

NUWAN JANAKA

HCI Researcher | Ph.D. Candidate | Engineer

@ nuwanj@comp.nus.edu.sg

📍 Singapore

🌐 nuwanjanaka.info

📄 nuwan-janaka

🔗 janakanuwan

📅 [May 2023]

A final-year Ph.D. candidate in the School of Computing at the **National University of Singapore**, with over three years of experience in Human-Computer Interaction (HCI) research and industrial software development. With an engineering background, his interests span the multidisciplinary domains of HCI, wearable technology, and the Internet of Things aimed at enhancing human abilities. His current research explores notification management in heads-up computing and smart glasses applications. He enjoys reading books, watching anime, and running in his leisure time.

PROFESSIONAL EXPERIENCE

Research Engineer

📅 Oct 2017 – Jul 2018

📍 Sri Lanka

- Led a research study (3 members) on relieving inconveniences caused by mouth whistles for local traffic police and applied for a patent.
- Consulted a garment factory to implement IoT solutions (Industry 4.0) to optimize performance and boost productivity in collaboration with the University of Moratuwa and wrote parts in final report.
- As a co-founder, designed the APIs and front-end for the FootFall application that monitors occupancy (using CCTV cameras) in a specific shop floor area to identify and predict visiting patterns.
- Developed firmware for TyreAid Version 2, tire pressure monitoring system, to support location tracking and verified PCB designs.

Senior Software Engineer – Sysco Labs

📅 Dec 2016 – Sep 2017

📍 Sri Lanka (Colombo)

- Undertook several roles such as a full-stack developer, a release manager, and an analyst to improve the quality of Point of Sales (POS) devices.
- Investigated production issues such as POS device boot-up problems, system crashes, and unresponsive touch display and recommended solutions to reduce them.
- Created proof of concepts to remotely upgrade POS device OS from 32-bit to 64-bit (using Canonical Landscape and image cloning) to remove multiple builds in production to decrease testing times.

Software Engineer – Sysco Labs

📅 May 2015 – Dec 2016

📍 Sri Lanka, USA (San Francisco)

- Integrated chip (EMV) and contactless transaction processing hardware with Cake POS machines and minimized the liability of merchants for fraudulent credit card payments.
- Collaborated with local and foreign developers in integrating new V3 hardware with existing Cake POS systems and enabled brightness control to achieve a romantic ambiance in restaurants.
- Investigated the Idtech MSR failures in production and recommended solutions that reduced replacement costs (5 replacements/month to 1 replacement/month) and improved merchant trust in Cake products.

Research Intern – Singapore University of Technology and Design, Supervisor: Asst. Prof. Suranga Nanayakkara

📅 Nov 2013 – May 2014

📍 Singapore

- Built a medical device, SHRUG (Stroke Haptic Rehabilitation Utilizing Gaming), to enhance effectiveness of rehabilitation process in collaboration with Singapore St. Andrew's Community Hospital.
- Debugged infrared communication of SparKubes and removed interference with each sensor to explore the interplay between digital and physical space with minimalistic interfaces.
- Contributed to iSwarm, a large-scale underwater lighting project at *iLight MarinaBay 2014*.

EDUCATION

Ph.D. in Human-Computer Interaction

National University of Singapore (NUS)

📅 Sep 2018 – 2023

📍 Singapore

- Thesis title: Heads-up OHMD notifications
- Advisor: Assoc. Prof. Shengdong Zhao

B.Sc. (Hons.) Eng in Electronic and Telecommunication Engineering

University of Moratuwa (UoM)

📅 Jul 2010 – Apr 2015

📍 Sri Lanka

- GPA: 4.07/4.2, Ranking: 2/100, First class

PUBLICATIONS

Can Icons Outperform Text? Understanding the Role of Pictograms in OHMD Notifications

Nuwan Janaka, Shengdong Zhao, and Shardul Sapkota.

📍 ACM SIGCHI 2023 DOI: 10.1145/3544548.3580891

NotiFade: Minimizing OHMD Notification Distractions Using Fading

Nuwan Janaka, Shengdong Zhao, and Samantha Chan.

📍 ACM SIGCHI 2023 DOI: 10.1145/3544549.3585784

ParaGlassMenu: Towards Social-Friendly Subtle Interactions in Conversations

Cai Runze, Nuwan Janaka, Shengdong Zhao, and Minghui Sun.

📍 ACM SIGCHI 2023 DOI: 10.1145/3544548.3581065

AdaptReview: Towards Effective Video Review using Text Summaries and Concept Maps

Shan Zhang, Yang Chen, Nuwan Janaka, Chloe Haigh, Shengdong Zhao, and Wei Tsang Ooi.

📍 INTERACT 2023

Paracentral and near-peripheral visualizations: Towards attention-maintaining secondary information presentation on OHMDs during in-person social interactions (**Honorable mention**)

Nuwan Janaka, Chloe Haigh, Hyeongcheol Kim, Shan Zhang, and Shengdong Zhao.

