jr, E. W.**, Posadas, B., Woodward, J., Daily, S. B., & Gilbert, J. E. (2020). Exploring the Needs, Preferences, and Concerns of Persons with Visual Impairments Regarding Autonomous Vehicles. *ACM Transactions on Accessible Computing (TACCESS)*, 13(1), 1-34.

Huff Jr, E. W., & Brinkley, J. (2020). Ridesharing Drivers and Persons with Disabilities. *The Journal on Technology and Persons with Disabilities*, 160.

Peer-Reviewed Conference Papers

Huff Jr, E. W., Boateng, K., Moster, M., Rodeghero, P., & Brinkley, J. (2020). Exploring the Perspectives of Teachers of the Visually Impaired Regarding Accessible K12 Computing Education. *In Proceedings of The 52nd ACM Technical Symposium on Computer Science Education (SIGCSE'21), March 13- March 20, 2021, Virtual.* ACM, New York, NY, USA. [To Appear]

Brinkley, J., **Huff Jr, E. W.**, & Boateng, K. (2020). Tough but Effective: Exploring the use of Remote Participatory Design in an Inclusive Design Course Through Student Reflections. *In Proceedings of The 52nd ACM Technical Symposium on Computer Science Education (SIGCSE'21), March 13- March 20, 2021, Virtual.* ACM, New York, NY, USA. [To Appear]

Huff Jr., E., Boateng, K., S., Moster, M., Rodeghero, P. & Brinkley, J. (2020). Examining The Work Experience of Programmers with Visual Impairments. *Proceedings of International Conference on Software Maintenance and Evolution.* [Acceptance Rate: 37%].

Gluck, A., Boateng, K., **Huff, E. W.**, & Brinkley, J. (2020, September). Putting Older Adults in the Driver Seat: Using User Enactment to Explore the Design of a Shared Autonomous Vehicle. *In 12th International Conference on Automotive User Interfaces and Interactive Vehicular Applications* (pp. 291-300).

Huff, E., Lucaites, K., Roberts, A., & Brinkley, J. (2020). Participatory Design in the Classroom: Exploring the Design of An Autonomous Vehicle Human-Machine Interface with a Visually Impaired Co-Designer. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* [To Appear]

Gluck, A., **Huff, E.**, Zhang, M. & Brinkley, J. (2020). Lights, Camera, Autonomy! Exploring the Opinions of Older Adults Regarding Autonomous Vehicles Through Enactment. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* [To Appear]

Brinkley, J , & **Huff, E.** (2020). Inclusion by Design: A 75-Minute Crash Course on Accessible Design. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* [To Appear]

Huff Jr, E. W., DellaMaria, N., Posadas, B., & Brinkley, J. (2019). Am I Too Old to Drive?: Opinions of Older Adults on Self-Driving Vehicles. *In The 21st International ACM SIGACCESS Conference on Computers and Accessibility* (pp. 500-509). ACM. [Acceptance rate: 26%]

Gosha, K., Kannan, V., Morgan, L., & **Huff Jr., E.W.**. (2019). Strategic Partnerships to Enhance Data Structures and Algorithms Instruction at HBCUs. *In 2019 ACM Southeast Conference (ACMSE 2019), April 18-20, 2019, Kennesaw, GA, USA.* ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3299815.3314457>

Huff, E. W., Nias, J., Cummings, R., Mack, N. A., & Gosha, K. (2019, July). Atlanta Code Warriors: A CS Engagement Pilot Initiative. In *International Conference on Human-Computer Interaction* (pp. 184-191). Springer, Cham. [Acceptance rate: 29%]

Cummings, R., **Huff, E. W.**, Mack, N.A., Womack, K., Reid, A., Ghoram, B., Gilbert, J.E, & Gosha, K. (2019). Vlog Commentary YouTube Influencers as Effective Advisors in College and Career Readiness for Minorities in Computing: An Exploratory Study. *2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT'19)* [***Distinguished Paper Award***]

