

Sanjana Mendu

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Education

Pennsylvania State University

Ph.D. in Informatics

University Park, Pennsylvania

August 2024

University of Virginia

M.S. in Systems & Information Engineering

Charlottesville, Virginia

May 2020

B.S. in Computer Science

May 2018

Work Experience

Harvard Medical School

Postdoctoral Researcher

Boston, MA

July 2024 - *Present*

- Developing and evaluating technological systems to support cardiac surgery teamwork.
- Conducting research in the Medical Robotics and Computer Assisted Surgery Lab led by Dr. Marco Zenati.

Pennsylvania State University

Graduate Student Researcher

University Park, PA

Aug 2020 - June 2024

- Developed transparent and controllable architecture for using generative AI (e.g., GPT-4, DALL-E 3) to augment motivational health message corpuses at-scale.
- Designed and developed interactive conversational systems for individuals living with chronic pain and PTSD
- Led multiple mixed-methods studies evaluating user experience and efficacy of chatbot prototypes

University of Virginia

Graduate & Undergraduate Research Assistant

Charlottesville, VA

Mar 2015 - May 2020

- Led multiple research projects towards developing novel computational methods for inferring mental health from digital data streams
- Collaborated with experts in clinical and social psychology, environmental architecture, kinesiology, and other health-related domains.

NASA Langley Research Center

Research Directorate Intern

Hampton, VA

June - Aug 2016

- Co-designed human-in-the-loop air traffic detection software for semi-autonomous aircraft systems
- Implemented decision-level Bayesian fusion algorithm in MATLAB towards improving accuracy of object-tracking results from standard computer vision methods

Honors & Awards

IST Grace Hopper Celebration Scholarship

2023

IST Graduate Student Award for Excellence in Teaching Support, Runner-Up

2023

CRA-WP Grad Cohort for Women

2021, 2023

Penn State University Graduate Fellowship

2020

Jordan Rednor Merit Scholarship

2020

Louis T. Rader Outstanding Graduate Student Award (\$500)

2019, 2020

Recognized as top student among my cohort of 130 students.

Publications

HJ Han, **S Mendu**, BK Jaworski, JE Owen, S Abdullah. (2024). Assessing Acceptance and Perceived Feasibility of a Conversational Agent to Support Individuals Living with Post-traumatic Stress Disorder. *Digital Health*.

S Mendu, N Pye, DE Conroy, S Abdullah. (2024). GAIMPLAY: A Theory-Informed Prompt Engineering Architecture for Personalized Motivational Message Generation to Promote Physical Activity. *CHI '24 Designing (with) AI for Wellbeing Workshop*.

S Mendu, SL Doyle Fosco, ST Lanza, S Abdullah. (2023). Designing Voice Interfaces to Support Mindfulness-Based Pain Management. *Digital Health*.

EC Snyder, **S Mendu**, SS Sunder, S Abdullah. (2023). Busting the One-Voice-Fits-All Myth: Effects of Similarity and Customization in Voice-Assistant Personality. *International Journal of Human-Computer Studies*.

HJ Han, **S Mendu**, BK Jaworski, JE Owen, S Abdullah. (2023). Preliminary evaluation of a conversational agent to support self-management of individuals living with PTSD: An interview study with clinical experts. *JMIR Formative Research*.

HJ Han, **S Mendu**, BK Jaworski, JE Owen, S Abdullah. (2021). PTSDialogue: Designing a Conversational Agent to Support Individuals with Post-Traumatic Stress Disorder. In *UbiComp-ISWC '21 Adjunct: Adjunct Proceedings of the 2021 ACM International Joint Conference on Pervasive and Ubiquitous Computing*.

KE Daniel, **S Mendu**, A Baglione, L Cai, BA Teachman, LE Barnes, M Boukhechba. (2021). Cognitive Bias Modification for Threat Interpretations: Using Passive Mobile Sensing to Detect Intervention Effects in Daily Life. *Anxiety, Stress, and Coping*.

S Mendu, S Sundar, S Abdullah. (2021). Context-Specific Usability Measures for Voice Assistants. *CHI '21 Let's Talk About CUIs: Putting Conversational User Interface Design Into Practice Workshop*.

C Neale, A Griffiths, LS Chalmin-Pui, **S Mendu**, M Boukhechba, J Roe. (2021). Color Aesthetics: A Transatlantic Comparison of Psychological and Physiological Impacts of Warm and Cool Colors in Garden Landscapes. *Wellbeing, Space & Society*.

S Mendu, A Baglione, S Bae, C Wu, B Ng, A Shaked, G Clore, M Boukhechba, L Barnes. (2020). A Framework for Understanding the Relationship between Social Media Discourse and Mental Health. *Proceedings of the ACM on Human-Computer Interaction*.

