Naja A. Mack, Ph.D.

Assistant Professor in the Department of Computer Science
Director, Human-AI eXperience Lab
Education and Outreach Advisor & Faculty Researcher, (CEAMLS)

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Research Interests

Human-Centered Artificial Intelligence; Human-Computer Interaction; Conversational Artificial Intelligence; Adaptive Learning Technologies; Game-Based Learning and Gamification; Brain-Computer Interfaces and Neuroadaptive Systems; Computer Science Education; Broadening Participation in Computing; Virtual Reality and Extended Reality; and Robotics

Technical Skills

Languages	C, C++, C#, Python, PHP, Perl
Web Development	HTML5, CSS, JavaScript, jQuery, AJAX, Bootstrap
Markup Languages	XML, VXML
Databases	MySQL, Firebase
Statistical Software	JMP, SAS, R
Prototyping Tools	Balsamiq, InVision, Figma
Operating Systems	Windows, Linux/Unix, Mac OS X
UX Methods	Affinity Diagramming, Low-Fidelity Prototyping, High-Fidelity Prototyping, Personas, Scenarios, Storyboarding, Heuristic Evaluation, Usability Testing, Wireframes, Interviews, Focus Groups, User Observation, Participatory Design, Quantitative Surveys

Education

08/2014 – 04/2021 **Ph.D. in Human-Centered Computing**
University of Florida, Gainesville, FL
Dissertation: *ICon History: An Intelligent Conversational History Tutor*
Advisor: Juan E. Gilbert, Ph.D.

08/2010 – 12/2013 **M.S. in Computer Science**
Clemson University, Clemson, SC
Concentration: Interactive Computing
Advisor: Larry F. Hodges, Ph.D.

08/2006 – 05/2010 **B.S. in Computer Engineering**
Claflin University, Orangeburg, SC
Alice Carson Tisdale Honors College
Thesis: *Enhancement of Visualization Tools for 3-D Computer Vision*
Advisor: Ananda Mondal, Ph.D.

Academic and Research Appointments

08/2021 – Present	**Assistant Professor of Computer Science** Morgan State University, Baltimore, MD Director, Human-AI eXperience (HAX) Lab, Fall 2022 – Present Education & Outreach Advisor & Faculty Researcher, CEAMLS, 2023 – Present
01/2021 – 07/2021	**Postdoctoral Researcher** Culturally Relevant Computing Lab Morehouse College, Atlanta, GA
02/2018 – 12/2020	**Research Scientist** Culturally Relevant Computing Lab Morehouse College, Atlanta, GA
05/2015 – 08/2015	**Research Intern** Institute for Human and Machine Cognition Ocala, FL
08/2014 – 01/2018	**Graduate Research Assistant** Human-Experience Research Lab University of Florida, Gainesville, FL
08/2010 – 07/2014	**Graduate Research Assistant** Virtual Environments Group Clemson University, Clemson, SC

Teaching Experience

08/2021 – Present	**Morgan State University** *Undergraduate Courses Taught:* COSC 111 – Introduction to Computer Science I COSC 201 – Computer Ethics COSC 220 – Data Structures and Algorithms COSC 332 – Introduction to Game Design and Development COSC 391 – Special Topics: Human-Computer Interaction COSC 459 – Database Design *Graduate Courses Taught:* COSC 791 – Human-Centered Artificial Intelligence
2018 – 2020	**Morehouse College** CSC 480 – Special Topics: Conversational Artificial Intelligence CSC 480 – Special Topics: Broadening Participation in Computing

Funding (Mack's Total Share Amount: $2,485,298)

Federal Government Grants and Contracts

1. **Mack, N.** (2024a). NSF VISION Faculty Fellows Program Visiting Innovative Scholar Research Program for Institutions Orienting to National Needs. Morgan State University Amount: $52,000. Award Period: January 1, 2025 – August 31, 2025.

2. **Mack, N.** (2024b). Targeted Infusion Project: Infusing Learning Initiatives for Improving the Programming Proficiency of Computer Science Majors at Morgan State University (A Multi-Year Initiative). Morgan State University Amount: $399,636. Award Period: September 1, 2020 – June 30, 2025.

3. Byrne, V., **Mack, N.** & Dabaghchian, M. (2023). Trustworthy AI Institute for Law and Society (TRAILS). National Science Foundation. Morgan State Amount: $1, 249, 644. Award Period: June 1, 2023 – May 31, 2028.

4. **Mack, N.** (2022). Convergence Accelerator Track G: Secure Texting over Non-cooperative Networks and Anti-jamming Enhancement in 5G. National Science Foundation. Morgan State Amount: $18,786. Award Period: August 1, 2022 – July 31, 2023.

