Sanjana Mendu

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Research Interests

My research focuses on using digital data streams from mobile sensors to unobtrusively model behavioral health outcomes and inform just-in-time adaptive health interventions.
Topics: mHealth, machine learning, human-computer interaction, ubiquitous computing

Programming Skills: Python, R, MATLAB, LaTeX, HTML, JavaScript, PHP, CSS, MySQL, C++, C#, Java

Education

University of Virginia Charlottesville, Virginia
Master of Science, Systems & Information Engineering (*GPA: 3.86*) *May 2020*
Bachelor of Science, Computer Science (*GPA: 3.57*) *May 2018*

Research Experience

Social Anxiety Monitoring and Mobile Intervention Study *Jan 2019 - Present*

- Measure the behavioral effects of an e-Health cognitive behavior modification (CBM) intervention for socially anxious college students. Wrote software to format data in Python and analyzed using OriginLab.

Biomarkers of Mental Health in Digital Communications *Aug 2018 - Present*

- Outlined a framework for extracting features from digital text message data to understand mental health
- Applied framework to private social media data to identify the mediating effects of psychological traits on extracted patterns of communication

Reliable Analytics for Disease Indicators *Aug 2018 - Sep 2019*

- Created web-based dashboard for visualizing data streams from mobile crowdsensing app
- Implemented user-friendly Python library for extracting features from mobile motion sensor data towards modeling everyday human activity and context

Predicting Social Isolation from Social Media *Dec 2017 - May 2018*

- Conducted exploratory analysis of the role of psychological measures of social isolation in mediating social media usage among college students

Socially-Assistive Robots for K-12 Classroom Telepresence *Jun 2017 - Aug 2017*

- Conducted research through the SURE program at the University of Southern California
- Wrote and documented ROS code for operating a remote telepresence robot

Analysis of Effects of Signal Corruption on Heart Rate Complexity (HRC) *Mar 2016 - Dec 2018*

- Programmed Monte Carlo simulation to observe the effect of ECG signal corruption on extracted HRC metrics
- Developed and identified methods to robustly calculate HRC and differentiate between hypoxic and non-hypoxic patients

Culturally-Tailored Virtual Agent for Minority Health Education *May 2015 - May 2018*

- Designed a cross-platform virtual agent in Unity to provide health education to rural Hispanic farmworkers
- Analyzed results from user interviews and app usage logs to determine the effectiveness of culturally-tailored health technology for a high-risk minority population

Professional Experience

NASA Langley Research Center Hampton, VA
Research Directorate Intern *Jun 2016 - Aug 2016*

- Designed human-in-the-loop air traffic detection software for semi-autonomous aircraft system
- Co-developed decision-level Bayesian fusion algorithm that improved accuracy of object-tracking results from standard computer vision methods

Publications & Presentations

Journal Articles

- K Kowsari, KJ Meimandi, M Heidarysafa, **S Mendu**, LE Barnes, DE Brown. (Apr 2019). Text Classification Algorithms: A Survey. Information
- NJ Napoli, MW Demas, **S Mendu**, CL Stephens, KD Kennedy, AR Harrivel, RE Bailey, LE Barnes. (Dec 2018). Uncertainty in Heart Rate Complexity Metrics caused by R-peak Perturbations. Computers in Biology and Medicine

Conference Proceedings

- **S Mendu**, M Boukhechba, A Baglione, S Baee, C Wu, LE Barnes. (Jan 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). Newport Beach, CA, USA, 428-433.
- **S Mendu**, M Boukhechba, JR Gordon, D Datta, E Molina, G Arroyo, SK Proctor, KJ Wells, LE Barnes. (May 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). ACM, New York, NY, USA, 360-366.

Presentations

- **S Mendu**, A Baglione, S Baee, C Wu, B Ng, G Clore, MO Boukhechba, LE Barnes. (Sep 2019). Applying a Generalized Framework for Linking Private Social Media Discourse to Mental Health. UVA Engineering Systems and Environment Distinguished Speakers Series. Charlottesville, VA.
- H Shen, **S Mendu**. (Aug 2017). Proposal for Cooperative Traffic Surveillance System. NASA Internships, Fellowships & Scholarships (NIFS) Exit Presentation. Hampton, VA.
- **S Mendu**, LE Barnes, KJ Wells. (Feb 2017). Design of a Culturally-Informed Virtual Human for Educating Hispanic Women about Cervical Cancer. ACM Capital Region Celebration of Women in Computing (Research Shorts). Washington DC.

Posters

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

Teaching Experience

Data Visualization *Spring 2017, 2018*
Full-time GTA for two semesters with 90 students. Responsible for weekly workshops and grading.

Linear Algebra *Fall 2017*

Awards and Honors

Louis T. Rader Outstanding Graduate Student Award ($500) *Jun 2019*
Recognized as top student among my cohort of 130 students.

Unity Student Scholarship for GDC 2018 ($2,000) *Mar 2018*
Scholarship to attend the Game Developers Conference (GDC) in San Francisco, CA

Vidya Balvantrai Shelat Fund ($500) *Nov 2017*
1 out of 10 students who received this internal fellowship to support graduate school applications

HackNC: Best Use of Esri API ($1,000) *Oct 2016*

Caring for the Caregiver Hack: 2nd place ($1,000) *Mar 2016*

Extracurricular Activities

Leadership

Association for Computing Machinery, Vice Chair *2017 - 2018*

IEEE at UVA, President *2017 - 2018*

Machine Learning Club, Departments Chair *2017 - 2018*

Student Game Developers at UVA, Internal Relations Chair *2017 - 2018*

Mentorship

Charlottesville High School *Oct 2019 - Present*
Mentor high school students working on engineering capstone projects

USC SHINE *Jun - Aug 2017*
Mentored 2 high school students working on research projects in computer science

Women in Computer Science *Sep 2016 - May 2017*

Peer Advising Family Network *Sep 2015 - May 2016*
Peer mentorship program for first year Asian-American students

Outreach

College Mentors for Kids, Volunteer *Mar 2017*
Held workshop to introduce local 2nd - 4th graders to video game development

Girls Who Code, Panelist *July 2017*

Society of Women Engineers, High School Visitation Group Leader *Apr 2016*

Patronus Project, Panelist *Feb 2015*
Spoke to undergraduate students about mental health stigma

Service

Charlottesville Albemarle SPCA, Volunteer *Mar - Aug 2019*

Extra Life, Site Coordinator *Nov 2017*
Hosted a 24-hour video game streaming event and raised $600 for the UVA Children's Hospital

Virginia Institute of Autism (VIA), Volunteer *Mar - Apr 2017*
Introduced children at the VIA to robotics and engineering through the Lego Mindstorm curriculum