H Rashid, **S Mendu**, KE Daniel, ML Beltzer, BA Teachman, M Boukhechba, LE Barnes. (2020). Predicting Subjective Measures of Social Anxiety from Sparsely Collected Mobile Sensor Data. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*.

KJ Wells, LE Barnes, G Arroyo, **S Mendu**, P Medina-Ramirez, JR Gordon, SK Proctor. (2020). A Feasibility Study Comparing Patient Navigation With and Without a Spanish Language Cervical Cancer Education Tablet App. *Annals of Behavioral Medicine*.

S Mendu, A Baglione, S Bae, LE Barnes. (2020). Redesigning the Quantified Self Ecosystem with Mental Health in Mind. *CHI '20 Technology Ecosystems: Rethinking Resources for Mental Health Workshop*.

K Kowsari, KJ Meimandi, M Heidarysafa, **S Mendu**, LE Barnes, DE Brown. (2019). Text Classification Algorithms: A Survey. *Information*.

S Mendu, M Boukhechba, A Baglione, S Bae, C Wu, LE Barnes. (2019). SocialText: A Framework for Understanding the Relationship Between Digital Communication Patterns and Mental Health. In *Proceedings of the 13th IEEE International Conference on Semantic Computing (ICSC '19)*.

NJ Napoli, MW Demas, **S Mendu**, CL Stephens, KD Kennedy, AR Harrivel, RE Bailey, LE Barnes. (2018). Uncertainty in Heart Rate Complexity Metrics caused by R-peak Perturbations. *Computers in Biology and Medicine*.

S Mendu, M Boukhechba, JR Gordon, D Datta, E Molina, G Arroyo, SK Proctor, KJ Wells, LE Barnes. (2018). Design of a Culturally-Informed Virtual Human for Educating Hispanic Women about Cervical Cancer. *In Proceedings of the 12th EAI International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth '18)*.

Posters

S Mendu, SD Fosco, ST Lanza, S Abdullah. (2023). "Alexa, I'm in pain!": Development of a Voice Interface to Support Mindfulness Practice for Individuals with Chronic Pain. *Penn State Consortium on Substance Use and Addiction (CSUA) Annual Conference*.

S Mendu, A Baglione, S Bae, C Wu, B Ng, A Shaked, G Clore, MO Boukhechba, LE Barnes. (2020). SocialText: A Framework for Understanding the Relationship Between Digital Communication Patterns and Mental Health. *University of Virginia Engineering Research Symposium*.

Presentations & Invited Talks

S Mendu, SD Fosco, ST Lanza, S Abdullah. (2022). "It's just so easy!": Expert Evaluation of a Voice Interface to Support Mindfulness Practice for Individuals with Chronic Pain. *Penn State Addiction Symposium*.

S Mendu, A Baglione, S Bae, C Wu, B Ng, G Clore, MO Boukhechba, LE Barnes. (2019). Applying a Generalized Framework for Linking Private Social Media Discourse to Mental Health. *UVA Engineering Systems and Environment Distinguished Speakers Series*.

S Mendu, M Boukhechba, L Cai, M Gerber, LE Barnes. (2019). ReADI: Reliable Analytics for Disease Indicators. *UVA Engineering Systems & Environment Graduate Research Symposium*.

S Mendu, LE Barnes, KJ Wells. (2017). Design of a Culturally-Informed Virtual Human for Educating Hispanic Women about Cervical Cancer. *ACM Capital Region Celebration of Women in Computing*.

Academic Service

Wellbeing Health and Innovation Lab, Webmaster 2020 - 2024

Graduate Student Association in IST, Vice President 2022 - 2023

Reviewer 2020 - Present

CHI ('21, '22, '23, '24), ICWSM ('22, '23), IMWUT ('23), CUI ('23), CSCW ('20),
IEEE Pervasive Computing, IEEE Access, PloS ONE, ACM HEALTH, Frontiers in Computer Science

Student Volunteer, DIS 2023

Student Volunteer, CSCW 2020

Teaching Experience

DS 440: Data Science Capstone Fall 2023, Spring 2024

IST 558: Data Mining II Spring 2023

IST 501: Interdisciplinary Research Design for Information Science Fall 2022

IST 557: Data Mining Fall 2021

IST 140: Intro to Application Development Fall 2021

SYS 4581/6581: Mobile Sensing and Health Fall 2020, 2021

Delivered a guest lecture on mobile sensing & mental health.

SARC 5400: Data Visualization Spring 2018 - 2020

APMA 3080: Linear Algebra Fall 2017