5. Gosha, K., & **Mack, N.** (2020). Cyber Spectrum Collaborative Research Environment (C-SCoRE) Department of Defense. Prime: Georgia Tech Research Institute (FA8650-15-D-1833-FA865019F1682). Morehouse College Amount: $247,418. Award Period: January 1, 2020 – June 30, 2021.

6. Gosha, K., & **Mack, N.** (2018). Cyber Spectrum Collaborative Research Environment (C-SCoRE) Department of Defense. Prime: Georgia Tech Research Institute (FA8651-16-D-0049—FA8651-18-F-1053). Morehouse College Amount: $437,814. Award Period: October 1, 2018 – December 15, 2019.

Other Funded Grants, Sponsorships and Gifts

1. **Mack, N.** (2024c). CodeBears. Transform Morgan. Amount: $15,000.

2. **Mack, N.** (2024d). CodeBears. Google. Amount: $5,000.

3. **Mack, N.** (2024e). MathWiz. Google. Amount: $30,000.

4. **Mack, N.** (2023a). CodeBears. Transform Morgan. Amount: $15,000.

5. **Mack, N.** (2023b). CodeBears. Google. Amount: $10,000.

6. **Mack, N.** (2023c). CodeBears. Lincoln Financial Group. Amount: $5,000.

Research Publications

Books and Chapters

1. Darnell, S. S., **Mack, N. A.**, Jackson, F., Alnizami, H., James, M., Ekandem, J. I., Alvarez, I., Andujar, M., Moon, D., & Gilbert, J. E. (2014). Human-Computer Interfaces for Speech Applications. In *Computing Handbook, Third Edition: Computer Science and Software Engineering* (92: 1–15).

Journal Articles

1. Mendez, S. L., Johanson, K., Conley, V. M., Gosha, K., **Mack, N. A.**, Haynes, C., & Gerhardt, R. (2020). Chatbots: A Tool to Supplement the Future Faculty Mentoring of Doctoral Engineering Students. *International Journal of Doctoral Studies*, *15*, 373–392. https://doi.org/10.28945/4579

2. Cummings, R. T., Huff, E. H., **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*, *22*(5), 29–40.

Conference Proceedings

1. Ballou, E., Odunze, O., Adeleke, M., & **Mack, N. A.** (2025). PyPro: Think in Code. Grow in Logic! *Human-Computer Interaction & Emerging Technologies*, *195*, 324.

2. **Mack, N. A.**, Tandjong, C. W., Adeleke, M. B., Ballou, E., Harry, A., & Panton, J. (2025). Revolutionizing culturally relevant math education through ai and co-designing strategies. *Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*, 1–6.

3. Odunze, O., Ballou, E., Kanu, A., Kelly, A., Void, E., & **Mack, N. A.** (2025). Inclusive gaming through brain-computer interfaces: The mind mastery experience. *Human-Computer Interaction & Emerging Technologies, 195*, 363.

4. **Mack, N. A.**, Adeleke, M. B., Ballou, E., Davis, D., Ingram, V., & Cox, K. (2024). Breaking stereotypes and feeding the stem pipeline. *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, 771–777.

5. Mack, N. A., Adeleke, M. B., Ingram, V., Ballou, E., Briggs-Belt, J. K., & Jordan, A. (2024). Codebears: Key insights gained from a summer coding camp empowering underrepresented youth. *2024 Black Issues in Computing Education (BICE)*, 80–86.

6. Meekins, S., Ballou, E., & **Mack, N. A.** (2023). Dreadphobia: Evaluating the Usability of a Virtual Reality Application in Support of Mental Health. *International Conference on Human-Computer Interaction*, 397–402.

7. Simley, T., **Mack, N. A.**, Pittman, T., Cook, C., Cummings, R., Moon, D., & Gosha, K. (2020). Assessing the Efficacy of Integrating Computer Science, Math, and Science in a Middle School Sphero Robotics Summer Program. *2020 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*.

8. 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. *International Conference on Human-Computer Interaction*, 80–98.

9. Huff, E. W., Nias, J., Cummings, R., **Mack, N. A.**, & Gosha, K. (2019). Atlanta Code Warriors: A CS Engagement Pilot Initiative. *International Conference on Human-Computer Interaction*, 184–191.

10. **Mack, N. A.**, Cummings, R., Huff, E. W., Gosha, K., & Gilbert, J. E. (2019). Exploring the Needs and Preferences of Underrepresented Minority Students for an Intelligent Virtual Mentoring System. *International Conference on Human-Computer Interaction*, 213–221.

