Curtis C. Cain, Ph.D.

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PROFESSOR | RESEACHER | LEADER

PROFESSIONAL SUMMARY

Enthusiastic, multifaceted, and result-driven academician with years of rigorous work experience in teaching, mentoring, organizing scholastic activities, moderating conferences, developing courses and curricula, and conducting and supervising research for national and international journals. Diligent in researching and developing learning material content for assigned courses within existing frameworks while making modifications in existing curriculum. Unwavering in commitment to students, transforming present potential into future capabilities by raising standards of learning through earned skills. Possesses exemplary instructional, pedagogical, leadership, team-building, and student conflict-resolution abilities leveraging accomplishments earned over an impressive career thus far.

EDUCATION

Doctor of Philosophy (Ph.D.), Information Sciences & Technology | 2016
Dissertation: *Swimming Upstream: Black Males in Information Technology (IT) Higher Education*
Pennsylvania State University, College of Information Sciences and Technology

Master of Science (M.S.), Computer Science | 2010
Thesis: *Social Networking Teaching Tools: A Computer Supported Collaborative Interactive Learning Environment for K-12*
Auburn University, Samuel Ginn College of Engineering, Department of Computer Science and Software Engineering

Bachelor of Science (B.S.), Information Systems Engineering | 2008
Project: *Integration of Mobile Computing in Automotive Applications*
Major: Information Systems Engineering; ***Minor:*** Mathematics
Johnson C. Smith University, College of Computer Science and Engineering

EMPLOYMENT HISTORY

Assistant Professor   **2016 – Present**
Howard University   Washington, D.C.
School of Business, Department of Information Systems and Supply Chain Management

Affiliate Professor   **2017 – Present**
Howard University   Washington, D.C.
College of Architecture and Engineering, Department of Electrical Engineering and Computer Science

KEY ROLES

- Teach Information Technology modules/subjects to undergraduate and graduate students through lectures, advisory sessions, group discussions, practical execution, competitions, and tutorials.

- Adapt and individualize engaging lesson plans, course materials assessments, handouts, exercises, and conduct examinations to expedite student intelligence, create new horizons, and encourage growth in a caring environment.

- Centralize resources and protocols for transition into virtual classes to maintain learning objectives and student inclusion for uninterrupted learning.

- Conduct scholarly and research programs, arrange one-on-one student advisory sessions, and support various student research projects to recognize and facilitate academic progress.

- Apply appropriate research methodologies and analyze results/conclusions to formulate new concepts and ideas.

- Facilitate faculty meetings, discussion sessions, and seminars regarding curriculum design and development.

- Engage in diverse professional development sessions to incorporate common core standards and enforce appropriate and effective methodologies.

RESEARCH SUMMARY

Interest in Computer Science Education and Broadening Participation in Computing to analyze barriers to Black people's inclusion in traditionally white fields of computing and engineering. Research goal is to understand and identify the influence of complex cultural networks of diversity exclusion that affect minority groups in computing, or those wishing to enter computing fields, and how these groups can sustain success in the field. Approaches invoke/apply theory—such as expertise in social inclusion, gender and race theory, and interpretive epistemology—to investigate and address these forms of underrepresentation while integrating people, technology, information, policy, and culture to address societal issues.

REFEREED JOURNAL MANUSCRIPTS

Cain, C.C. (2022). Black Men in IT: Overcoming Digital Inequality in Pursuit of Career Goals. *The International Journal of Diversity in Education, 22*(2), 1-12. https://doi.org/10.18848/2327-0020/CGP/v22i02/1-12

Cain, C.C. and Trauth, E.M. (2022). The Pursuit of Tech Degrees for Black Men in the United States: Belonging and Happiness, an Individual Differences Study. *Technology in Society, 69,* 101835. https://doi.org/10.1016/j.techsoc.2021.101835

Cain, C.C., Morgan Bryant, A.J., Buskey, C.D., Myers Ferguson, Y. (2022). Generation Z, Learning Preferences, and Technology: An Academic Technology Framework Based on Enterprise Architecture. *The Journal of the Southern Association for Information Systems, 9*, 1-14. https://doi.org/doi:10.17705/3JSIS.00019

