Yasith Samaradivakara

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EDUCATION

- **University of Colombo - B.Sc (Hons) in Computing**   Colombo, Sri Lanka
  GPA: 3.97/4.0   *March 2020 - June 2024*

INTERESTS

- Building Assistive Wearables and Digital Interfaces at the intersection of HCI and AI.

SKILLS

- **Programming Languages**: Python, C, C++, Java, Javascript, C#, PHP, Objective-C
- **Software Development**: Android SDK/NDK, Flutter, React-Native, iOS, React, Express, .Net, Flask
- **Other**: PyTorch, Tensorflow, OpenCV, Unity, Blender, Arduino IDE, PlatformIO, MaxMSP, MATLAB, Tableau

RESEARCH EXPERIENCE

- **National University of Singapore - Augmented Human Lab**   Singapore
  Research Engineer + Intern   *Nov 2022 - Present*

  - **Enhancing Educational Experience of Deaf and-Hard-of-Hearing (DHH) Students using AR captions**:
    - Followed a Iterative User-Centered Design (UCD) Process with Co-Design methods to develop 30 AR prototypes with localized real-time captions.
    - Addressed the research questions of presentation and placement of real-time captions, visualizations to represent low confidence ASR transcriptions and strategies for wearer text visualizations.
    - Conducted five user studies with 24 participants and performed both quantitative and qualitative analysis.
  - **AiSee - Conversational agent for People with Visual Impairments (PVI) to access visual information**:
    - Architect and Developed the Software for an Android wearable with advanced speech and image processing algorithms.
    - Conducting a case study with five people from Singapore to evaluate the trust, satisfaction and accuracy of the system.
  - **Hatthini - Emotional Regulation Companion**:
    - Designed a comprehensive pipeline for data gathering, cleaning, labeling, and validating a 1M tweet dataset to create a 700,000 rich dataset of emotion-cause.
    - Implemented text normalization, tokenization, topic modeling and semantic analysis to enhance the dataset's quality for NLP applications.
    - Evaluated BERT and T5 models on the enhanced dataset, incorporating human validation via Amazon Mechanical Turk for accuracy assessment.
    - Designed and developed a mobile app interface for a text and voice-based emotional regulation.
  - **Kavy - Poetic ChatBot (PlayStore , AppStore)**:
    - Developed a mobile app with a backend including emotion identification and poem generations using LLMs.
    - Conducted user studies with 48 participants and performed both quantitative and qualitative analysis.
    - Designed an interface to collect user feedback using Qualtrics, and designed an analytical dashboard to visualize results.
  - **Hith - Client-Therapist Interaction Management System**:
    - Designed and Developed a mobile application interface for clients and therapists to manage activities such as real-time video calling and messaging, effective calendar event management, automated email functionalities and analytical dashboard with real-time updates.
  - **Soni-Phy - Interactional Approach to werable sensing**:
    - Developed a mobile interface to capture physiological data from EmpaticaE4 and modulate it with urban sounds using MaxMSP and DSP techniques.

- **Cardiff University**   United Kingdom
  Remote Research Collaborator   *July 2023*

  - **Tangible Metrics Interface**: Designed a Mobile interface to gather electricity, water , food consumption and represent these consumption metrics in a novel interactive tangible object controlled by a microcontroller

SELECTED PUBLICATIONS

- **Y. Samaradivakara, T. Ushan, A. Pathirage, P. Sasikumar, K. Karunanayaka, C. Keppitiyagama, S. Nanayakkara**: "SeEar: Tailoring Real-time AR Caption Interfaces for Deaf and Hard-of-Hearing (DHH) Students in Specialized Educational Settings" in Extended Abstracts of the CHI Conference on Human Factors in Computing Systems, 2024   acm
- **M. Hyung, Y. Samaradivakara, C. Gupta, P. Sasikumar, S. Nanayakkara**: "KNOW-EMO: A large dataset of Emotion-Cause" in Proc. Emperical Methods in Natural Language Processing, 2023   acl
- **S. Cooray, C. Hettiarachchi, V. Nanayakkara, D. Matthies, Y. Samaradivakara, S.Nanayakkara**: "Kavy: Fostering Language Speaking Skills and Self-Confidence Through Conversational AI" in Proc. Augmented Humans, 2024   acm
- **M. Hyung, K. Yeo, Y. Samaradivakara, S. Nanayakkara**: "Catch that butterfly: Detecting and Simulating Gut Feelings with Gut-Brain Interface" in UIST Poster, 2024