Mack, N. A., Cummings, R., **Huff, E. W.**, Gosha, K., & Gilbert, J. E. (2019, July). Exploring the Needs and Preferences of Underrepresented Minority Students for an Intelligent Virtual Mentoring System. In *International Conference on Human-Computer Interaction* (pp. 213-221). Springer, Cham. [Acceptance rate: 29%]

Huff, E. W., Mack, N. A., Cummings, R., Womack, K., Gosha, K., & Gilbert, J. E. (2019). Evaluating the Usability of Pervasive Conversational User Interfaces for Virtual Mentoring. In *International Conference on Human-Computer Interaction* (pp. 80-98). Springer, Cham. [Acceptance rate: 29%]

Mack, A., **Huff, E. W.**, Cummings, R., Womack, K., Dowling, N., & Gosha, K. (2019). From Midshipmen to Cyber Pros: Training Minority Naval Reserve Officer Training Corp Students for Cybersecurity. In *Proceedings of The 50th ACM Technical Symposium on Computer Science Education (SIGCSE'19), February 27- March 2, 2019, Minneapolis, MN, USA*. ACM, New York, NY, USA, 5 pages. [Acceptance rate: 32%]

Julian, L., Gosha, K., and **Huff, E. W.**. (2018). The Development of a Conversational Agent Mentor Interface Using Short Message Service (SMS). In *SIGMIS-CPR '18: 2018 Computers and People Research Conference, June 18–20, 2018, Buffalo-Niagara Falls, NY, USA*. ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3209626.3209721>

Huff, E. W., & Gosha, K. (2018). Awareness and Readiness for Graduate School of African American Male Computer Science Students. *2018 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT'18)* [Acceptance rate: 30%]

Hussey, R., **Huff, E.**, Shinwari, Z., & Hnatyshin, V. (2013, July). *A Comparative Study of Proactive and Reactive Geographical Routing Protocols for MANET*. In Proc. of the 12th International Conference on Wireless Networks (ICWN'13).

Extended Abstracts/Posters

Huff, E., Zhang, M., & Brinkley, J. (2020). Enacting into Reality: Using User Enactment to Explore the Future of Autonomous Vehicle Design. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* [To Appear]

Huff, E., Boateng, K., & Brinkley, J. (2020). Dear Diary: Conducting Studies with Participants with Visual Impairments. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* [To Appear]

Huff Jr, E. W., Stigall, B., Brinkley, J., Pak, R., & Caine, K. (2020, April). Can Computer-Generated Speech Have an Age?. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems Extended Abstracts* (pp. 1-7).

Gosha, K., and **Huff, E. W.,** and Scott, J. (2018). Computing Career Exploration For Urban African American Students using Embodied Conversational Agents: Poster Abstract. In *SIGMIS-CPR '18: 2018 Computers and People Research Conference, June 18–20, 2018, Buffalo-Niagara Falls, NY, USA*. ACM, New York, NY, USA, 1 page.
<https://doi.org/10.1145/3209626.3209731>

Workshops

Huff Jr, E. W., Castro, F., Jayathritha, G., Jimenez, Y., Kong, M., Melo, N., Solomon, A., & Tsan, J. (2020). Going Through A Process of Whitening: Student Experiences Within Computer Science Education. In *Proceedings of The 52nd ACM Technical Symposium on Computer Science Education (SIGCSE'21), March 13- March 20, 2021, Virtual*. ACM, New York, NY, USA. [To Appear]

RESEARCH EXPERIENCE

Graduate Research Assistant, 2019-present

School of Computing, Clemson University

- Research assistant to Dr. Julian Brinkley in the Design and Research of In-Vehicle Experiences (DRIVE) Lab, conducting research at the intersection of transportation, mobile technology, and accessibility.
- Contributing to research in the accessibility of emerging automated vehicle technology for persons with disabilities and older adults.
- Contributing to the development of an autonomous driving simulator for research purposes.
- Use qualitative methods such as focus groups, interviews, user enactment, and diary studies for user needs analysis.
- Work with tools such as MAXQDA for qualitative data analysis.

