

Adhitha Dias

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Academic and Research Interests

- High performance computing
- Multi-core architectures and parallel computing
- Network on Chip architectures
- Machine Learning
- Hardware acceleration
- Multi-core architectures and security
- Signal processing

Education

- **2014-2018: B.Sc. (Hons) in Engineering**, Department of Electronic and Telecommunication, University of Moratuwa, Sri Lanka. **Overall GPA - 4.05 (Out of 4.2)** **Class Rank: 4**
- **2013: GCE Advanced Level (University Entrance) Examination**, Sri Lanka.

University Entrance Examination 2013 – Mathematics stream

National Rank: 1 (out of 32,000+) **Z-Score: 2.9485**

Subjects included Combined (Pure and Applied) Mathematics, Physics, Chemistry and General English

GCE Ordinary Level Examination 2010

National Rank: 15 (out of 300,000+)

High distinction for all 9 subjects

Work Experience

- **2016 Jun-Dec: Research Assistant at LiveLabs Urban Life-Style Innovation Platform**, School of Information Systems, Singapore Management University, Singapore.

Researched on localization using a distributed set of antennas in IEEE 802.11 PHY OFDM and FPGA, human computer interaction based indoor navigation

- **2019 Feb-Present: Software Engineer at Sysco LABS**, Sri Lanka. (IT Service provider of **Sysco Corporation, USA**)

Responsibilities includes feature development, API specification, cloud operations, performance optimization of APIs, proof of concept tasks, PCI compliance security

Publications

- 2020 (Accepted) – **Adhitha Dias**, Hasitha Prashan, Yasod Rasanka, Menusha Munasinghe, Ranga Rodrigo, Peshala Jayasekara, "Deep Learning of Augmented Reality based Human Interactions for Automating a Robot Team", International Conference on Control, Automation and Robotics (ICCAR 2020), Singapore.

Achievements and Awards

- **Ranked 1st nationally** in GCE Advanced Level (**University entrance**) Examination 2013.
- **Sri Lanka Telecom Scholarship** for the highest GPA obtained in semester 5 2016.
- **Listed on the Dean's list** - SGPA > 3.8 in all the semesters 2015-2018.
- **Ranked 15th nationally** in the **GCE Ordinary Level Examination 2010** held by the Government of Sri Lanka.
- **Winners - Sri Lankan Robotics Challenge (SLRC) 2016** (Programmer of the robot) held by the University of Moratuwa, Sri Lanka.
- **Finalists in International Robotics Challenge (IRC) 2016-2017** (Programmer of the autonomous and manual robots) in **TECHFEST 2016, IIT Bombay, India**.
- **Runners up – MoraXtreme Coding Competition 2016** held by the University of Moratuwa, Sri Lanka.
- **IEEE Xtreme International Programming Competition 9.0 2015, 10.0 2016, 11.0 2017, and 12.0 2018** held by IEEE – global ranking – 434th, 300th, 273rd, and 178th places respectively.
- **Silver Award - SAITM Robotics Challenge 2016** (Programmer of the robot) held by the South Asian Institute of Technology, Sri Lanka.
- **Finalist – SLIIT RoboFest 2016** (Programmer of the robot) held by the Sri Lanka Institute of Information Technology, Sri Lanka.
- **4th Place in Sri Lanka - Mathematics Olympiad Competition 2012** held by the University of Colombo, Sri Lanka.
- **Runners up - The Australian National Chemistry Quiz 2012**, organized by the Royal Australian Chemical Institute.

- **Dialog Merit Scholarship** for achievements in both Advanced Level and Ordinary Level Examinations.
- **The Best Student of senior high school in 2013**, Richmond College, Sri Lanka.

