

NUWAN JANAKA

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DoB : 1991-02-08, Nationality : Sri Lankan

I am a Ph.D. student in the School of Computing at National University of Singapore. Before that, I was a senior software Engineer at Sysco Labs, Sri Lanka, working on integrating hardware devices with the Point of Sales (POS) applications of Cake, a Sysco Company. During my undergraduate studies at University of Moratuwa, I studied electronic, telecommunication, biomedical engineering and software principles; besides, I joined Augmented Human Lab, at Singapore University of Technology and Design (SUTD) as a research intern and researched on different ways to augment human senses. I am interested on Human-Computer Interaction (HCI), Internet of Things (IoT) and Wearable Technology, which enhance the perception of humans while simplifying lifestyle; and enjoy the leisure time reading novels, exploring innovative designs and hiking.

EDUCATION

B.Sc. (Hons.) Eng (1st class honours) **2010 - 2015**
Department of Electronic and Telecommunication Engineering, University of Moratuwa, Sri Lanka

G.C.E. Advanced Level **2009**
St. Aloysius' College, Galle, Sri Lanka

PROFESSIONAL EXPERIENCE

Researcher **Oct. 2017 - July 2018**

- Researched on relieving the inconveniences caused by mouth whistles for local traffic police and applied for a patent on a novel approach of an electronic whistle.
- Consulted a garment factory to implement IoT solutions to optimize performance and boost productivity while cutting costs & waste in collaboration with the University of Moratuwa (**Connected Factory, Project Babbage Phase 1**) and contributed to the 'Sensing of Machines' section in the final report as per NDA.

Freelancer **Nov. 2017 - July 2018**

- As a co-founder, I designed RESTfull APIs and developed front-end for the FootFall project which monitors the occupancy in a specific floor area (uses image processing via CCTV cameras) to identify the patterns in visitors' distribution using React, Redux, Recharts and Immutable.js .
- Developed the complete firmware of transmitter (Si4010 chip, C language, SiLab IDE) and receiver (Si4355 & ATmega328P chips, C/C++ languages, WDS3 & Arduino IDE) in TyreAid Version 2 and contributed to the PCB designing and verification.

Senior Software Engineer **Dec. 2016 - Sept. 2017**
Sysco Labs *Colombo 03, Sri Lanka*
Manager: Hasitha Liyanage

- Investigated production issues such as: Point of Sales (POS) device boot up problems, JVM crashes and complications with the POS customer touch display (CTD), and recommended solutions.

- Worked on proof of concept to remotely upgrade POS device OS from 32-bit to 64-bit (using Canonical Landscape and image cloning), iBeacon integration and enabling Wi-Fi access-points via POS.
- Contributed as a full stack developer, a release manager and an analyst.

Software Engineer

Sysco Labs

Manager: Rohana Kumara

May 2015 - Dec. 2016

Colombo 03, Sri Lanka

- Integrated chip (EMV) and contact-less transaction processing with the Cake POS machines, allowing plug and play support for payment devices.
- Supported in integrating the new V3 hardware with existing Cake POS system along with brightness controlling to achieve a romantic ambiance in restaurants.
- Investigated the Idtech MSR failures in production and recommended solutions, which minimized the maintenance cost (5 replacements/month to 1 replacement/month) of POS machines in the field and enhanced the merchant trust in Cake products.

Research Intern

Singapore University of Technology and Design (SUTD)

Advisor: Assistant Professor Suranga Nanayakkara

Nov. 2013 - May 2014

Singapore

- Designed a medical device, SHRUG (Stroke Haptic Rehabilitation Utilizing Gaming) in collaboration with Singapore St. Andrew's Community Hospital under Assistant Professor Suranga Nanayakkara and Dr. Iain Werry.
- Developed a new set of tangible objects called SparKubes 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*.

REFEREED PUBLICATIONS

Roshan Lalintha Peiris, **Nuwan Janaka**, Deepthika De Silva, and Suranga Nanayakkara. 2014. "*SHRUG: stroke haptic rehabilitation using gaming*". In Proceedings of the 26th Australian Computer-Human Interaction Conference on Designing Futures: the Future of Design (**OzCHI '14**). ACM, New York, NY, USA, 380-383.

Santiago Ortega-Avila, Jochen Huber, **Nuwan Janaka**, Anusha Withana, Piyum Fernando, and Suranga Nanayakkara. 2014. "*SparKubes: exploring the interplay between digital and physical spaces with minimalistic interfaces*". In Proceedings of the 26th Australian Computer-Human Interaction Conference on Designing Futures: the Future of Design (**OzCHI '14**). ACM, New York, NY, USA, 204-207.

INSTALLATIONS

Thomas Schroepfer, Suranga Nanayakkara, Thomas Wortmann, Alex Cornelius, Yu Nong Khew, Aloysius Lian, Yeo Kian Peen, Roshan Peiris, Anusha Withana, Werry. Iain, Benjamin Petry, Santiago Otega, **Nuwan Janaka**, Samitha Elvitigala, Piyum Fernando, and Nipuna Samarasekara. 2014. "*iSwarm: a swarm of luminous sea creatures that interact with passers-by*". In Singapore iLight 2014 (Marina Bay, 7 - 30 March, 2014).