Research Scientist, 2018

Department of Computer Science, Morehouse College

- Researcher to Dr. Kinnis Gosha in the Culturally Relevant Computing (CRC) Lab.

- Contributed to conducting research in broadening participation in computing through virtual mentoring.
- Contributed to the design, development, and user experience evaluation of a multi-modal, cross platform virtual mentoring conversational agent for use with minority undergraduate computer science students.
- Conducted usability tests to evaluate conversational user interfaces.
- Used qualitative methods such as focus groups and interviews for user needs analysis.
- Used qualitative and quantitative data analysis for analyzing usability and user experience data.

Graduate Research Assistant, 2016-2017

Department of Computer Science, North Carolina State University

- Research assistant for Dr. Tiffany Barnes in the Game2Learn Lab, conducting research in computer science education, broadening participation in computing, and serious games for education.
- Contributed to research in developing a social networking game to help first-time conference attendees meet and network with other attendees.

TEACHING EXPERIENCE

Graduate Teaching Assistant, 2018

School of Computing, Clemson University

- Teaching assistant for two iterations of Software Development Foundations
- As graduate lead over a total of 5 programming lab sections, I conducted the lab lectures, providing instructions and aid to students during the allotted time.
- I held office hours for students seeking help with programming projects.
- I assisted the course instructor in grading exams, and independently graded quizzes and programming projects.

Adjunct Instructor, 2017

Department of Computer Science, Elon University

- Taught two sections of Computer Science I, an introductory course for teaching the basic foundations of computer programming, in the Java programming language.
- Topics taught in the course included coding syntax and best practices, basic data types, variables, methods, classes, conditionals, and loops.

Instructor, 2017

Duke University Talent Identification Program

- Taught two three-week sessions of Web Application Development to 10-12-year-old students.
- Developed the curriculum to teach full-stack web development using HTML, CSS, JavaScript, PHP, and MySQL for students to design and build their own web application, which they demoed at the conclusion of the course.

Graduate Teaching Assistant, 2017

Department of Computer Science, North Carolina State University

- Teaching assistant for one section of Software Engineering.
- As graduate lead over 3 programming lab sections, I conducted the lab lectures, providing instructions and aid to students during the allotted time.
- I held office hours for students seeking help with programming projects.
- I assisted the course instructor in grading exams, and independently graded programming projects.

Adjunct Instructor, 2014-2016

Computer Graphics Department, Camden County College

- Taught one iteration of Web Design I and two sessions of Web Design II.
- In Web Design I, I focused on teaching the fundamentals of designing webpages in terms of structure, planning, the semantics of HTML tags, and incorporating media.

Adjunct Instructor, 2016

Computer Science Department, Rowan University

- Taught one section of Object-Oriented Programming and Data Abstraction (OOPDA) and one section of Introduction to Scientific Programming.
- In OOPDA, I taught the advanced topics in programming in Java, including inheritance, polymorphism, exception handling, File I/O, generics, GUI building, and UML diagramming.
- In Introduction to Scientific Programming, I taught programming from more of an algorithmic approach to problem solving using Java. Students learned about using code to build small computer programs in a step-by-step procedure that can be applied conceptually to other scientific fields.