11. **Mack, N. A.**, Rembert, D. G. M., Cummings, R., & Gilbert, J. E. (2019). Co-Designing an Intelligent Conversational History Tutor with Children. *Proceedings of the 18th ACM International Conference on Interaction Design and Children*, 482–487. https://doi.org/10.1145/3311927.3325336

12. Mendez, S. L., Conley, V. M., Johanson, K., Gosha, K., **Mack, N. A.**, Haynes, C. L., & Gerhardt, R. A. (2019). The Use of Chatbots in Future Faculty Mentoring: A Case of the Engineering Professoriate. *2019 ASEE Annual Conference & Exposition*.

13. Rembert, D. M., **Mack, N. A.**, & Gilbert, J. E. (2019). Exploring the Needs and Interests of Fifth Graders for Personalized Math Word Problem Generation. *Proceedings of the 18th ACM International Conference on Interaction Design and Children*, 592–597. https://doi.org/10.1145/3311927.3325309

14. Cummings, R., Huff Jr, E. W., **Mack, N. A.**, Womack, K., Reid, A., Ghoram, B., Gilbert, J., & Gosha, K. (2019, February). *Vlog Commentary YouTube Influencers as Effective Advisors in College and Career Readiness for Minorities in Computing: An Exploratory Study* [**Distinguished Paper Award**]. IEEE.

15. Cummings, R., **Mack, N. A.**, Gosha, K., Dennis, S., & Nias, J. (2019). Developing a Question Corpus for a Conversational Agent Designed to Prepare Interested Black Undergraduates for the Professoriate in STEM. *2019 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*.

16. **Mack, N. A.**, Womack, K., Huff Jr., E. W., Cummings, R., Dowling, N., & Gosha, K. (2019). From Midshipmen to Cyber Pros: Training Minority Naval Reserve Officer Training Corp

Students for Cybersecurity. *Proceedings of the 50th ACM Technical Symposium on Computer Science Education*, 726–730. https://doi.org/10.1145/3287324.3287500

17 Jones, J. N., Smith, T. R., **Mack**, **N. A.**, Sherman, I., & Gilbert, J. E. (2017). Engagement in Practice: The Development of and Lessons Learned from a Community-Focused App Development Course [https://peer.asee.org/28239]. *2017 ASEE Annual Conference & Exposition*.

18 **Mack**, **N. A.**, Smith, T. R., Jones, J. N., & Gilbert, J. E. (2017). Updated AADMLSS: Design and Evaluation of a Culturally Relevant Algebra Application [http://zone2.asee.org/papers/proceedings/3/53.pdf]. *2017 ASEE Southeast Section Conference*.

19 Jones, J. N., **Mack**, **N. A.**, Smith, T. R., & Gilbert, J. E. (2016). CodeIT Day: Breaking Stereotypes and Feeding the STEM Pipeline [http://www.asee-se.org/proceedings/ASEE2016/papers2016/41.pdf]. *2016 ASEE Southeast Section Conference*.

20 Crawford, C. S., **Mack, N.**, Eugene, W., & Gilbert, J. E. (2015, August). Televoting: Secure, Overseas Voting. In T. Tryfonas & I. Askoxylakis (Eds.), *Human Aspects of Information Security, Privacy, and Trust* (pp. 487–494). Springer International Publishing.

21 **Mack**, **N. A.**, Hall, P., Gardner-McCune, C., Hodges, L., & Gilbert, J. (2014). Designing with Students: A Participatory Approach to Creating Know Your History: An Interactive History Textbook. *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, 1232–1242.

22 McClendon, J. L., **Mack, N. A.** & Hodges, L. F. (2014). The Use of Paraphrase Identification in the Retrieval of Appropriate Responses for Script Based Conversational Agents. *The Twenty-Seventh International Flairs Conference*.

23 Bertrand, J., Dukes, L. C., Dukes, P., Ebrahimi, E., Hayes, A., **Mack, N.**, McClendon, J., Parmar, D., Pence, T. B., Shannon, B., Wachter, A., Wu, Y., Babu, S., & Hodges, L. F. (2013). Serious Games for Training, Rehabilitation and Workforce Development. *2013 IEEE Virtual Reality (VR)*, 195–196. https://doi.org/10.1109/VR.2013.6549427

Fellowships, Honors, and Awards

2026	2026 Excellence in Student Success Award
	2026 Instructional Innovator of the Year
2025	2025 RealLIST Innovator Maryland Honoree
2022 - 2025	Morgan State PowerLive Faculty Award
2022	Create with VR Grant Recipient
2021	NSF VISION Faculty Fellow
2019	National Society of Blacks in Computing (NSBC) Facebook Spotlight Scholar
	RESPECT 2019 Distinguished Paper Award
2018 - 2020	University of Florida CISE Scholarship
2017	University of Florida CISE Harris Scholarship
2013 - 2015	National Science Foundation (NSF) S-STEM Scholarship
2011, 2013, 2023 - 2024	Richard Tapia Celebration of Diversity in Computing Scholarship
2012	Upsilon Pi Epsilon International Honor Society, Clemson University Chapter
2011 - 2014	Southern Regional Education Board (SREB) Fellowship

