

# Sanjana Mendu

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## Education

### The Pennsylvania State University

*Ph.D. in Informatics, Advisor: Saeed Abdullah*

**State College, Pennsylvania**

*Aug 2020 - Present*

### University of Virginia

*M.S. in Systems & Information Engineering, Advisor: Laura Barnes*

**Charlottesville, Virginia**

*Aug 2018 - May 2020*

*B.S. in Computer Science*

*Aug 2014 - 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

## Work Experience

### NASA Langley Research Center

*Research Directorate Intern*

**Hampton, VA**

*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

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## Journal Articles

- J2. K Kowsari, KJ Meimandi, M Heidarysafa, **S Mendu**, LE Barnes, DE Brown. (Apr 2019). Text Classification Algorithms: A Survey. Information
- J1. 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 Papers

- C2. **S Mendu**, A Baglione, S Baee, C Wu, B Ng, A Shaked, G Clore, M Boukhechba, L Barnes. (Oct 2020). A Framework for Understanding the Relationship between Social Media Discourse and Mental Health. Proceedings of the ACM on Human-Computer Interaction.
- C1. H Rashid, **S Mendu**, KE Daniel, ML Beltzer, BA Teachman, M Boukhechba, LE Barnes. (Sep 2020). Predicting Subjective Measures of Social Anxiety from Sparsely Collected Mobile Sensor Data. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies.

## Workshop Papers

- W3. **S Mendu**, A Baglione, S Baee, LE Barnes. (Apr 2020). Redesigning the Quantified Self Ecosystem with Mental Health in Mind. CHI 2020 Technology Ecosystems: Rethinking Resources for Mental Health Workshop. Honolulu, HI, USA.
- W2. **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.
- W1. **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.

## Posters

- P2. **S Mendu**, A Baglione, S Baee, C Wu, B Ng, A Shaked, G Clore, MO Boukhechba, LE Barnes. (Apr 2020). SocialText: A Framework for Understanding the Relationship Between Digital Communication Patterns and Mental Health. University of Virginia Engineering Research Symposium (UVERS).
- P1. **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.

## 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.
- **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.

## Teaching Experience

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### **SARC 5400: Data Visualization**

*Spring 2018, 2019, 2020*

Full-time GTA for two semesters with 90 students. Responsible for weekly workshops and grading.

### **APMA 3080: Linear Algebra**

*Fall 2017*

## Awards and Honors

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### **Penn State University Graduate Fellowship (\$30,000)**

*Aug 2020*

### **Jordan Rednor Merit Scholarship (\$6,000)**

*Aug 2020*

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

*May 2019, 2020*

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

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### 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