Wageesha Bangamuarachchi

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Summary

I am a first year Ph.D. student who is currently working as a Graduate Researcher at the University of Utah in the research area of Smart Hospital Room Technology. I have experiences on conducting research on intersection of human-computer interaction, ubiquitous computing, mobile sensing, and machine learning for domains such as healthcare and human behavior modeling.

Education

Doctor of Philosophy, Computer Science
UNIVERSITY OF UTAH, UT : KAHLERT SCHOOL OF COMPUTING   *Aug. 2023 - Present*
- Human-centered Computing Specialization Track

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 :** Prof. Jason Wiese
- Conducting interviews on smart hospital room technology experience.
- Smart Patient Room log data analysis in order to improve the technology to support the hospital stakeholders' needs.

Undergraduate Researcher
UNIVERSITY OF MORATUWA, LK   *Mar. 2021 - Jul. 2022*
- **Advisors :** Prof. Indika Perera (University of Moratuwa, LK), Lakmal Meegahapola (EPFL, CH) and Prof. Daniel Gatica-Perez (EPFL, CH)
- Research on personalized machine learning models for mood inference using multimodal smartphone sensing data
- Research on eating events detection with smartphone sensing using multimodal smartphone sensing data
- Design and deploy mobile applications and ML models to detect eating events in real-time by collecting real-world data

Publications

Journals (* - equal contribution)

- **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 | Impact Factor : 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*. [Under review] ↗

Technical Skills

Languages	Python, Java
Machine Learning	Scikit-Learn, Pandas, Numpy
Frameworks	Spring-Boot, Android
Databases	OracleDB, MongoDB
Other	Model Personalization, Object Oriented Software Development, AWS

Work Experience

Software Engineer
Sysco LABS Technologies (Pvt.) Ltd., LK *May 2022 - Aug 2023*
- Implement cloud-based serverless solutions, production deployment, production support and hypercare
- Cloud infrastructure maintenance and Dev-Ops
- POC tasks on data files handling, CI/CD pipeline.

Software Engineering Intern
Sysco LABS Technologies (Pvt.) Ltd., LK *Oct. 2020 - Mar. 2021*
- Implement test cases to test SOAP endpoints, implement main functionalities to access database and test automation
- Development of RESTful-API, automate endpoint documentation and test automation of REST endpoints
- Mobile application back-end, front-end development and UI test automation

Research Projects

Smart Hospital Technology
Advisors : Prof. Jason Wiese *2023*
- Analysis of Smart Patient Room log data and find behaviour patterns of the patients to improve automation within the smart hospital room in order to support hospital stakeholders needs.
- Conduct interviews with hospital employees (non-patients) on smart hospital experience.

Sensing Eating Events in Context : A Smartphone Only Approach
Advisors : L. Meegahapola and Prof. D. Gatica-Perez (EPFL, CH), Prof. I. Perara (University of Moratuwa, LK) *2021*
- Investigated and showed that passive smartphone sensing features such as accelerometer, location, app usage, screen usage, and battery usage could be used to detect eating and non-eating events in real-life situations with an F1 score of 85.2%.

Inferring Mood-While-Eating with Smartphone Sensing and Novel Personalization Technique
Advisors : L. Meegahapola and Prof. D. Gatica-Perez (EPFL, CH), Prof. I. Perara (University of Moratuwa, LK) *2022*
- Conducted research on inferring mood-while-eating using smartphone sensing and self-reports. Showed that accuracies over 80.7% can be achieved for the three-class mood inference task (positive, neutral, negative) by using a novel community-based model personalization technique.

MSense Mobile Application - Sensing Eating Events in Context
Advisors : L. Meegahapola (EPFL, CH), Prof. I. Perara (University of Moratuwa, LK) *2022*
- Designed, developed, and deployed a mobile application and ML models (General and personalized models) to detect eating events in real-time by using users' behavior and context with the help of sensing features such as accelerometer, location, screen usage, and battery usage. Collected real-world data from 12 participants during the pandemic period and observed the model performance.

MCollect Mobile Application
Advisor : Kutila Gunasekera (University of Moratuwa, LK) *2022*
- Designed and developed an android mobile application to be used as research data collection app with the features such as : customizing the app to suit different project requirements, collecting different types of data, and viewing and downloading data that can be used offline and online.

Call Detail Record (CDR) data analyzing library
Advisor : L. Fernando (LIRNEasia) *2020*
- Designed and developed a python library for CDR data analysis for the call, message, and antenna datasets. Functionalities : Data cleaning, data modeling, and visualization.

Awards & Honors

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

2021 **IEEEXtreme 15.0 – Island Rank 18, World Rank 247**, Programming competition organized by IEEE, competed against 2500+ teams

2021 **MoraXtreme 6.0 – Island Rank 15**, Programming competition organized by University of Moratuwa, LK, competed against 250+ teams

2020 **IEEEXtreme 14.0 – Island Rank 26, World Rank 274**, Programming competition organized by IEEE, competed against 3000+ teams

2020 **MoraXtreme 5.0 – Island Rank 14**, Programming competition organized by University of Moratuwa, LK, competed against 250+ teams

2020 **HomeAlone2020 Hackathon – Island Rank 3**, 72 hours Hackathon organized by the Students' Union of Faculty of IT, University of Moratuwa, LK, competed against 450+ teams

2020 **Google Hash Code - Island Rank 21**, Programming competition organized by Google

2019 **Code with WIE competition – Best Team Process Award**, Hackathon organized by IEEE Women in Engineering, LK

2019 **University of Moratuwa Colors Award**, Awarded to appreciate non-academic related outstanding performance of the undergraduates of University of Moratuwa, LK

2019 **IEEEXtreme 13.0 - Island Rank 27, World Rank 461**, Programming competition organized by IEEE, competed against 3000+ teams

2019 **MoraXtreme 4.0 – Island Rank 14**, Programming competition organized by University of Moratuwa, LK, competed against 250+ teams

2018-2022 **Mahapola Higher Education Scholarship**, Ministry of Education, LK. Awarded to top 1% of all undergraduates

2016 **GCE Advanced Level – Island Rank 198 out of 30000+ candidates**, Physical Science Stream. Department of Examinations of the Ministry of Education, LK. Z-Score 2.2617

2013 **GCE Ordinary Level – Distinction**, Department of Examinations of the Ministry of Education, LK. 470,000+ candidates