

EMANI DOTCH

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EDUCATION

University of California Irvine, Irvine, CA
Ph.D. in Informatics

Anticipated Graduation: 2026
GPA: 3.9

Advisor: Gillian R. Hayes

Research Interests: Human-Computer Interaction, Assistive Technology, Human-Centered Design, Community Based Participatory Research, Sociotechnical Systems, Accessibility

Research aim: Understand how technology can be used to support autistic individuals in everyday living.

Alabama A&M University, Huntsville, AL

Bachelor of Science in Mechanical Engineering, Manufacturing Systems

Aug 2016 - Apr 2021

GPA: 3.7/4.0, Magna Cum Laude

SKILLS

Languages: Some experience with Python (novice) and Java (novice)

Applications: Figma, FigJam, SolidWorks, SolidEdge, Android Studio

HCI: Qualitative Coding analysis, User-centered Design, Participatory Design, Prototyping, UX Research, Contextual Inquiry, Wireframing, Interviews, Co-design, Observations

Other: Microsoft Office Suites, Google Suite, Adobe Creative Cloud

JOURNAL PUBLICATIONS

[J1] **Dotch, E.**, Johnson, J., Black, R.W., Hayes, G.R. Coping Their Way: Social Support for Noise Sensitivity in Two Online Autism Forums. *In Progress*

CONFERENCE SHORT PAPERS, POSTERS, AND PANELS

* [P1] **Emani Dotch**, Jesus Armando Beltran, Jazette Johnson, Ashhad Shah, Kohsuke T. Hirano, Franceli L. Cibrian, and Gillian Hayes. 2023. AudioBuddy: Using Sound Sensors to Support Sound Sensitivity Awareness in Autistic Individuals. In Proceedings of the 2022 ACM International Joint Conference on Pervasive and Ubiquitous Computing (ubicompiswc22adjunct). Association for Computing Machinery, New York, NY, USA, 27–29. <https://doi.org/10.1145/3544793.3560336>

[WiP1] **Emani Dotch**, Jialuo Hu, Avery Mavrovounioti, Weijie Du, Jazette Johnson, Elizabeth Ankrah, Aehong Min, and Gillian R. Hayes. 2023. Supporting Noise Sensitivity and Emotion Regulation with Children. In Interaction Design and Children (IDC '23), June 19–23, 2023, Chicago, IL, USA. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3585088.3593887>

INVITED PRESENTATIONS

[IP1] *AudioBuddy: Using Sound Sensors to Support Sound Sensitivity Awareness in Autistic Individuals*. CERES Retreat 2023. Ensenada, Mexico. January 13, 2023.

[IP2] “Stop Making That Noise!”. St. Margaret’s Episcopal School STEAM Expo. San Juan Capistrano, California. April 29, 2023

AWARDS

- UCI Grad Slam, “Stop Making That Noise!” - Second Place Winner, 2023
- National Science Foundation Graduate Research Fellowship Program, 2021
- UC-HBCU Fellowship, 2021
- Dean’s List, *Fall 2016, Spring 2017, Fall 2017*
- Forbes Under 30 Scholar, 2019
- National Science Foundation Scholar, *Spring 2019 - Spring 2021*
- STEM Star Scholar, *Fall 2016 - Spring 2021*
- Woman of Color Leadership Award, 2017

SELECTED RESEARCH EXPERIENCE

Graduate Student Researcher (GSR)

GSR: Coping Their Way: Social Support for Noise Sensitivity

January 2022 - Current

University of California, Irvine, Irvine, CA

Goal: *Understand how social support is used by autistic individuals to make sense of and support one another regarding their experiences of noise sensitivity.*

- Collaborate with team to conduct qualitative analysis of data using inductive and deductive coding
- Analyze data from two online autism forums to understanding coping methods, regulation strategies, and experiences of noise sensitivity
- Train undergraduate research assistants to conduct qualitative analyses

Outcome: *Identify barriers to accessible work, learning, and living environments due to noise sensitivity*

GSR: AudioBuddy: Using Sensors to Support Noise Sensitivity Awareness in Autistic Individuals

December 2022 – Current

University of California, Irvine, Irvine, CA

Goal: *Understand design specifications and challenges for AudioBuddy system to support noise sensitivity in autistic individuals*

