ISHARA NAWARATHNA

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EDUCATION

Ph.D. Candidate in Engineering(Computer Engineering) *Mar 2025 - Present*
School of Electrical and Computer Engineering, University of Sydney, Sydney, Australia.

B.Sc. in Engineering (Computer Engineering) *Nov 2018 - Dec 2023*
First-class honours with a GPA of **3.80/4.00** Effective date: 15 December 2023
Faculty of Engineering, University of Peradeniya, Kandy, Sri Lanka.

G.C.E. Advanced Level in Physical Science *2015 - 2017*
Subjects: Combined Mathematics, Physics, and Chemistry
Grades : Combined Mathematics(A), Physics(B), and Chemistry(A)
Z-score: 1.8431, District rank: 12
Science College, Matale, Sri Lanka.

RESEARCH & PUBLICATION

Investigating on-chip sensor based RPA attacks on Lightweight ciphers *2023 May- Present*
We investigated and discovered vulnerabilities of Lightweight cipher Algorithms(Simon and PRESENT) which runs on resource constrained devices(IoT Devices) against Remote Power Analysis attacks. We collected power traces when the cipher algorithm is running on Intel Altera FPGA. These ciphers were implemented using Verilog. The power traces were analysed using the Hamming distance model and try to discover the secrete key using this model.
Authors: E. Sithumal, **I. Nawarathna**, P. Bandara, D. Jayasinghe , D. Herath
Supervisors: Dr. Darshana Jayasinghe (Dept. of Electrical and Information Engineering, University of Sydney, Sydney, Australia), Dr. Damayanthi Herath (Dept. of Computer Engineering, University of Peradeniya, Peradeniya, Sri Lanka).
Selected to be Presented on Peradeniya University Research Excellence Showcase 2023.
The paper has been submitted to IEEE Access and is currently under review.

TEACHING EXPERIENCE

Casual Instructor at the Department of Computer Engineering, *Oct 2023 - Dec 2023*
University of Peradeniya.
Conducted lab sessions for CO322 Data Structures and Algorithms, CO323 Computer Communication Networks II, CO324 Network and Web Application Design courses.

Conduct Individual Tuition Classes *2017 - 2024*
Taught Combined mathematics, Physics, Chemistry and Information Technology for students preparing for G.C.E. Advanced Level Examination.

Volunteer Teaching in a Webinar Series *Apri 2022 - May 2022*
Nenathambara Program which is a webinar series to teach Arduino and Python to School Students in rural areas. This program was organized by Association of Computer Engineering Students - ACES.

INDUSTRY EXPERIENCE

Software Engineer at Sysco Labs Sri Lanka *Dec 2023 - Feb 2025*
I work in Sysco Labs Pipigngna engineering team responsible for developing new features, improvements, and performing bug fixes, and patch releases for Sysco Shop related to orders.

Research and Development Software Engineering Intern at Sysnopsys Lanka   *Dec 2022 - May 2023*

Worked on JAGUAR tool : JAGUAR is specifically designed to run Verilog-coded circuits on GPUs, enabling accelerated computing for circuit simulations. Used CUDA for this project.

PROJECTS (SELECTED)

Remote Gate-keeping System   *2021*

This is a system to communicate remotely with an outsider and receive deliveries, without making physical interactions. The system consists with an IoT component, Mobile application and a Web application. Delivery person can give the delivery to us using the IoT device and we can communicate him and also control the IoT device through the Mobile App.
Technologies: Raspberry Pi, React JS, React Native, Firebase, Python

Smart Building: Occupancy and Access Control   *2022*

This is an interconnected system implemented using actual hardware to emulate a Smart Building. This project was contributed by several groups and for our section, we implemented features to Keep track of occupancy of rooms and control Authorization and Authentication of the people who use them.
Technologies: Node-RED, MQTT, NodeMCU, JS

Hospital Management System   *2019*

This is a complete Hospital Management System, Full stackimplementation of the system. Accessing and Querying Patients, Doctors, Appliances, and Tests through a web portal.
Technologies: HTML, CSS, PHP, MySQL

Road Accident Analysis   *2020*

This is an online system to provide more accurate information on road accidents.Followed Agile methodology throughout the project.
Technologies: FastAPI, MongoDB, Azure DevOps, React JS, TensorFlow

Single Cycle RISC 8-bit Computer   *2021*

8-bit minicomputer using simple logic ICs, Flip-Flops, and some memory modules. Includes an ALU, a Register File and Control Logic. Implemented data memory, instruction memory , data cache and instruction cache.
Technologies: Verilog, C Programming

CERTIFICATIONS

Meta Front-End Developer Specialization, Coursera certificate	*2023*
Introduction to Concurrent Programming with GPUs, Coursera certificate	*2022*
Introduction to Parallel Programming with CUDA, Coursera certificate	*2022*
Advanced React, Coursera certificate	*2020*
React - The Complete Guide (incl Hooks, React Router, Redux), Udemy certificate	*2022*
React Native - The Practical Guide [2022 Edition], Udemy certificate	*2022*
Java Programming: Solving Problems with Software, Coursera certificate	*2020*
The Bits and Bytes of Computer Networking, Cousera certificate	*2020*
Version Control, Cousera certificate	*2023*
Principles of UX/UI Design, Cousera certificate	*2023*

AWARDS AND HONORS

14th Place, ACES Coders v9.0 *2022*
Inter-university island-wide competitive programming competition organized by Faculty of Engineering, University of Peradeniya.

3rd Place, ACES Precoders v9.0 *2022*
Participated in the competitive programming competition organized by Faculty of Engineering, University of Peradeniya and was able to get selected at the 3rd place of the competition.

2nd Place, ACES Hackfest 2022 *2022*
Programming competition organized by Faculty of Engineering, University of Peradeniya. Our team has implemented a system which is able detect potential covid spreaded areas with a help of a mobile application.

EXTRA-CIRRUCULAR

Member of ACES *2020 - 2024*
Association of Computer Engineering Students, University of Peradeniya.

Design Team Member of ACES. *2021 - 2024*
Association of Computer Engineering Students, University of Peradeniya.

Member of Data Engineering and Research - DEAR Group *2023*
Data Engineering Team , University of Peradeniya.

LANGUAGES

English: Fluent(IELTS Overall band: 7) Sinhala: Native

REFEREES

Prof. Sri Parameswaran
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The University of Sydney,
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