Cain, C. C. (2022). A Shifting Research Agenda: Historically Black Colleges and Universities Must Prepare Students for Careers in Computing, Informatics, and Engineering. *Journal of Information Systems Education*, *33*(1), 41-50. *https://jise.org/Volume33/n1/JISE2022v33n1pp41-50.html*

Cain, C. C. (2021). Establishing a research agenda for broadening participation of Black men in computing, informatics, and engineering. *Technology in Society*, *67*, 101790. https://doi.org/10.1016/j.techsoc.2021.101790

Cain, C. C. (2021). Beyond the IT Artifact—Studying the Underrepresentation of Black Men and Women in IT. *Journal of Global Information Technology Management*, *24*(3), 157–163. https://doi.org/10.1080/1097198X.2021.1954315

Cain, C. C., and Trauth, E. (2017). Black Men in IT: Theorizing an Autoethnography of a Black Man's Journey into IT within the United States of America. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, *48*(2), 35–51. https://doi.org/10.1145/3084179.3084184

Trauth, E. M., Cain, C. C., Joshi, K. D., Kvasny, L., & Booth, K. M. (2016). The Influence of Gender-Ethnic Intersectionality on Gender Stereotypes about IT Skills and Knowledge. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, *47*(3), 9–39. https://doi.org/10.1145/2980783.2980785

1. Cain, C.C. (*In Review*). Black Men in IT? Where? The Case for Studying Black Men in the IT Workforce. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*
2. Cain, C.C. (*In Review*). STEM Education Interventions: Attention Must Be Paid. *ACM Transactions on Computing Education*
3. Morgan Bryant, A.J., Cain, C.C., Trauth, E.M., (Working Paper). Black Lives Matter – Take Two (Working Title). *Communications of the Association for Information Systems*

REFEREED BOOK CHAPTERS

Cain, C.C. (*Forthcoming*). Education and Research Strategies for Addressing the Underrepresentation of Black Men in Computing. *Handbook of Gender & Technology: Environment, Identity, Individual.* Edward Elgar Publishing

REFEREED CONFERENCE PROCEEDINGS

Trauth, E., Bryant, A., Cain, C., Potter, L. E., Quesenberry, J. L., Trauth, S., & van Slyke, C. (2019, June). Addressing Social Inclusion in the IS Field through Theatre. *Proceedings of the 2019 on Computers and People Research Conference*. https://doi.org/10.1145/3322385.3322412

Cain, C.C., Bryant Morgan, A., Buskey, C.D., Washington, G., and Burge, L. (2019). Research Implications of the Tech Exchange: Immersion of Howard University Computer Science and Informatics Students in Silicon Valley. *Proceedings of the 25th Americas Conference on Information Systems,* (Cancun, Mexico). https://aisel.aisnet.org/amcis2019/social_inclusion/social_inclusion/9

Buskey, C.D., Goel, R., and Cain, C.C. (2019). Establishing a framework to Measure Strategic Social Value of Online Engagements: A Model for Determining Social Identity. *Proceedings of the ACM SIGMIS Computers and People Research Conference* (Nashville, TN). https://doi.org/10.1145/3322385.3322404

Cain, C.C., Morgan Bryant, A.J., Buskey, C.D. & Goel, R. (2018). The Role of Tech Corporations at Historically Black Colleges and Universities in American STEM Education. *Proceedings of the 24th Americas Conference on Information Systems (New Orleans, LA).* https://aisel.aisnet.org/amcis2018/SocialInclusion/Presentations/6

Cain, C.C., Morgan Bryant, A.J. & Buskey, C.D. (2018). The Role of Historically Black Colleges and Universities in American STEM Education. *Proceedings of the ACM SIGMIS Computers and People Research Conference (Buffalo, NY).* https://doi.org/10.1145/3209626.3209712

Cain, C.C., Trauth, E.M. (2016). Black Lives Matter: The Journey of a Black IT Scholar. *Proceedings of the ACM SIGMIS Computers and People Research Conference* (Washington, D.C.). **Best Paper Nominee**. https://doi.org/10.1145/2890602.2890623

