

Darren 'Ren' Butler

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SUMMARY

Human-Computer Interaction / Computing Education / Accessibility / Artificial Intelligence

I make pursuing STEM education more accessible and motivating for underserved students. My notable projects include: 1) predicting student achievement using data traces in digital learning platforms in rural Uganda; 2) developing AI workforce training to support autistic adults' motivations in education and employment; 3) building containerized programming environments with AI tutors for scientific programming courses.

EDUCATION

PhD in Human-Computer Interaction - Carnegie Mellon University, Pittsburgh, PA, USA | August 2022 – June 2027

Dissertation: Preparing Autistic Students for the AI Workforce

M.S. in Human-Computer Interaction - Carnegie Mellon University, Pittsburgh, PA, USA | August 2022 – June 2026

Sample Coursework: Interactive Data Science; Data Science for Psychology and Neuroscience; Applied Research Methods, Experimental Design and Analysis; Education Technology Design, Computer Science Pedagogy

B.S. in Computer Science - Philander Smith University, Little Rock, Arkansas, USA | August 2019 – May 2022

GPA: 3.89/4.0

SKILLS

Programming Languages: Python, R, JavaScript, Java, C++

Tools and Frameworks: Tidyverse, ggplot2, NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Altair, Tableau, React

UI/UX: Figma, Miro, Interviews, Focus Groups, Surveys

Cloud Computing: Google Cloud; Azure

Source Control: Git; GitHub

Finance: Financial Modeling with Excel, Profit and Loss, Balance Sheets, Transaction Comps, and Investment Memos

HONORS & AWARDS

- **ACM Student Research Competition 3rd Place**, Tapia Conference | 2026
- **ACM AI Leadership Summit Future Leader** | 2026
- **FOCUS Fellow (\$600)**, Georgia Tech | 2025
- **Ethical AI in Education Fellow (\$5,000)**, Learnest | 2024
- **Connecting the EdTech Research Ecosystem Scholar**, Jacobs Foundation | 2022
- **Collegiate 100 Scholarship (\$2,000)**, 100 Black Men of America | 2022
- **Machine Learning Graduate School Prep Workshop Scholarship**, University of Washington | 2021
- **CS Research Mentorship Program Fellow (CSRMP)**, Google | 2021
- **Tapia Celebration of Diversity in Computing Conference Scholarship (\$600)** | 2021
- **HBCU Innovation Showcase Winner (\$2,000)**, American Association for the Advancement of Science | 2020
- **HBCU Innovation Summit Fellow**, United Negro College Fund | 2020
- **REACH Program Scholarship (\$600)**, University of Southern California | 2020
- **Venture Capital Fellow**, HBCUvc | 2019
- **Summer School on Formal Techniques Scholarship (\$600)**, SRI International | 2019
- **Thomas Mason Scholarship (\$50,000)**, Philander Smith College | 2019

National Merit Scholarship (\$60,000), Bahamas Ministry of Education | 2019

PUBLICATIONS

Journals

1. Wilson-Ihejirika, D., **Butler, D.**, Zephirin, T. et al. **Black Post-Secondary Student Experiences in STEMM Across the US and Canada: A Review of the Literature**. Can. J. Sci. Math. Techn. Educ. 26, 32 (2026).
<https://doi.org/10.1007/s42330-026-00444-x>

Conferences

1. Boyer, D. M., Begel, A., Mishra, T., Asadi, S., Kubina, R., **Butler, R.** (2026, June). **Inclusive AI Education Supporting Neurodivergent Learners**. Paper presented at 2026 ASEE Annual Conference & Exposition, Charlotte, North Carolina. 10.18260/1-2--59960

