Wageesha Bangamuarachchi

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Summary

Ph.D. student in Human-Centered Computing at the University of Utah, experienced in designing and evaluating smart hospital technologies through user studies, log data analysis, and mobile sensing-based human-behavior modeling. Skilled in both user-centered research and software engineering.

Research Interests : Human-Computer Interaction, Ubiquitous Computing, Human-behavior Modeling

Education

Doctor of Philosophy

University of Utah : Kahlert School of Computing *Aug. 2023 - 2028*

- Human-centered Computing Specialization Track
- CGPA 3.95/4.0

BSc Engineering (Honors) 1st Class, Computer Science & Engineering

University of Moratuwa, LK *Sep. 2017 - Jul. 2022*

- GPA 3.98/4.2 (Top 10 of the class of 127)
- Dean's List in every semester

Research Experience

Graduate Researcher

University of Utah : Kahlert School of Computing *Aug. 2023 - Present*

- **Advisor :** Dr. Jason Wiese
- Conduct user studies with hospital stakeholders to evaluate usability, workflow integration, and adoption of smart hospital technologies, informing the design of automation and robotic integration strategies.
- Analyze smart patient room interaction logs to model patient–device behavior patterns using machine learning–based pattern recognition, identifying opportunities for data-driven automation.

Undergraduate Researcher

University of Moratuwa, LK *Mar. 2021 - Jul. 2022*

- **Advisors :** Prof. Indika Perera (University of Moratuwa, LK), Dr. Lakmal Meegahapola, Prof. Daniel Gatica-Perez (EPFL, CH)
- Developed personalized machine learning models for mood inference and behavioral prediction using multimodal smartphone sensing data.
- Designed and deployed mobile applications and ML pipelines to detect eating events in real time, validated through in-the-wild data collection.

Publications

Journals (* - equal contribution)

- **W. Bangamuarachchi**, J. Dawson, J. Wiese; Hospital Administrator Perspectives on Integrating Novel Interactive Technology in the Hospital [Under Review : ACM Transactions on Computing for Healthcare (ACM HEALTH)]
- **W. Bangamuarachchi***, A. Chamantha*, L. Meegahapola*, S. Ruiz-Correa, I. Perera, D. Gatica-Perez; *Sensing Eating Events in Context : A Smartphone-Only Approach*; IEEE Access, vol. 10, 2022. [Published | IF : 3.75]
- **W. Bangamuarachchi***, A. Chamantha*, L. Meegahapola*, H. Kim, S. Ruiz-Correa, I. Perera, D. Gatica-Perez; *Inferring Mood-While-Eating with Smartphone Sensing and Community-Based Model Personalization*; ACM Transactions on Computing for Healthcare 6, 3, Article 35 (July 2025). [Published | IF : 7.15]

Technical & Research Skills

Programming	Python, Java
Frameworks	Spring-Boot, Android
Research Methods	User-studies, Qualitative Analysis, Quantitative Analysis, ML Evaluation, Log Data Analysis
Other	Object-Oriented Software Development, CI/CD, AWS

Work Experience

Software Engineer

Sysco LABS Technologies (Pvt.) Ltd., LK *May 2022 - Aug 2023*

- Designed and implemented scalable, cloud-based serverless solutions, end-to-end production deployment, and hypercare.
- Maintained and optimized AWS-based cloud infrastructure and managed DevOps workflows.
- Conducted performance testing and optimization to ensure high availability and low latency.

Software Engineering Intern

Sysco LABS Technologies (Pvt.) Ltd., LK *Oct. 2020 - Mar. 2021*

- Implemented and tested SOAP and REST APIs to enhance data interoperability across enterprise systems.
- Contributed to full-stack mobile development and UI test automation for production applications.

Research Projects

Smart Hospital Technology : Robotic Integration for Healthcare Environments

Advisors : Dr. Jason Wiese

- Conduct storyboard-based design sessions with hospital stakeholders to identify key requirements and challenges for effective robotic technology integration in a smart hospital setting.

Smart Patient Room Log Data Analysis

Advisors : Dr. Jason Wiese (University of Utah)

- Analyze interaction log data from 75 patients to model patient–device behaviors and uncover automation opportunities for improving hospital workflows.

Hospital Administrator Perspectives on Smart Hospital Technology

Advisors : Dr. Jason Wiese (University of Utah)

- Conducted semi-structured interviews with hospital administrators/managers to investigate technical and financial decision-making factors influencing smart technology adoption and recommend process improvements for integration.

Sensing Eating Events in Context : A Smartphone-Only Approach

Advisors : Dr. L. Meegahapola, Prof. D. Gatica-Perez (EPFL, CH), Prof. I. Perara (University of Moratuwa, LK)

- Validated passive multimodal smartphone sensing (accelerometer, location, app, screen, and battery usage) for detecting eating events in real-world contexts, achieving an F1 score of 85.2%. Demonstrated feasibility of ubiquitous sensing for behavioral monitoring without external wearables.

Inferring Mood-While-Eating with Smartphone Sensing and Community-Based Model Personalization

Advisors : Dr. L. Meegahapola, Prof. D. Gatica-Perez (EPFL, CH), Prof. I. Perara (University of Moratuwa, LK)

- Investigated the challenge of sub-context shifts in mobile sensing by demonstrating that generic mood models fail during eating episodes; implemented a community-based personalization approach to successfully infer mood-while-eating with high accuracy.

MSense : Real-Time Mobile Sensing for Eating Behavior Detection

Advisors : Dr. L. Meegahapola, Prof. I. Perara (University of Moratuwa, LK)

- Designed, developed, and deployed the MSense application, integrating real-time ML models (general and personalized) to detect eating events from smartphone sensor data. Collected real-world data from 12 participants to evaluate model performance.

MCollect : Flexible Research Data Collection Platform

Advisor : Dr. Kutila Gunasekera (University of Moratuwa, LK)

- Engineered the MCollect Android application, a flexible research data collection tool featuring customizable project requirements, diverse data type collection, and robust offline/online data viewing capabilities.

Awards & Honors

2017-2022 **Dean's list - All the semesters**, Department of Computer Science and Engineering, University of Moratuwa, LK

2018-2022 **Competitive Programming & Hackathons**, Top 20 nationally in IEEE Xtreme (Top 250 globally), MoraXtreme, and Google Hash Code.

2019 **University of Moratuwa Colors Award**, Recognized for outstanding non-academic achievements

2016 **GCE Advanced Level – Island Rank 198 / 33,000+ Candidates**, Physical Science Stream. Department of Examinations of the Ministry of Education, LK. Z-Score 2.26

Services

Reviewer

2024 **IMWUT/UbiComp**, ACM Interactive, Mobile, Wearable and Ubiquitous Technologies

2025 **JRP**, JMIR Research Protocols

2025 **CHI**, ACM Conference on Human Factors in Computing Systems