Research and other Project Experiences

- **Deep Learning through Augmented Reality based User Interaction for Collaborative Automation** – Research project where we let the users make patterns or structures using a few robots controlled through an Augmented Reality (AR) application and later automate the process through learning from time series data patterns. (ML, RNN, AR, ROS, Android, Navigation algorithm)
- **Follow My Lead** – Video based indoor navigation system. Automation of checkpoints acquisition from the video streams recorded. (Android, AR, Sensor Fusion, OpenCV based Image Processing)
- **Wi-Fi based Indoor Localization using Distributed Antennas** – Worked on finding a localization solution using different Wi-Fi access points. (FPGA, GNU Radio, IEEE 802.11 PHY, OFDM, USRP and WARP devices, MATLAB, Music and SAGE algo)
- **FPGA based System on Chip (SoC) Design** – Designed a SoC to Hardware Accelerate Cyclic Redundancy (CRC) checksum calculation. (Verilog, CRC algorithm implementation, Vivado, Vivado SDK, VC707 and AC701 dev. Board, C code)
- **FPGA based Processor Design** – Designed a CISC based processor design for down-sampling an image. Design another processor based on RISC architecture. (Verilog, Assembly lang., UART Communication, Python)
- **System Bus Design** – Verilog implementation of a bus architecture based on AMBA 2 specified AHB type.
- **IoT based Intruder Alarm** – Alerts the user's smart phone in case of any intrusion and able to work as a traditional intruder alarm at the same time. (Android dev, MQTT protocol, NodeMCU, Arduino)
- **IoT based Portable Smart Plug** – Measures the power draw from the plug. The user can view the power consumption data written to the cloud and switch on and off the plug using the mobile phone, Android App.
- **Autonomous robots** - Programming and designing Arduino based robots for tasks such as line following, wall following, wall and line maze solving, grid solving and robot navigation, colour detection, object counting and object carrying, collaborative tasks etc. (C, Arduino)
- **PIC microcontroller-based Battleship Game** – Implementation of the Battleship Game strategies (AI) in a PIC microcontroller. (PCB, ORCAD software, programming using mikroC)
- **Analog Line Following Robot** – A fully autonomous analog robot for complex line following.
- **Analog Full Bridge Motor Driver** – The design of a high-power motor driver driven by an analog input.

Technical and Personal Skills

- **Computer Languages** - Python, C, C++, Java, Matlab, Arduino (C based), PHP, Go, JavaScript
- **Hardware Descriptive Languages** - Verilog
- **Platform Specializations** – Windows Desktop, Linux, Android, ROS (Robot Operating System – Python, C++ and Java)
- **Database** – Relational - MySQL, Document - MongoDB, CouchDB, Graph – AWS Neptune DB, Neo4J and Janus Graph
- **Software and IDE** – Vivado, NetBeans, PyCharm, Anaconda, Spyder, IntelliJ Idea, RStudio, SolidWorks, Quartus, ISE, Altium Designer, ORCAD, Proteus, mikroC, Geany, Matlab and Simulink
- **Other** – Machine Learning, Signal Processing, Image Processing, OpenCV, Augmented Reality, GNU Radio (USRP devices), Git, Docker, IoT, WARP devices, Keras, TensorFlow
- **General Languages** – English and Sinhala- Written and Spoken

Other Qualifications

- **2014: Comprehensive Master Java Developer (CMJD)**, Institute of Java and Software Engineering (IJSE), Sri Lanka.
- **2013-2015: CIMA Advanced Diploma in Management Accounting**, Chartered Institute of Management Accountants, United Kingdom.

Extra-Curricular Activities

- **Member of Institution of Engineers, Sri Lanka (IESL)**
- **IEEE member**
- **Community Service** – Renovation and language development in rural schools Kurugama Vidyalyaya (2018), Dewahandiya Kanishta Vidyalyaya (2017) and Banagoda Central School (2016).
- **Leadership Training Programme (2014)**, offered by the Ministry of Higher Education.
- **Member of Richmond College Science Quiz team (2011-2013)**
- **Athletics and Weightlifting** – Participated at provincial and All Island level.
- **President (2010) and vice president (2009)** of the IT Club of Richmond College. **Active member of Science Society (Committee member), and Astronomy Society (Secretary – 2010)** of Richmond College.