

# NUWAN JANAKA

HCI Researcher | Ph.D. Candidate | Engineer

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Singapore

nuwan-janaka

janakanuwan

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A fifth-year Ph.D. candidate in the School of Computing at the **National University of Singapore**, who has more than three years of experience in Human-Computer Interaction (HCI) research and industrial software development. With an engineering background in hardware (electronics), his interests lie in multidisciplinary domains of HCI, Wearable Technology, and Internet of Things (IoT), which enhance humans' abilities. His current research focuses on managing notifications in heads-up computing and smart glasses. He enjoys his leisure time reading books, watching anime, and running.

## 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 – Present 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

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

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.

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

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

ACM SIGCHI 2020 DOI: 10.1145/3313831.3376173

## 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

### 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 2<sup>nd</sup> in Galle District and 32<sup>nd</sup> in the Island for GCE A/L examination

📅 2009

Among  $\approx$  210,000 participants

## SERVICES

### Associate Chair, Reviewer

📅 2020–Present

**ACM SIGCHI LBW, CHI, IMWUT**

- Reviewed LBW papers and full papers related to notifications, augmented reality, and smart glasses.

### Student Volunteer

📅 2022

**ISMART 2022**

- Developed the Gather Town (online demonstrations) platform with the Online Experience Team.

### 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).

### 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

## 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