Cain, C.C. and Trauth, E.M. (2015). Theorizing the Underrepresentation of Black Males in Information Technology (IT). *Proceedings of the 21th Americas Conference on Information Systems* (Puerto Rico). https://aisel.aisnet.org/amcis2015/SocTech/GeneralPresentations/22

Cain, C.C. and Trauth, E.M. (2013). The Underrepresentation of Black Males in IT Higher Education: A Conceptual Framework for Understanding Individual Differences. *Proceedings of the 19th Americas Conference on Information Systems* (Chicago, IL). https://aisel.aisnet.org/amcis2013/SocialTechnicalIssues/RoundTablePresentations/4

Cain, C.C. and Trauth, E.M. (2013). Stereotype Threat: The Case of Black Males in the IT Profession. *Proceedings of the ACM SIGMIS Computers and People Research Conference* (Cincinnati, OH). https://doi.org/10.1145/2487294.2487305

Cain, C.C. and Trauth, E.M. (2012). Black Males in IT Higher Education in The USA: The Digital Divide in the Academic Pipeline Re-visited. *Proceedings of the 18th Americas Conference on Information Systems* (Seattle, WA). https://aisel.aisnet.org/amcis2012/proceedings/SocialIssues/7

Cain, C.C. (2012). Underrepresented Groups in Gender and STEM: The Case of Black Males in CISE. *Proceedings of the ACM SIGMIS Computers and People Research Conference* (Milwaukee, WI). https://doi.org/10.1145/2214091.2214118

Trauth, E.M., Cain, C.C., Joshi, K.D., Kvasny, L., and Booth, K. (2012). Embracing Intersectionality in Gender and IT Career Choice Research. *Proceedings of the ACM SIGMIS Computers and People Research Conference* (Milwaukee, WI, May-June). https://doi.org/10.1145/2214091.2214141

Trauth, E.M., Cain, C.C., Joshi, K.D., Kvasny, L. and Booth, K. (2012). Understanding Underrepresentation in IT through Intersectionality. *Proceedings of the 2012 iConference* (Toronto, CA). https://doi.org/10.1145/2132176.2132184

Cain, C., Seals, C. & Nyagwencha, J. (2010). Social Networking Teaching Tools: A Computer Supported Collaborative Interactive Learning Social Networking Environment for K-12. *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2010* (pp. 1612-1617). Chesapeake, VA: AACE. https://www.learntechlib.org/primary/p/35782/

INVITED PANELS AND WORKSHOPS

Association for Information Science & Technology, Equity, Diversity, and Inclusion Accelerator Session.

[October 2020]

University of Pittsburgh, School of Computing and Information, iSchool Inclusion Institute. **[July 2019]**

CAREER Workshop, National Science Foundation, Computer Information Sciences and Engineering. **[April 2019]**

CUE.NEXT – Envisioning the Future of Computing in Undergraduate Education. **[March 2019]**

University of Pittsburgh, School of Computing and Information, iSchool Inclusion Institute. **[July 2018]**

CAREER Workshop, National Science Foundation, Computer Information Sciences and Engineering. **[April 2018]**

National Science Foundation, Louis Stokes Alliance for Minority Participation, 25th Anniversary Symposium. **[February 2016]**