2. Boyer, D. M., **Butler, R.**, Begel, A., Asadi, S., & Mishra, T., Kubina, R. (2026, June). ***Social-Emotional Learning in Neurodiversity-Centered Computing Education***. Paper presented at the 2026 ASEE Annual Conference & Exposition, Charlotte, North Carolina. <https://peer.asee.org/60524>
3. **Darren Butler**. 2025. ***Fostering Psychological Safety for Interpersonal Learning in Neurodiverse Software Teams***. In Proceedings of the 2025 Conference on Research on Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT 2025). Association for Computing Machinery, New York, NY, USA, 385–386. <https://doi.org/10.1145/3704637.3734749>
4. **Darren Butler**. 2025. ***Fostering Psychological Safety for Learning in Neurodiverse Software Teams***. In Proceedings of the 2025 ACM Conference on International Computing Education Research V.2 (ICER '25). Association for Computing Machinery, New York, NY, USA, 52–54. <https://doi.org/10.1145/3702653.3744295>
5. JiWoong Jang, **Ren Butler**, Rory McDaniel, Aidan San, D. Matthew Boyer, Somayeh Asadi, Richard Kubina Jr., Taniya Mishra, and Andrew Begel. 2025. ***Preparing Autistic Students for the AI Workforce***. In Proceedings of the 33rd ACM International Conference on the Foundations of Software Engineering (FSE Companion '25). Association for Computing Machinery, New York, NY, USA, 760–771. <https://doi.org/10.1145/3696630.3727233>
6. **Butler, R.**, Boyer, D. M., Begel, A., Kubina, R., Asadi, S., Mishra, T., & Jang, J. (2025, June). ***Navigating the Social-Emotional Landscape of Neurodiversity in AI Education***. Paper presented at 2025 ASEE Annual Conference & Exposition, Montreal, Quebec, Canada. 10.18260/1-2--56996
7. Begel, A., Boyer, D. M., Kubina, R., Asadi, S., Mishra, T., **Butler, R.**, & Jang, J. (2025, June). ***Investigating Instructors' Experiences in a Neurodiversity-Focused AI Training Program***. Paper presented at 2025 ASEE Annual Conference & Exposition, Montreal, Quebec, Canada. 10.18260/1-2--56887
8. **Darren Butler**, Conrad Borchers, Michael W. Asher, Yongmin Lee, Sonya Karnataki, Sameeksha Dangi, Samyukta Athreya, John Stamper, Amy Ogan, and Paulo F. Carvalho. 2025. ***Does the Doer Effect Exist Beyond WEIRD Populations? Toward Analytics in Radio and Phone-Based Learning***. In LAK25: The 15th International Learning Analytics and Knowledge Conference (LAK 2025), March 03–07, 2025, Dublin, Ireland. ACM, New York, NY, USA, 10 pages. <https://doi.org/10.1145/3706468.3706505>
9. Christine Kwon, **Darren Butler**, Judith Odili Uchidiuno, John Stamper, and Amy Ogan. 2024. ***Investigating Demographics and Motivation in Engineering Education Using Radio and Phone-Based Educational Technologies***. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (CHI '24). Association for Computing Machinery, New York, NY, USA, Article 664, 1–15. <https://doi.org/10.1145/3613904.3642221>

Workshops

1. **Darren (Ren) Butler**, JiWoong (Joon) Jang, Ezra Awumey, Mia Yancey, and Andrew Begel. 2025. ***A.I.bility: Eliciting Neurodivergent Funds of Knowledge Through Co-Designing DIY Assistive Technology***. In Workshop on Teaching Accessibility Across Disciplines: Perspectives from ADA Title II at ASSSETS'25, <https://sites.google.com/view/teach-a11y-title-ii>

Posters

- **Butler, D.**, & Begel, A. (2026). ***Computing Educator Perspectives on Supporting Autistic Student Mental Health with Social-Emotional Learning***. US Research Software Engineering Conference 2025 (USRSE'25), Philadelphia, PA. Zenodo.
- **Butler, D.**, & Begel, A. (2025). ***Building SAFER-AI: Safety and Accessibility in Fundamental Engineering for Responsible AI***. US Research Software Engineering Conference 2025 (USRSE'25), Philadelphia, PA. Zenodo. <https://doi.org/10.5281/zenodo.17268161>
- “***Da Give Bloods: Supporting Blood Donation Through AI (Usability)***,” ***Arkansas STEM Posters at the Capitol***, March 2021
- “***Da Give Bloods: Supporting Blood Donation Through AI (System Design)***,” ***Arkansas STEM Posters at the Capitol***, March 2021
- “***ThyFz (Teefz) Educational Mobile App***,” ***AAAS HBCU Innovation Showcase***, Washington, DC, September 2020
- “***Beyond Right or Wrong: Designing User-Friendly Autograders from Instructors' Model of Feedback***,” ***Undergraduate Research & Service Scholar Celebratory Symposium***, University of Delaware, August 2019

RESEARCH EXPERIENCE

Graduate Researcher - Carnegie Mellon University | October 2024 - Present

- Built web-based learning tools for autistic community college students using Jupyter Notebooks, Hugging Face, AWS, and Docker to support LLM access, technical training, and communication skill development.
- Analyzed platform usage, activity, and performance data from 10,000+ students in rural Uganda using Pandas, scikit-learn, and R to identify engagement trends and inform feature prioritization.
- Developed and deployed a React.js dashboard for teacher training in Côte d'Ivoire, integrating a FastAPI backend, SQL database, authentication, and AI chatbot to support end-to-end Q&A among teachers and NGO workers

Undergraduate Researcher - Philander Smith University | August 2019 - May 2022

- Built a data pipeline to collect and process U.S. Census Bureau API data using Pandas and visualized flood vulnerability in ArcGIS for The Opportunity Project, a U.S. Census Bureau open-data technology sprint.
- Built an AI conversational agent using Google Dialogflow and Google Assistant for the HBCU Innovation Showcase; project

won second place in competition.