- Lead research team in the planning and construction of collaborative research with community partners
- Design a series of co-design sessions to understand the experiences, coping processes, and perspectives of end-users to support noise sensitivity
- Lead and trained undergraduate student researchers to conduct co-design sessions and provide feedback and iterate on the design of AudioBuddy application

Outcome: *Better understanding of experiences and coping process; design implications for AudioBuddy tool*

GSR: AudioBuddy - An Assistive App to Support Sound Sensitivity

October 2021 – Dec 2022

University of California, Irvine, Irvine, CA

Goal: *Support both emotion regulation and auditory sensitivity with an emphasis on self-advocacy to support noise sensitivity in autistic individuals*

- Design and develop a prototype of an assistive app to support sound sensitivity awareness and self-regulation
- Conduct in-lab usability testing to reveal challenges of prototype use
- Design 1hr interview sessions with autistic individuals and caregivers to understand their experience with sound sensitivity
- Evaluate prototype design through preliminary end-user semi-structured interview
- Support undergraduate student research assistants in the design and development of application

Outcome: *Usability and end-user testing revealed challenges and implications for further design iterations.*

Undergraduate Student Researcher: UC-HBCU Program

Jun 2019 – April 2021

UCI-AAMU P.A.T.H. Summer Research Program | Researcher Irvine, CA

Exploring Technology to Support Children with Noise Sensitivity

- Methods: literature reviews, application studies, intervention studies, semi-structured interviewing, participatory design, UX design, prototyping, and qualitative coding analysis
- Work independently and collaboratively with the UC Irvine's STAR Lab to research, design and develop a mobile and smartwatch application to assist autistic adolescents with noise sensitivity
- Delivered presentations, posters, papers on research to showcase advancements in project.
- Guided and supported two junior researchers in developing their skills in interviewing, qualitative data analysis, UX design, and coding.

UX PROJECTS

For the Culture

September 2022 – December 2022

Aim: To identify social and cultural artifacts (i.e. cuisine, barbershops, organizations) to support the overall comfort and inclusion of African-American and Black (AA/B) students during their time of matriculation at the University of California, Irvine.

Software Used: Figma, Canva, Google Slides

Timeline: 9 weeks

My Role:

- Conducted focus groups, interviews, and qualitative analysis.
- Collaborate with a team of four colleagues to conduct qualitative analysis

- Prototype sketching and designing using Figma

Challenges:

- Time constraints
- Identifying AA/ resources that did not require a long commute
- Some of the needs discovered through focus groups and interviews were not solvable with technology

Outcomes: Develop a high-fidelity prototype of a website that serves as a centralized location of AA/B resources found on campus and in Irvine and the larger Orange-County Area.

WORK EXPERIENCE

RippleMatch | Program Manager

May 2021 - Oct 2021

- Collaborate with the Campus Operations Manager to expand campus recruitment and increase interview placement rate
- Schedule and conduct interviews for intern candidates and act as a point of contact throughout entire hiring process
- Responsible for tracking 40-50 candidates per week and having daily exchanges with management about their progress

RippleMatch | Leadership Development Intern

Feb 2021 - Apr 2021

- Selected from a pool of thousands of candidates to work closely with leaders of RippleMatch's Leadership Team
- Leveraged various growth strategies and tools including social media, email marketing, presentations, and peer and faculty member networking to grow the user base and awareness on campus
- Strategically assessed growth and performance metrics to improve, change and/or help design new growth strategies

DENSO Manufacturing | Production Engineer Co-op | Athens, TN

Dec 2017 - Dec 2018

- Conducted part studies on injectors from the assembly line to determine the quality and efficiency of the manufacturing process and ensure quality of parts
- Worked with a team of 5 to reduce chokoteis (pauses) in the manufacturing process
- Analyzed data from manufacturing lines and used data to pinpoint manufacturing errors that led to customer returns.
- Build SV6 and V8 prototype fuel rails for designs that were not yet in mass production; Inspected incoming parts for any damage or contamination overlooked
- Using SolidWorks determined the correct surface area for four nozzle bodies part type and compared calculated value to the values used in the cleanliness lab. Discovered values used by Quality assurance were incorrect
- Using SolidWorks rebuilt connector pallets with pallet base with a Kashima coating to replace eroded pallets

Volkert Inc. | Mobile County S.T.E.P. Summer Intern Program | Mobile, AL.