FUNDED EXTERNAL GRANTS

1.	**HCAI@HU: Building Research Capacity and Future ONR/DOD Workforce Skills In Human-Centered Artificial Intelligence at Howard University,** Howard University PI: Gloria Washington Co-PIs: Bruce Jones, Jeremy Blackstone, Curtis C. Cain, Harry Keeling, Jiang Leo Li, Cynthia Winston Proctor, GiShwan Mance, Regional Hobbs, Danda Rawat, Legand Burge, William Southerland, Moses Garuba, Arlene Maclin Department of Defense Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions Total – $9,000,000	**2022 – 2027**
	This initiative will develop basic theoretical insights and fundamental knowledge about principles, processes, and mechanisms of co-adaptive human-in-the-loop collaboration, and focus on the creation and development of core information technologies that will promote co-adaptive human-computer collaborations in the context of decision-making, increase flexibility and reach of the Naval force through the incorporation of autonomous and disaggregated systems, develop wide-area and force-wide disinformation deception and decoys, transform vast data into timely knowledge, and enable persistent awareness and understanding regardless of the threat. Through collaborative interdisciplinary research on human-machine collaborations involving cognitive and sensorimotor neuroscience, social science, robotics, autonomous systems, computer vision, and interactive computing systems, including augmented reality and virtual reality, the HCAI initiative will focus on advancing Howard's research standing in the scientific community while fostering beneficial faculty and student outreach and technology transfer activities needed for advancing DOD and ONR key priorities including utilizing analytics and artificial intelligence to distill information and data into actionable decisions. This project will help to create a skilled naval workforce that reflects America's diverse society.	
2.	**Overcoming Obstacles, Building Community, and Broadening Participation: A Qualitative Analysis of the Experiences and Career Decisions of Black Men in Computing,** Howard University PI: Curtis C. Cain CAREER, National Science Foundation (Funding Rate < 5%) Total – $695,014	**2021 – 2026**
	The Faculty Early Career Development (CAREER) program is a National Science Foundation-wide activity that offers awards in support of early-career faculty who has the potential to serve as academic role models in research and education, to lead advances in the mission of their department or organization, and to build a foundation for a lifetime of leadership in integrating education and research. This CAREER project aims to examine and understand factors that contribute to the education and career decisions of Black men in computing. This understanding will inform enhancements to mentoring and other peer support programs designed to increase the retention of individuals from underrepresented groups in computing, informatics, and engineering (CIE) disciplines. The ubiquity of computing and digital information is driving rapid change in the world. Diversity is essential for the United States to maintain a globally competitive CIE workforce.	
3.	**Cybersecurity Education Innovation,** Howard University PI: Curtis C. Cain, Rajni Goel, and Danda B. Rawat National Centers of Academic Excellence in Cybersecurity, National Security Agency (Funding Rate < 10%) Total – $300,000	**2020 – 2022**
	Major obstacles to expanding the nation's cybersecurity workforce include inadequate access to cybersecurity education programs in rural areas, the need to reflect rapid technology change in curriculum and education programs, expense of access to experiential ranges and other cybersecurity practice opportunities, cybersecurity students' poor soft job skills preparedness (speaking/communicating, writing, briefing, etc.), and student preparedness for rigorous undergraduate cybersecurity academic programs. This proposal is to study and implement initiatives taking innovative approaches to these and other challenges in cybersecurity education.	

PENDING FUNDING EXTERNAL GRANTS

1.	PI: **Curtis C. Cain** Co-PI(s): Carlos D. Buskey and Gloria Washington **Targeted Infusion Project, National Science Foundation** (Funding Rate <5%) Total – $399,992	**Submitted 11/2021**
	This project advances the academic and computing industry's awareness of the impacts of barriers to success in terms of career aspirations and degree attainment, which may hinder the retention of underrepresented minorities in computing. Qualitative and quantitative methods are used to examine the relationships among interest in educational and career pursuits, the way decisions about academic and career choice are made, and how success is achieved within the academic and career environment. This understanding can, in turn, enhance the effectiveness of innovative teaching styles, help evaluate the effectiveness of module-based teaching, improve the quality of mentoring, and ultimately increase underrepresentation retention in this STEM field via an increased understanding of how to more effectively	

deploy such interventions. The transformative potential of this project lies in the tight linkage between informal and formal educational practices and social cognitive theory.

FUNDED INTERNAL RESEARCH

Summer Research Funding, School of Business	Total – $13,000	**[2018, 2020]**
Summer Research Funding, Office of the Provost	Total – $20,000	**[2017, 2019]**