CONFERENCE PRESENTATIONS

Panels

“Writing and Publishing,” The National Society of Blacks in Computing Conference, Atlanta, GA, Aug 2019

“Publish and Flourish,” The National Society of Blacks in Computing Conference, New Orleans, LA, Aug 2018

Oral

“Participatory Design in the Classroom: Exploring the Design of An Autonomous Vehicle Human-Machine Interface with a Visually Impaired Co-Designer,” The Annual Meeting of the Human Factors and Ergonomics Society (Virtual), October 2020

“Examining the Workplace Experience of Programmers with Visual Impairments,” IEEE Conference on Software Maintenance and Evolution (Virtual), September 2020

“Am I Too Old To Drive?: Opinions of Older Adults on Self-Driving Vehicles”, ACM International SIGACCESS Conference on Computing and Accessibility, October 2019

“Evaluating the Usability of Pervasive Conversational User Interfaces for Virtual Mentoring”, International Conference on Human-Computer Interaction, July 2019

“The Development of a Conversational Agent Mentor Interface Using Short Message Service”, Computers and People Research Conference, Jun 2018

“Awareness and Readiness for Graduate School of African American Male Computer Science Students”, RESPECT Conference, Feb 2018

“Developing and Deploying a Peer Mentoring Program for a Computing Department,” STARS Celebration, Atlanta, GA, Sept 2017

“Starting and Maintaining a Peer Mentoring Program”, STARS Celebration + RESPECT Conference, Atlanta, Ga, Aug 2016

HONORS AND AWARDS

SIGCHI Student Travel Grant, 2019

NextProf Pathfinder Workshop Travel Grant, University of Michigan, 2019

Clemson University Graduate Student Travel Grant, 2019

National Society of Blacks in Computing Conference Scholarship, 2018, 2017

Richard Tapia Conference Scholarship, 2017

SERVICE

Workshops

“Writing Technical Papers in LaTeX”, Computer Science Department, Morehouse College, Atlanta, GA, June 2019

Invited Talks

“Human-Centered Computing: Understanding What It Is and Its Impact on Society” (virtual talk), School of Library and Information Sciences, North Carolina Central University, Durham, NC, November 2020

“Learning To Code Without Vision: The Proficiencies of High School Students with Visual Impairments In Programming” (virtual talk), School of Information, Rochester Institute of Technology, Rochester, NY, September 2020

“Human-Centered Computing and Its Impact on Technology Design” (virtual talk), School of Library and Information Sciences, North Carolina Central University, Durham, NC, March 2020

ACM CHI Conference on Human Factors in Computing Systems

Assistant to Papers Chairs, Program Committee, 2020

National Society of Blacks in Computing

Graduate Track Chair, 2019

Scholarship Selection Committee, 2019

Research on Equity and Sustained Participation in Engineering, Computing, and Technology (REPSECT) Conference

Program Committee Member, 2019

Session Chair, 2019

Clemson University Graduate Elections Committee, Graduate Student Government

Committee Member, 2018

NC State University STARS Computing Corps

Evaluation Assistant, Aug 2016 to May 2017

NC State Computer Science Undergraduate Research Symposium

Host/MC, Coordinator, Fall 2016 to Spring 2017

MEMBERSHIPS

Human Factors and Ergonomics Society, Clemson University Chapter

National Member, 2020-present

Member – Clemson University Chapter, 2018-2019

Black Graduate Students Association, Clemson University Chapter

Vice President, 2019-2020

Liaison to Clemson University Commission on the Black Experience, 2020-present

Member, 2018-present

Clemson University Commission on the Black Experience

Graduate Student Commissioner, 2020-present

Association for Computing Machinery (ACM)

Special Interest Groups (SIGS):

- Computer Science Education (SIGCSE)
- Computer-Human Interaction (SIGCHI)
- Accessible Computing (SIGACCESS)

TECHNICAL SKILLS

Programming languages: Python, Java, JavaScript, C#

Markup/Styling: HTML, CSS

Text Editors/IDEs: NetBeans, IntelliJ, Visual Studio, Visual Studio Code, Atom, Sublime Text, Notepad++

Data Collection/Analysis Platform/Languages: R, R Studio, MAXQDA, Jupyter Notebook, Qualtrics

User Research/User Experience: Interviews, Focus Groups, Diary Study, Storyboarding, Wireframing, Prototyping, Affinity Diagramming, Usability testing

LANGUAGES

English: Fluent