Fellowships, Honors, and Awards (continued)

Clemson University Graduate School Diversity Fellowship

2011 CRA-W Graduate Cohort Workshop Travel Award

Service

2026 **[Review Panelist] National Science Foundation (NSF)**
Professional Service

[Organizer] Inaugural Artificial Intelligence Summit
Morgan State University, Baltimore, MD

[Organizer and Poster Session Coordinator] NSEA Symposium
Morgan State University, Baltimore, MD

[Faculty Advisor] PROPEL Center Future of Tech Innovation Challenge
Morgan State University, Baltimore, MD
Mentored the national first-place team in developing and presenting SocialSense AI.

2025 - Present **[Advisory Board Member] LEVEL UP AI**
Computing Research Association

2025 **[Organizer and Logistics Lead] Inaugural HBCU Brain Drone Race**
Morgan State University, Baltimore, MD

[Committee Member] Faculty Advisory Committee on Research Capacity Cores (RCC)
Morgan State University, Baltimore, MD

2024 - 2026 **[Technical Program Committee Member] Black Issues in Computing Education (BICE) Symposium**
Professional Service

[Faculty Advisor] BE Smart Hackathon
Morgan State University, Baltimore, MD

2024 - Present **[Faculty Advisor] MorganHacks**
Morgan State University, Baltimore, MD

[Education and Outreach Advisor] Center for Equitable Artificial Intelligence and Machine Learning Systems (CEAMLS)
Morgan State University, Baltimore, MD

2024 **[Organizer] MSU HackAI**
Morgan State University, Baltimore, MD

2023 - Present **[Faculty Advisor] Morgan TechFest**
Morgan State University, Baltimore, MD

[Camp Director and Organizer] CodeBears
Morgan State University, Baltimore, MD

2023 - 2026 **[Program Director] CEAMLS Summer AI Research Institute**
Morgan State University, Baltimore, MD

2022 - Present **[Founding Director] Human-AI eXperience (HAX) Lab**
Morgan State University, Baltimore, MD

[Faculty Advisor] Women in Computer Science (WiCS)
Morgan State University, Baltimore, MD

2022 - 2023 **[Organizer and Advisor] CodeLinc Hackathon**
Morgan State University, Baltimore, MD

2022 **[Organizer] Maryland Science Olympiad Computer Science Session**
Morgan State University, Baltimore, MD

Service (continued)

2021 - Present **[Committee Member] Computer Science Department Scholarship Committee**
Morgan State University, Baltimore, MD

2021 - 2022 **[Committee Member] CICS AVP/Dean Search Committee**
Morgan State University, Baltimore, MD

[Committee Member] SCMNS Research and Innovation Committee
Morgan State University, Baltimore, MD

2021 **[Organizer] Inaugural Computer Science Department Faculty Research Symposium**
Morgan State University, Baltimore, MD

2020 **[Organizer] Virtual App Inventor Summer Camp**
Morehouse College, Atlanta, GA

[Organizer] Sphero Coding Workshop
Lee County Youth Development Center, Opelika, AL

2019 **[Organizer] Summer Sphero Coding Camp**
Atlanta Public Schools Xanadu Summer Program, Atlanta, GA

[Organizer] Spring Break Sphero Coding Workshop
Atlanta Public Schools, Gresham Park Recreation Center, Atlanta, GA

2017 **[Lead Computer Science Instructor] Five-Week STEAM Youth Academy**
Gainesville Dev Academy/Youth Combine, Gainesville, FL

2013 - 2015 **[Organizer] CodeIT Day**
Clemson University, Clemson, SC & University of Florida, Gainesville, FL

News

2026 https://www.blackenterprise.com/morgan-state-students-win-tech-innovation-challenge/
https://www.thehypemagazine.com/2026/04/27/hbcu-students-take-center-stage-at-propel-centers-future-of-tech-challenge/
https://www.morgan.edu/news/they-built-the-future-and-won

2025 https://technical.ly/entrepreneurship/reallist-innovators-2025-maryland/

2023 https://newsroom.lfg.com/lincoln-hosts-codelinc-hackathon-at-morgan-state-university.htm
https://www.morgan.edu/news/msu-researchers-collaborate-for-the-study-of-ethical-ai
https://technical.ly/professional-development/codelinc-hackathon-morgan-state-university/

2022 https://newsroom.lfg.com/lincoln-financial-group-hosts-hackathon-with-morgan-state-university-offers-internships.htm