UNFUNDED RESEARCH PROJECTS

1.	**Project-Based Module Learning: An Alternative Approach for HBCUs to Prepare Students for Careers in Computing, Informatics, and Engineering,** Howard University, Sponsor: National Science Foundation PI: Curtis C. Cain Co-PI: Carlos Buskey, Allison Morgan Bryant, Gloria Washington, Rajni Goel, Legand Burge	**2022 – 2025**
2.	**Integrating Lessons Learned from Silicon Valley to Expand Computing and Informatics Access across Howard University,** Howard University Sponsor: National Science Foundation PI: Curtis C. Cain Co-PI: Carlos D. Buskey, Gloria Washington, Allison Morgan Bryant	**2021 – 2026**
3.	**Creating Tech Synergy Multidisciplinary approaches to improve academic computing and informatics programs,** Howard University Sponsor: National Science Foundation PI: Curtis C. Cain Co-PI: Carlos D. Buskey, Allison Morgan Bryant, Lynette Yarger (Pennsylvania State University)	**2020 – 2022**

TEACHING SUMMARY

Dr. Cain's teaching philosophy is derived from lived experiences inside the classroom as a student, observations within the classroom as a researcher, and industry experience. His philosophy is formed by two educational principles: (1) students learn best when they can connect the information to what is meaningful to them, to what they care about; and (2) concepts are learned best through exposure to their application. Dr. Cain believes in a shared sense of ownership when it comes to student learning and employs a mixed teaching style approach to accomplish the philosophies that are critical to converting data to information and knowledge.

COURSE SUMMARIES

Courses	Achievements
Management Information Systems Semester: FA16 (2), FA17 (2), SP18, SP19 (2), FA19, SP20, FA20, SP21 (2)	Served as the core course coordinator from 2018 – 2019. Led the department in curriculum redesign and course material selection. The changes led to an increase in student pass rates and emphasized modern and emerging technologies.
Database Management Semester: FA19, SP20, FA20, SU20, FA20, SP21, FA21	Served as the major course coordinator since 2018. Redesigned the course to leverage project-based learning methodologies. Implemented a term project that uses cloud-based resources and relational database design.
Quantitative Business Analysis Semester: SP17 (2), SP18, SU18 (2), FA18, SU19 (2), FA19, SU20, SU21, SU22	Led curriculum redesign based on a benchmark of quantitative analysis course offerings at similar universities. The changes narrowed course topics and specific attention to data-driven model development using quantitative methodology.
Introduction to Java Semester: SP21	Taught introductory Java programming as part of an independent study course offered to upper-class students. Designed the curriculum using a series of open-source content providers and projects.
Software Engineering Semester: SU17, FA17	Redesigned the course with the input of Google Software Engineers to leverage project-based learning and foster a fail-fast approach to thinking beyond the initial code with an emphasis on Agile development, software maintenance and reuse.
Management Statistics & Data Analysis Semester: FA20, SP21, FA21	Led curriculum redesign to focus on a hands-on analysis of nondescriptive data using quantitative data approaches. The weekly modules used in the class honed student expertise in analyzing and categorizing data, assessing meaningful data sources, developing and interpreting reports and effectively communicating the results to stakeholders.
Principles of Information Systems	

Semester: FA21	Led the redesign of the introductory online MBA course exposing students to the omnipresence of technology and the potential impact of poor security methods in organizations. The class uses public data and case studies for students to analyze security threats and potential vulnerabilities.
Seminar in Information Systems Semester: FA21	Collaborative course taught with faculty and students from Morehouse College, Georgia State University, Clark Atlanta University and Spelman College to expose students to the evolving field of sales engineering. The class draws upon expertise from field experts from DELL Technologies. Students participated in the RNMKRS Roleplay Sales Competition with over 2,300 students.
Additional Courses	Special Topics: Video Game Design Mobile Application and Web Development Product Management
FA: Fall, SP: Spring, SU: Summer *(X): Number of sections*	