Undergraduate Researcher - University of Delaware | June 2019 – August 2019

- Designed a framework for improving the design of autograding tools by interviewing 7 computer science instructors on their experiences with autograders and instructional design

TEACHING & MENTORING EXPERIENCE

Instructor - Preparing Autistic Students for the AI Workforce | August 2025 – August 2026

- Developed foundational Python programming skills and the ability to create interactive applications
- Utilized LLMs for various tasks;
- Built projects utilizing APIs and libraries, integrating LLMs into code;
- Explained the ethical implications of AI and machine learning, particularly in terms of bias and societal impact
- Applied prompt engineering to interact with LLMs more effectively;
- Compared and evaluated different LLM models, understanding performance and cost trade-offs.

Teaching Assistant - User-Centered Research and Evaluation | August 2027 - December 2027

- Served as TA for User-Centered Research & Evaluation, supporting graduate and undergraduate sections through lectures, recitations, office hours, and Slack.
- Graded weekly project-based assignments consistently and collaboratively to ensure rubric alignment across sections.
- Helped students synthesize observational, interview, usability, and mixed-methods research into stakeholder-ready insights.
- Received positive student feedback for being approachable, helpful, and clear in explaining expectations and grading.

Graduate Research Mentor | August 2023 - Present

- Mentored 10 undergraduates in formal research programs in HCI, Computing Education, and Accessibility
- Completed formal mentor training through Computing Research Association's UR2PHD program

Cloud Engineering Tutor - Google's Tech Equity Collective | July 2021 – June 2022

- Tutored a 26-hour Google Cloud curriculum covering IAM, networking, compute, storage, monitoring, and security for 18 professionals preparing for certification.
- Led hands-on labs, debugging sessions, and demos across Compute Engine, GKE, Cloud SQL, BigQuery, VPCs, Cloud Logging, and Cloud Monitoring to reinforce cloud infrastructure and platform engineering concepts.
- Guided learners through cloud environment setup, deployment, troubleshooting, and least-privilege access controls in Google Cloud; supported several participants who later secured cloud engineering roles.

Instructor - Python for Video Game Development, Caribbean Science Foundation | July 2023 – August 2023

- Taught computer programming and entrepreneurship in an intensive five-week enrichment residential summer program for 19 Caribbean high school students, modeled after the MITES program at MIT
- Developed project-based and mastery-based computer programming curriculum
- Mentored students and advised them on careers and college programs in STEM

Instructor - Software Engineering, Bahamas Engineering Technology Advancement | September 2019 - Present

- Designed and taught a curriculum for 90 middle school students in web programming, user-centered design, and data science to foster interest in STEM careers

Tech Fellow - Android Cohort, CodePath | September 2020 - May 2021

Teaching Assistant - Programming with Scratch, Philander Smith College | January 2020 - May 2020

INDUSTRY EXPERIENCE

Private Equity Intern - Education Technology Team, Vector Capital | May 2022 – August 2022

- Identified a merger and acquisition candidate with \$48 million projected earnings by analyzing financial data of 350 companies from Capital IQ and PitchBook, and forecasting finances
- Created a market map of the top 58 competitors into 6 submarkets by researching market trends with 14 industry experts

Information Technology Services Intern - Deloitte | June 2021 – August 2021

- Developed a business case to increase the user experience of 460,000 employees using the Configuration Management Database to maintain over 2000 hardware and software assets by leveraging enterprise design thinking techniques (30 interviews, personas, stakeholder mapping)
- Developed a business case for adopting Virtual and Augmented Reality to prepare the firm for the Future of Work and remote collaboration.

INVITED TALKS & GUEST LECTURES

- Making Interviewing Accessible, User Research Working Group, The United States Research Software Engineer Association, Apr. 16, 2026. doi: 10.5281/zenodo.19616898.
- Preparing Autistic Students for the AI Workforce, Neurowrx, Calgary, Canada, October 2025
- Preparing Autistic Students for the AI Workforce, College Autism Summit, Pittsburgh, PA, U.S., October 2025

LEADERSHIP, SERVICE, & OUTREACH

Founding Club Lead - Google Developer Student Club at Philander Smith College | August 2020 – May 2022

- Facilitated 15 cloud computing training sessions for students, resulting in an average satisfactory rating of 83%
- Managed a core team of 7 students, resulting in the school's first Solution Challenge Submission

Student Ambassador - Microsoft Learn | November 2019 - May 2022

- Facilitated technical workshops in cloud computing and web development technologies
- Collaborated with Microsoft Cloud Advocates to create coding and Azure tutorials

International Committee Chair - National Society of Black Engineers | May 2019 – January 2021

- Developed a roadmap of yearly targets and managed key stakeholders for the International Affiliates Program
- Coordinated 10+ programs with student leaders from North America and Africa
- Managed 7 student leaders who coordinate programs and communications across LatAm/Central America and Africa
- Researched and identified potential chapters to charter internationally to increase membership