Lelia Hampton

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Education

Massachusetts Institute of Technology — Cambridge, MA
Doctor of Philosophy in Electrical Engineering and Computer Science — 2020-2025
Master of Science in Electrical Engineering and Computer Science — 2020-2022
Master of Science in Technology and Public Policy — 2021-2022
Advisor: Sandy Pentland

Spelman College — Atlanta, GA
Bachelor of Science in Computer Science Major, 3.9/4.0, Summa Cum Laude — 2016-2020
Comparative Women's Studies and Mathematics Minor

Pontificia Universidad Católica Madre y Maestra, 4.0/4.0 — Santiago, DR
Council on International Educational Exchange Program — May 2019

Relevant Coursework

Deep Learning (6.S898 MIT Fall 2021), Machine Learning (6.867 MIT Fall 2020), Data Science, Artificial Intelligence

Relevant Skills

Proficient in Linux, C++, Python, pandas, pyspark, TensorFlow, scikit-learn, numpy, pytorch, matplotlib, scipy.

Organizations

Blackathon, CEO, Co-founder, and Lead Organizer — October 2020 to present

- I co-founded and co-organize an annual hackathon that brings the African diaspora together to use technology to address pressing problems in our communities. In our inaugural year, we welcomed participants from across Africa, the Caribbean, and the US.

Afrocomputing Collective, President/CEO and Founder — June 2021 to present

- I founded a social advocacy and community education organization to combat algorithmic injustice in Black and other marginalized communities.

Research and Other Experience

MIT Center for Energy and Environmental Research Policy — September 2021 to December 2021

- I developed a linearly constrained unsupervised model to disaggregate hourly household energy usage to inform heat decarbonization policy.

Google Geo — May 2021 to August 2021
Research Intern

- I co-developed a novel unsupervised method called embedding fields that redundantly encodes local spatial dependencies in each pixel of an image using a combination of generative and contrastive modeling techniques on approximately 1 million images. We found that one 32-dimensional embedding field vector could achieve similar performance as a 31x31x9 satellite image on low-shot segmentation tasks, meaning we can catch the most important signals with our latent method for downstream tasks.

Massachusetts Institute of Technology • Media Lab — June 2019 to August 2019
Summer Research Program Intern (~8% Acceptance rate)

- I led research on an in situ water observation system to monitor growth of an invasive species. In less than two months, I integrated a new sensor into the hardware, switched the microprocessors from a microprocessor with no wireless connectivity capabilities to wirelessly transmit data, integrated cloud storage to ensure data persists, increased the efficiency of the sensor's firmware, and increased the lifetime of the sensor from 3 hours to 2 weeks through engineering design. A social entrepreneurship company in Benin used the water sensor kit to collect continuous data on water quality factors in order to monitor ecosystem changes over time and compare with invasive species growth.

Clara Boothe Luce Scholar Program — September 2018 to May 2019

- I performed research on the use of Black music as a culturally relevant pedagogical tool to teach African American female students the concept of recursion. To our knowledge, this research is the first to study higher level computing concepts with Black students. I formulated several literature reviews, performed data analysis for experiments, prepared the Institutional Review Board application, and presented the research.

Microsoft Research May 2018 to August 2018
Undergraduate Research Intern

- I performed research in human-computer interaction in the Productivity Group and Information and Data Sciences Group at the intersections of attention, productivity, and work meetings through the use of a chatbot with Shamsi Iqbal and Paul Bennett. I formulated a literature review, wrote a survey, analyzed quantitative and qualitative data from the survey, and developed and tested the chatbot.

Culturally Relevant Computing Lab • Morehouse College November 2017 to May 2019
Research and Development Intern

- I developed a robust Twitter conversational agent that answers questions about graduate school in order to address the underrepresentation of African Americans in the computer science professoriate.

Georgia Tech Research Institute • Electronic Systems Laboratory January 2018 to May 2018
Student Co-op

- I developed software for system analysis, process control, and data acquisition in C and C++; managed the creation of PC applications, design, fabrication and testing of digital hardware; and gained hands-on experience in Linux, networking and operating systems.

National Aeronautics and Space Administration • Marshall Spaceflight Center May 2017 to August 2017
Systems Engineer Intern

- I managed databases using metadata, data conversion, and data cleansing for SLS data.

Book Chapters

1. **Lelia Marie Hampton.** 2022. Black Feminist AI. In *Feminist AI*. Oxford University Press.
2. **Lelia Marie Hampton.** 2021. Techno Racial Capitalism. In *Chimeras: Inventory of Synthetic Cognition*. Onassis Publications.

Peer-Reviewed Journal and Conference Publications

1. **Lelia Marie Hampton**. AI-Enabled Surveillance of Black Lives Matter Protesters. In submission.
2. Christopher F. Brown, Valerie Pasquerella, **Lelia Marie Hampton**, William Rucklidge, Wanda Czerwinski. Embedding Fields for Low-Shot Segmentation. In preparation.
3. **Lelia Marie Hampton**. Public Health and AI. Accepted to ACM/AAAI AI, Ethics, and Society 2021, but revising and resubmitting with Os Keyes.
4. David James and **Lelia Hampton**. 2020. Using Black Music as a Bridge to Understanding Introductory Programming Concepts. IEEE Research on Equity & Sustained Participation in Engineering, Computing, and Technology ‘20.
5. Danielle Wood, Fohla Mouftaou, Temilola Fatoyinbo-Agueh, David Lagomasino, Eric Ashcroft, Ufuoma Ovienmhada, **Lelia Hampton**, Lisa Orii, TojumiOluwa Adegboyega, Anisha Nakagawa, and Juliet Wanyiri. 2019. Co-Designing an Environmental Observatory to Support Eco-Entrepreneurship in Benin. American Geophysical Union.
6. **Lelia Hampton**, Robert Cummings, and Kinnis Gosha. 2019. Improving Computer Science Instruction and Computer Use for African American Secondary School Students: A Focus Group Exploration of Computer Science Identity of African American Teachers. Proceedings of the 2019 on Computers and People Research Conference (ACM SIGMIS-CPR '19).
7. **Lelia Hampton** and Kinnis Gosha. 2018. Development of a Twitter graduate school virtual mentor for HBCU computer science students. Proceedings of the ACMSE 2018 Conference (ACMSE '18).