SERVICE

EXTERNAL SERVICE		
2022 – Present	Editorial Board	Journal of Information Systems Education
2022 – Present	Advisory Board Member	Louis Stokes Alliance for Minority Participation
2022 – Present	Review Editor	Frontiers in Sociology
2021 – Present	Reviewer	Journal of Information Technology Education: Research
2021 – Present	Reviewer	Frontiers in Education: STEM Education
2020 – Present	Reviewer	ACM SIGCHI
2019 – Present	Reviewer	Information Systems Journal
2019 – Present	Reviewer	RESPECT Conference
2018	Summer Faculty-in-Residence	Google LLC
2018 – Present	Reviewer	Information, Technology & People
2018 – Present	Reviewer	Information Systems Research
2018 – Present	Panel Reviewer	National Science Foundation
2016 – Present	Alumni Member	The PhD Project
2012 – Present	Reviewer	AMCIS Conference
2011 – Present	Reviewer	ACM SIG-MIS Computers and People Conference
2010 – 2016	Member	The PhD Project
2009 – 2010	Mentor	Research Experiences for Undergraduates (REU)
2009 – 2010	Member	STARS Alliance Leadership Corps Computer Club
UNIVERSITY SERVICE		
2022 – Present	Member	Howard University-IBM Data Science Team
2021 – Present	Member	Center for Applied Data Science
2020 – Present	Member	Interdisciplinary Faculty Consortium
2020	Facilitator	Middle State Accreditation Site Visit
2019 – 2020	Co-PI	Convergence Accelerator Phase I(RAISE): Empowering a Digital Technology Workforce through Alignment and Coordination of Upskilling and Reskilling Opportunities
2017 – 2021	Member	Howard West @ Google, Planning Committee
SCHOOL SERVICE		
2022 – Present	Member	Executive Committee
2021 – Present	Course Coordinator	Principles of Information Systems (OIST 500)
2020 – Present	Co-Chair	Technology Committee
2020 – Present	Member	Judiciary Committee
2020 – Present	Course Coordinator	Management Statistics and Data Analysis (XIST 501)
2018 – Present	Major Course Coordinator	Database Management (INFO 330)
2020 – 2021	Developer	Graduate Principles of Information Systems Course Redesign (Online MBA Program)
2019 – 2020	Developer	Graduate Management Statistics and Data Analysis Course Redesign (Executive MBA Program)
2019 – 2020	Core Course Coordinator	Management Information Systems (INFO 204)
2019 – 2020	Member	Library, Facility, and Technology Committee
2019 – 2020	Member	Dean's Technology Trust
2018 – 2019	Chair	Faculty-Student Relations Committee
2016 – 2018	Member	Faculty-Student Relations Committee

2016 – 2017	Member	Community Relations Committee
MENTORING		
2018 – Present	Faculty Advisor	Emerging Coders Student Society
2017 – Present	Faculty Advisor	Computer Based Information Systems Society (COBISS)
COMMUNITY SERVICE		
2019 – Present	Co-Founder	BLKGENIUS 501(c)3 Nonprofit Organization

AWARDS & HONORS

2021	Howard University, School of Business, Excellence in Grantsmanship Award
2019	Fellow, Course Hero, Woodrow Wilson Fellowship Foundation The Course Hero-WW Fellowship is a "genius grant" for outstanding teachers. For junior faculty on the tenure track, the award will emphasize the balance between scholarly excellence and commitment to teaching practice that draws on new approaches to pedagogy, creating a new level of engagement for students in and beyond the classroom
2017	Howard University – Howard West Inaugural Faculty Member
2012	National Science Foundation Graduate Research Fellowship
2011	Richard A. Tapia Diversity in Computing (Google Scholarship)
2011	Penn State University Africana Research Center Research Grant
2008	National Science Foundation LSAMP Bridge to the Doctorate (BD) Fellowship

PROFESSIONAL AFFILIATIONS

- Association for Computing Machinery (ACM)
- The Institute of Electrical and Electronics Engineers (IEEE)
- Association for Information Systems (AIS)
- Beta Gamma Sigma International Business Honor Society
- Empowering Leadership: Computing Scholars of Tomorrow Alliance (EL Alliance)
- The PhD Project – Information Systems Doctoral Students Association (ISDSA)
- National Society of Black Engineers (NSBE)
- Black Graduate and Professional Student Association (BGPSA)
- Phi Beta Sigma Fraternity, Incorporated

PROFESSIONAL DEVELOPMENT

- Amazon Web Services Solutions Architect Certified
- Faculty-In-Residence, Research Scientist, Google LLC (2018)
- CETLA Blackboard Certification
- CETLA Distance-Learning Certification
- CETLA Writing Across the Curriculum Certification