PATENTS

Electronic whistle device

Janaka N.P.K.N., Madanayaka T.D., Tharanga W.A.S.


📍 Sri Lankan Patent Application No. LK/P/1/19698. Filing Date: 09 January 2018


Stroke Haptic Rehabilitation Utilizing Gaming


Nanayakkara S.C., Janaka N., Peiris R., Withana A.

📍 Singapore Patent Application No. 102014068275. Filing Date: 27 October 2014


AWARDS & ACHIEVEMENTS


Invited Talk at "ACM Best of CHI" - SIGGRAPH Asia  2022
ACM SIGGRAPH


Gary Marsden Travel Award  2022
"Awarded by the ACM SIGCHI Committees for international conference travel

CHI Honorable Mention  2022
Awarded by The ACM CHI Conference on Human Factors in Computing Systems

NUS Research Scholarship  2018
Awarded by Ministry of Education, Singapore

Dean's List in all Academic Semesters  2015
Awarded by University of Moratuwa

Mahapola Higher Education (Merit) Scholarship  2010
Awarded by Mahapola Trust Fund for the excellent performance in GCE A/L examination

Ranked 2nd in Galle District and 32nd in the Island for GCE A/L examination  2009
Among ≈ 210,000 participants

SERVICES

Associate Chair, Reviewer  2020–Present
ACM SIGCHI LBW, CHI, IMWUT, UIST

- Reviewed LBW and full papers on notifications, augmented reality, sensing, and smart glasses.

Student Volunteer  2022–2023
ISMART 2022, IEEE VR 2023, CHI 2023

- Developed the Gather Town (online demonstrations) platform with the Online Experience Team.
- Coordinated physical paper sessions, panel discussions, and workshops, and managed registration duties.

📍 **ACM SIGCHI 2022** DOI: 10.1145/3491102.3502127

Visual Behaviors and Mobile Information Acquisition

Nuwan Janaka, Xinke Wu, Shan Zhang, Shengdong Zhao, and Petr Slovak.

📍 **arXiv 2022** arXiv:2202.02748

EYEditor: Towards On-the-Go Heads-Up Text Editing Using Voice and Manual Input

Debjyoti Ghosh, Pin Sym Foong, Shengdong Zhao, Can Liu, Nuwan Janaka, and Vinitha Erusu.

📍 **ACM SIGCHI 2020** DOI: 10.1145/3313831.3376173

SHRUG: stroke haptic rehabilitation using gaming

Roshan Lalintha Peiris, Nuwan Janaka, Deepthika De Silva, and Suranga Nanayakkara.

📍 **ACM OZCHI 2014** DOI: 10.1145/2686612.2686669

SparKubes: exploring the interplay between digital and physical spaces with minimalistic interfaces

Santiago Ortega-Avila, Jochen Huber, Nuwan Janaka, Anusha Withana, Piyum Fernando, and Suranga Nanayakkara.

📍 **ACM OZCHI 2014** DOI: 0.1145/2686612.2686643

STRENGTHS

• HCI Research

Quantitative and Qualitative Methods

Experimental Design

Usability Studies

Statistical Analysis

Augmented Reality (AR)

Notifications

Heads-up Computing

Smart glasses

• Programming Languages

Java

Python

C

C++

Matlab

MySQL

• Web Technologies

HTML

CSS

JS

Node.js

React

• Tools

R-Studio

JASP

Atlas.ti

Unity

Android

SolidWorks

AutoCAD

Altium DXP

EagleCAD

Keil IDE

Arduino

Git

Docker

Kdenlive

Simulink

Ubuntu

Teaching Assistant  2019–2022
School of Computing, NUS

- Mentored and conducted tutorials for undergraduate students on HCI and Software Engineering related modules (CS3249: User Interface Design: 15 students/semester, CS2103T: Software Engineering: 10 students/semester, CS3219: Software Engineering Principles and Patterns: 40 students/semester)

Lab Instructor  2014–2015
Department of Electronics and Telecommunication Engineering, UoM

- Mentored first-year undergraduates on laboratory practices (40 students/session).




Sub-Editor  2013–2014
E-Club, UoM

- Collaborated with creating yearly magazine and organizing the *Sri Lankan Robotics Challenge (SLRC)*, and built website for SLRC 2013 where more than 20 teams participated.

Volunteer  Aug 2012
Lanka Education And Research Network

- Volunteered in organizing *APAN-34th Meeting* with Lanka Education And Research Network where more than 400 participants attended.

PROFESSIONAL AFFILIATIONS

- Member of ACM SIGCHI (Association for Computing Machinery)  2017 – Present
- Member of IEEE (Institute of Electrical and Electronics Engineers)  2013 – Present
- Associate member of IESL (Institute of Engineers Sri Lanka)  2013 – Present

LANGUAGES

English (Fluent)

Sinhala (Native)

REFEREES

Available upon request