Workshop Papers

1. **Lelia Hampton**. Black Feminist Musings on Algorithmic Oppression. Resistance AI at NeurIPS 2020.
2. **Lelia Hampton**. Machine Learning Informed Policy for Environmental Justice in Atlanta with Climate Justice Implications. Climate Change AI at NeurIPS 2020.
3. Jaye Nias, **Lelia Hampton**, Princess Sampson. Decolonizing Technologies for Preserving Cultural and Societal Diversity. Engaging Race in CHI Workshop at ACM SIGCHI 2020.

Presentations and Talks

1. AI-Enabled Public Health from a Marginalized Perspective. AI and Health @ United Nations AI4Good Initiative in partnership with the ITU/WHO Focus Group on AI4Health. January 19, 2022.
2. Nonbinary Representation in AI. Invited talk at Queer In AI @ ICLR 2021. July 2021.
3. Radical Possibilities for Technology. Moderator at joint Radical AI and YX Foundation panel. May 2021.
4. Black Feminist Musings on Algorithmic Oppression. Invited Talk @ NCCU. March 15, 2021.
5. Black Feminist Musings on Algorithmic Oppression. Southeastern Women's Studies Association Conference. March 2021.
6. “Best Practices for Beginning a Career in Tech” with Thulani Vereen for Jopwell’s Virtual Career Fair. July 23, 2020.
7. Design of a Low-Cost Water Quality Sensor Kit to Monitor Ecosystem Health in Benin. 35th Annual MIT Summer Research Program Symposium. August 8, 2019.
8. Design of a Low-Cost Water Quality Sensor Kit to Monitor Ecosystem Health in Benin. MIT Summer Research Program Intern Presentations. MIT Media Lab. August 5, 2019.
9. Using Black Music as a Culturally Relevant Approach to Engage African American Women College Students in Computer Science. Spelman College Research Day 2019. April 26, 2019.
10. Employment Discrimination as a Driver to Survival Sex Work for Trans Women. Spelman College Research Day 2018. April 27, 2018.

Awards, Honors, and Fellowships

MIT Social and Ethical Responsibilities of Computing (SERC) Scholar (Spring 2022)
MIT Technology and Public Policy Hackathon Finalist (Fall 2020)
MIT Ashar Aziz (1981) Presidential Fellow (2020-2021)
Alfred P. Sloan Scholar (2020-2025)
Phi Beta Kappa (Spring 2020)
Ford Foundation Predoctoral Fellowship Honorable Mention (Spring 2020)
Dean’s List (Spring 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020)
Spelman College Academic Dean’s Scholarship (2016-2020)
Thurgood Marshall College Fund Department of Defense Scholar (2016-2020)
Clara Boothe Luce Scholar (2018-2019, 2019-2020)
Grace Hopper Conference Scholar (2018)
ACM Tapia Scholar (2018 and 2019)
Upsilon Pi Epsilon Computing Honor Society (Fall 2018)

Teaching

Instructor • Feminist Computing IAP 2022

- Taught a seminar on feminist perspectives of computing and artificial intelligence

Teaching Assistant • Operating Systems Spring 2020

- Selected to provide support to 20 students and guide students on homework and lab assignments

Teaching Assistant • Computer Organization and Design Fall 2019

- Selected to provide support to 20 students and guide students on homework and lab assignments

Teaching Assistant • Computer Science I in Python Spring 2017

- Selected to provide support to 30 students and prepare lessons/worksheets for Python introduction

Selected Community Outreach

Technovation AI Judge and Curriculum Advisory Committee — Summer 2021 to present

- Guided and encouraged young girls around the world on their projects for the AI competition
- Served on the curriculum advisory working group for Technovation's AI and SDGs curriculum

MIT Graduate Application Assistance Program Executive Board — Fall 2020 to Spring 2021

- Organized and hosted webinars for applicants and prospective students
- Mentored underrepresented minority applicants to strengthen their application

MIT GradDiversity Ambassador — Fall 2020 to present

- Partnered with OGE GradDiversity to create a more diverse, equitable, and inclusive community at MIT.

NSBE Virtual Career Fair — August 2020

- Recruited on behalf of MIT's Office of Graduate Education (OGE)

Black Girls CODE — October 2016 to Present

- Served as a teaching instructor for various workshops, including Robotics, Game Jam, and Virtual Reality

Georgia Tech Catalyst — April 2019

- Provided technical support during lessons for underrepresented high school students interested in pursuing computing

CodeHouse 2019 — April 2019

- Guided middle school students during a day of computing exposure

Academic Service

Peer Reviewer

- Thirty-fifth Conference on Neural Information Processing Systems Datasets and Benchmarks Track (2021)
- ACM Transactions on Computer-Human Interaction: Special Issue on (Re)Connecting History to the Theory and Praxis of HCI (2021)

Program Committee

- Data and Technology Workshop at 44th International Conference on Software Engineering (2022)
- Workshop on Non-Binary Representation in Language Technologies at ACL/NAACL/EMNLP (2022)