Selected Honors and Awards

- First Undergraduate from the Sri Lanka to publish at CHI
- Sri Lankan Team Lead - Huawei Seeds for the Future 2022, Thailand
- Most Outstanding Student of the College - 2018
- Best University Project of the Year - Silver (National ICT Awards - 2022)
- U-19 National Cricket Team Player
- TadHack Global and National Winners - 2021
- Directors List and Best Performing Student Awards at University
- Top university rank at IEEEXtreme 14.0

Industry Experience

- **Software Engineer (Part-time, Contractual)** — Remote
  PeachIT — *Oct 2020 – Sep 2021*
- **Software Engineer + Software Engineer Intern** — Sri Lanka
  StredgeTech Solutions — *May 2018 – Aug 2020*
- **Internship** — Thailand
  Huawei — *Sep 2022*

Teaching Experience

- **University of Colombo School of Computing** — Sri Lanka
  Undergraduate Teaching Assistant — *June 2023*
    - **IS 1101**: Programming and Problem Solving with C
    - **SCS 2205**: Computer Networks

Selected Projects

- **SpeechAssist - Mobile app designed to support stammering treatments using advanced audio DSP techniques (Team Lead)**: Developed a mobile app to support DAF and FAF stammering treatment methods by replaying spoken audio with a delay and shift in frequency. We developed signal processing algorithms to identify, minimize audio latency of android devices and change the frequency of replayed audio.
  Tech: Android NDK/SDK, Superpowered Audio SDK, React, C++, JAVA

- **ICOAE - Smart wristband and a web/mobile based platform for health monitoring and emergency handling for elderly people (Team Lead)**: Designed a low-cost Smart Wristband prototype to monitor the heart beat, blood pressure for elders and Web/ Mobile Interface for national ambulance service in Sri Lanka to identify the live location in an emergency.
  Tech: Python, Arduino, MongoDB, React, NodeJS

- **Teacher Transfer - First official Sri Lankan mobile e-government initiative (Team Lead)**: Application was built to automate the college teacher transfers in Sri Lanka. We Implemented a searching algorithm to make mutual transfers more effective. Link: playstore/slteachers
  Tech: Python, Arduino, MongoDB, React, NodeJS

- **Bright REDD - Cyber Threat/Risk Assessment Tool developed for Australian Companies in Brisbane**: Improved the performance and scalability of the application using Azure Micro-services. Used design principles and refactored the code. Link
  Tech: ReactJS, ASP .Net, Azure

- **IBIZ - ERP Solution**: Developed APIs for procurement components. Used core design principles and patterns to implement inversion of control using concepts of dependency injection. Learned and implemented core design patterns including Singleton, Observer, Builder, Factory and SOLID Design Principles.
  Tech: .Net, PostgreSQL

- **National Olympiads in ICT - Official Website (Team Lead)**: Lead a team to redesign the website to improve its efficiency and modifiability. Link: noi.lk
  Tech: NodeJS, ReactJS, MYSQL

Scholarships and Volunteer Experience

- **Huawei Seeds for the Future 2022, Sri Lankan Team Lead**: Selected to a team of 5 out of all undergraduates from Sri Lanka for a competition and training program in Thailand.
- **NUS Summer Research Intern**: Selected to a list of 13 undergraduates out of 900+ undergraduates from Asia to a research internship at NUS.
- **11th GitHub Campus Expert of Sri Lanka - Student Leader of University of Colombo**: Led diverse initiatives including workshops, hackathons, and mentorship programs, fostering a dynamic local student community focused on collaborative learning, project development, and creating inclusive tech spaces.
- **Microsoft Student Ambassador**: Represented Microsoft on campus, orchestrating educational events and tech seminars, and promoting a culture of innovation and technological proficiency among peers.
- **Executive Board Member**: Webmaster of IEEE UCSC, IEEE Sri Lanka, ACM and Computer Science Society of University of Colombo
- **Speaker, Organizer, Mentor**: Mentored Students for National and International ICT Olympiads and conducted more than 20+ knowledge sharing sessions, organized hackathons and workshops.