June 2017

- Update Deltek database to ensure correct employee certification information
- Assemble bonds and contracts of new and old company projects
- Analyze construction blueprints to further understand development plans in Mobile and surrounding areas.
- Visit construction site in Gulf Shore, Alabama to review blueprint plans for the in-progress smart condominium

UNDERGRADUATE PROJECTS

Alabama A&M University

NASA Student Launch Initiative

Fall 2016 - Spring 2020

- Worked independently and on a team of 10 to build a high-power motor rocket. The objective was to design, fabricate, develop, and launch a student made launch vehicle capable of reaching an altitude of 5,280ft with the ability of doing the chosen challenge for the competition applying engineering, mathematics, and computer aided designs.

NASA Mars Rover Challenge

Fall 2016 - Fall 2017

- Worked with a team of 10 to design, fabricate, develop, and compete with Mars Rover style, man-powered, vehicle through applying engineering, computer aided designs, mathematics, research and creativity to design and structurally build the wheels of the buggy using non-commercial parts and recycled rubber.

LEADERSHIP & EXTRACURRICULARS

- Informatics Graduate Student Association Feb 2023 - Present
- Orange County, CA Alumnae Chapter, Delta Sigma Theta Sorority, Inc Jul 2021 - Present
- AAMU Delta Delta Chapter, Delta Sigma Theta Sorority, Inc Mar 2021 - Present
- Delta Sigma Theta Sorority, Incorporated Mar 2021 - Present
- Society of Women Engineers Aug 2020 - 2021

- Life Church Huntsville Youth Staff Feb 2020 - Jan 2021
- Secretary, National Society of Black Engineers (NSBE) Aug 2019 - May 2020
- Eta Kappa Tau Engineering and Technology Fraternity Inc Nov 2017 - Present
- National Society of Leadership and Success Nov 2019 - Present
- President, AAMU Rocket Team Jan 2016 - Dec 2020

MENTORING AND RESEARCH SUPERVISION

Autism Research Team (ART)

- Lead a team of six designers, engineers, and researchers on an assistive technology project
- Manage two ongoing projects on assistive technology for support autistic individuals

Independent Mentoring

- Providing guidance, motivation, emotional support, and role modeling for nine mechanical engineering undergraduate students
- Setting a model of healthy and trusting relationships by effectively and consistently communicating and providing support when needed.
- Offered advice for networking, career goals, setting STAR goals, and networking.

STEM Star Scholars, AAMU

- Provided guidance and support for two incoming mechanical engineering freshmen
- Set a model of healthy and trusting relationships by effectively and consistently communicating and providing support when needed.
- Offered advice for networking, career goals, setting STAR goals, and networking.

Undergraduate Student Mentoring and Supervision

- Jamarian Bell, Alabama A&M University, Mechanical Engineering
- Philemon Jones, Alabama A&M University, Mechanical Engineering
- Chantelle Williams, Alabama A&M University, Mechanical Engineering
- William Blake, Alabama, A&M University, Mechanical Engineering
- Cameron Bolds, Alabama A&M University, Mechanical Engineering
- Jarvis Prewitt, Alabama A&M University, Mechanical Engineering
- Miahri Merrell, Alabama A&M University, Mechanical Engineering
- Nathabi Mashego, Alabama A&M University, Mechanical Engineering
- Lauryn Bell, Alabama A&M University, Mechanical Engineering
- Darci Lewis, University of South Alabama, Political Science
- Hanna Mofid, UC Irvine, Computer Science
- Avery Mavrovounioti, UC Irvine, Informatics
- Jailuo Hu, UC Irvine, Computer Science
- Kade Joshua Na, UC Irvine, Computer Science
- Nathan Serrano, UC Irvine, Software Engineering
- Rafael Carrillo Munoz, UC Irvine, Informatics + CS minor
- Weijie Du, UC Irvine, Computer Science
- Emily Wang, UCI, Computer Science
- Van Pham, UCI, Computer Science
- Athena Raphine, UCI, Computer Science