PATENTS

Janaka, N.P.K.N., Madanayaka, T.D., Tharanga, W.A.S., “*Electronic whistle device*”, Sri Lankan Patent Application No. LK/P/1/19698. Filing Date: 09 January 2018

Nanayakkara, S.C., **Janaka, N.**, Peiris, R., Withana, A., “*Stroke Haptic Rehabilitation Utilizing Gaming*”, Singapore Patent Application No. 10201406827S. Filing Date: 27 October 2014

HONORS, AWARDS & ACHIEVEMENTS

Dean’s List in all Academic Semesters **2011 - 2015**
Faculty of Engineering, University of Moratuwa

Overall 2nd in 2010 batch **2015**
Department of Electronic and Telecommunication Engineering, University of Moratuwa

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

Ranked 2nd in Galle District (32nd in the Island) in GCE A/L examination **2009**
GCE A/L examination

Best results in the Southern province - Physics Olympiad Competition **2009**
Sri Lankan Physics Olympiad Competition

Best Outstanding Student, St. Aloysius’ College **2009**
Awarded by St. Aloysius’ College, Galle for the outstanding performance in academics and academic related activities

SERVICES

Lab Instructor for level 1 undergraduates of Department of Electronic and Telecommunication Engineering **2014 - 2015**

Sub Editor of E-Club (the official society of Department of Electronic and Telecommunication Engineering, University Of Moratuwa) **2013 - 2014**

Volunteered in the organizing *APAN-34th Meeting* with **Lanka Education And Research Network** **Aug. 2012**

Volunteered in organizing the *Sri Lankan Robotics Challenge* organized by the E-Club **2012**

PROJECTS

Developed a tangible programming and circuit simulation platform called “SimKits”, for middle school children by adopting ideas from *Sifteo Cubes* as the final year project (group), which interact with day to day smart objects (smart phones, tablets, etc) through Bluetooth Low Energy. It was focused to identify the effects of interactive objects, to the development of children’s abilities, with respect to electronic and programming concepts (Platforms: nRF51822 SoC and Android). **June 2014 - April 2015**

Researched on the possibility of implementing a cost effective guidance system for visually impaired people without disturbing their perception (Solution: Bluetooth low energy beacons and android smart phone for localization with spatialize audio to support echolocation for guidance). **June 2014 - April 2015**

Presented a paper on “Binary Constant Weight Codes and Application Areas” as a partial fulfillment of the module *Information Theory* **Jan. 2015 - April 2015**

Implemented a prototype to demonstrate the functionality of remotely controlled warning system for disaster management using Bluetooth, Arduino and Android platform **Dec. 2014**

Implemented the routing algorithm for logic circuits based on a research paper (P. Q. C. N. V. T. N. D. D. A. V. and P. H. A. , “Placement and routing algorithms for asynchronous logic circuits”, Journal of Science and Technology, vol. 10, no. 13, 2007) for the completion of module, *Intelligent Systems*. **May 2014 - Sept. 2014**

Implemented a DFT module (Ad-hoc test) for multi-counter module using Verilog for the completion of module, *Digital IC Design*. **May 2014 - Sept. 2014**

Implemented Pan-Tompkins Algorithm (real time QRS detector) to detect heart rate on FPGA using Verilog and Basys 2 board for the completion of module *Digital Signal Processing*. **June 2013 - Oct. 2013**

Developed a rating system for an online book market place using Java for efficient book search and vendor lookup for the completion of module, *Algorithm and Data Structures*. **March 2013 - June 2013**

Developed a student information record system (Java) using files as a persistent storage for student information for the completion of module, *Modular Software Development*. **March 2013 - May 2013**

Developed an online food ordering system for hotels and restaurants using Symfony (PHP) framework. **July 2013 - Aug. 2013**

Developed an online management system for RSL Ceramics (Pvt.) Ltd using Symfony (PHP) framework. **Jan. 2013 - April 2013**

Contributed in designing the school website of St. Aloysius' College. **2012 - 2013**

Designed and prototyped a Simple Active Noise Cancellation System to reduce noise in Public Transportation (2D). **June 2012**

Designed the website for the *Sri Lankan Robotics Challenge* organized by the e-club using *Joomla*. **Sept. 2012 - Oct. 2012**

Designed and presented a robot that uses Machine Vision for navigation at the *IESL competition*. **Aug. 2011**

TECHNICAL STRENGTHS

Computer Languages

Java, C, JavaScript, Node.js, Python, PHP
Android, React, Scala, MySQL

Technical Computing Languages & Tools Fabrication Languages

Matlab, Simulink, L^AT_EX 2_ε
SolidWorks, AutoCAD

Micro-controller Programming & Tools

Altium DXP, Proteus, EagleCAD, OrCAD

MikroC, MPLAB IDE, Keil IDE, Arduino

Verilog HDL, Xilinx, Assembly

Protocols & APIs

XML, JSON, REST

Other Tools & Operating Systems

MS Office package, Photoshop, Git, Maven

Ubuntu, Mac OSX, Windows

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)