# Wageesha Bangamuarachchi

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## Summary

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

## Education

### Doctor of Philosophy

UNIVERSITY OF UTAH, UT : KAHLERT SCHOOL OF COMPUTING *Aug. 2023 - Present*
- 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 to evaluate hospital stakeholders' experiences with smart room technologies.
- Analyzed Smart Patient Room system log data to identify patterns and generate insights for improving technology to better support hospital stakeholder 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*; ACM Trans. Comput. Healthcare 6, 3, Article 35 (July 2025). [Published | Impact Factor : 7.15] ↗
- **W. Bangamuarachchi**, J. Dawson, J. Wiese; Hospital Administrator Perspectives on Integrating Novel Interactive Technology in the Hospital [Under review : ACM Trans. Comput. Healthcare]

## Technical Skills

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| **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*
- Designed and implemented cloud-based serverless solutions, end-to-end production deployment, support, and hypercare.
- Maintained cloud infrastructure and managed DevOps workflows.
- Conducted POC tasks focused on large-scale data file handling and CI/CD pipeline automation.

### Software Engineering Intern
Sysco LABS Technologies (Pvt.) Ltd., LK                              *Oct. 2020 - Mar. 2021*
- SOAP and REST API implementation and test automation
- Full-stack mobile development
- UI test automation

# Research Projects

### Smart Hospital Technology : Log Data Analysis
Advisors : Dr. Jason Wiese (University of Utah)
- Analyze Smart Patient Room log data to identify patient behavior patterns and inform improvements in automation, enhancing support for hospital stakeholders' needs.

### Hospital Administrator Perspectives on Smart Hospital Technology
Advisors : Dr. Jason Wiese (University of Utah)
- Conduct semi-structured interviews with hospital administrators and managers to explore their experiences with smart hospital technologies, including technical and financial decision-making factors, the technology integration process, and their recommendations for improvement.

### 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)
- 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)
- 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)
- 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 : A Research Data Collection Mobile Application
Advisor : Kutila Gunasekera (University of Moratuwa, LK)
- Designed and developed an Android mobile application to be used as a research data collection app with 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.

### Cellyzer : Call Detail Record (CDR) Data Analyzing Library
Advisor : L. Fernando (LIRNEasia)
- 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

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| 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 |

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| 2024 | **IMWUT/UbiComp**,  Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies |