

Shenal Ranasinghe

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"Undergraduate @UOM ENTC — RF and Microwave — Embedded Systems — Electronics — Antennas — To Ignite Creativity for Transformative Impact"

EDUCATION

University of Moratuwa, Sri Lanka <i>B.Sc. (Hons) in Electronic and Telecommunication Engineering</i> Dean's List: Semester 4, 6	May 2022 - Present CGPA: 3.63/4.0
Relevant Coursework: Electromagnetics, Digital Signal Processing, Analog Circuit Design, Wireless and Mobile Communications, Embedded Systems and Applications, Communication Systems Engineering, Electronic Circuit Design, Internet of Things, Data Structures and Algorithms, Introduction to Engineering Optimization	
St. Joseph's College, Colombo 10 <i>G.C.E. Advanced Level Examination 2020 (Physical Science Stream)</i> Physics (A), Chemistry (A), Combined Mathematics (B) - Z-Score: 2.1064 G.C.E. Ordinary Level Examination - 9As	Jan 2010 - Dec 2020

WORK EXPERIENCE

Sentranova (Pvt) Ltd <i>Part-Time Electronic Engineer</i>	Mar 2025 - Sep 2025
<ul style="list-style-type: none"> IoT Smart Soap Dispenser: Developed firmware for the dispenser using a Quectel EG9-series 4G module, enabling GPS location retrieval, HTTPS-based API communication with custom SSL/TLS handling, and reliable data exchange between the hardware and cloud services while strengthening embedded IoT integration expertise. 	
Paraqum Technologies (Pvt) Ltd <i>Embedded Systems Engineering Intern</i>	Dec 2024 - June 2025
<ul style="list-style-type: none"> Audio Matrix Motherboard: Redeveloped existing DOTA card to Type C configuration and combined three separately developed PCBs (two 4-layer and one 6-layer) into a single unit per customer request. Trident GPS Tracking System: Developed complete GPS tracking system for refrigerator monitoring including temperature sensing, on/off time tracking, and location monitoring. Designed circuit, PCB, and project documentation. Keyfob Remote Controller: Developed HAL libraries for RNG90 and PCF8563 ICs and verified existing library for remote key and controller system. 	

SKILLS

Electronic Circuit Design	<i>LTspice, Keysight ADS, QUCS, Ansys Circuits</i>
IC Design	<i>Xschem, Klayout, Sky130 PDK, IHP PDK</i>
Programming	<i>C/C++, Python, MATLAB, Bash Scripting, LATEX</i>
EM Simulation	<i>Ansys HFSS, openEMS (IC Inductor Design)</i>
Antenna Design & Simulation	<i>Ansys HFSS, Ansys Circuits, FEKO, Altium</i>
PCB Design	<i>Altium, SIwave (Signal Integrity)</i>
Firmware Development	<i>STM32 (HAL/LL), Arduino, ESP-IDF</i>
HDL	<i>SystemVerilog, VHDL</i>

PROJECTS

GPS L1 Receiver System with Spoofing Detection Capability (FYP) <i>RF Design, SDR, ML</i>	Jun 2025 - Present
<ul style="list-style-type: none"> Final-year project on GNSS spoofing detection using custom RF front end, SDR-based DSP chain, and machine learning. Documentation: Project Link 	
UHF RFID Reader Gate for Warehouse Management <i>RF Design, Altium, HFSS</i>	Feb 2024 - Aug 2024
<ul style="list-style-type: none"> UHF RFID reader gate with custom RF front end, antenna design, and multi-layer PCB integration. Documentation: Project Link GitHub: Repository 	

Dual-Sense Circularly Polarized Antenna for GPS L1 | HFSS, Antenna Design

In Progress

- Two-layer slotted circular patch antenna with orthogonal slots enabling RHCP/LHCP operation at 1575.42 MHz.
- **Documentation:** [Project Link](#)

Transformer Thermal Anomaly Detection System | React, Java Spring, AI

Aug 2025 - Dec 2025

- Web-based system for automated transformer thermal inspection using AI-based anomaly detection.
- **Documentation:** [Project Link](#)

Coax-Fed Microstrip Patch Antenna (5.8GHz) | HFSS, Antenna Design

June 2024

- Designed and fabricated a coax-fed microstrip patch antenna for 5.8 GHz applications with impedance matching and radiation pattern optimization.
- **Documentation:** [Project Link](#)

UART Implementation on FPGA | SystemVerilog, FPGA

May 2024

- UART transceiver designed and verified on FPGA using SystemVerilog.
- **Documentation:** [Project Link](#)

IoT-Based Smart Medication Management System (Medibox) | ESP32, IoT, MQTT

Jan 2024 - May 2024

- ESP32-based IoT system for medication scheduling, environmental monitoring, and cloud integration.
- **Documentation:** [Project Link](#)

Guitar Headphone Amplifier | Analog Electronics, Altium

Sept 2023 - Nov 2023

- Analog headphone amplifier with selectable gain stages designed using discrete components.
- **Documentation:** [Project Link](#)
- **GitHub:** [Repository](#)

IoT-Based Home Security System | IoT, ESP32, PCB Design

May 2023 - Aug 2023

- Low-cost IoT home security system with custom PCB design and sensor integration.
- **Documentation:** [Project Link](#)
- **GitHub:** [Repository](#)

P2P Communication System using SDR (GNU Radio) | SDR, GNU Radio

Sept 2023 - Nov 2023

- Secure peer-to-peer SDR-based communication system supporting text, image, and audio transmission.
- **Documentation:** [Project Link](#)

Personal Engineering Portfolio Website | Web Development

2024

- Personal technical portfolio for documenting RF, embedded, and system-level engineering projects.
- **Documentation:** [Project Link](#)
- **GitHub:** [Repository](#)

SPECIALIZATIONS & CERTIFICATIONS

RF and millimeter-Wave Circuit Design | RF, mmWave

June 2024 - Oct 2024

- Eindhoven University of Technology - Coursera
[Certificate](#)

Microwave Engineering and Antennas | Microwave, Antennas

June 2024 - April 2025

- Eindhoven University of Technology - Coursera
[Certificate](#)

RF Filter Design Fundamentals using Keysight ADS | RF Design, ADS

Oct 2025 - Nov 2025

- Rahsoft - Udemy
[Certificate](#)

Introduction to FPGA Design for Embedded Systems | FPGA, HDL

Oct 2025 - Nov 2025

- University of Colorado Boulder - Coursera
[Certificate](#)

Hardware Description Languages for FPGA Design | VHDL, Verilog

Nov 2025 - Dec 2025

- University of Colorado Boulder - Coursera
[Certificate](#)

Altium Education PCB Basic Design Course | PCB Design

March 2025

- Altium

Economics - Certificate Level | Economics

November 2023

- CIMA

HONOURS AND ACHIEVEMENTS

Gold Medal - School Physics Examinations, Sri Lanka

- Awarded Gold Medal in School Physics Examinations

2019

Under 15 All Island Squash Novices Championship

- Secured 1st Place

[2015]

Under 19 All Island Squash Team Championship

- Achieved 4th Place

[2015]

LEADERSHIP AND EXTRA-CURRICULAR ACTIVITIES

IEEE MTT-S Student Branch Chairman: Led RF/microwave-focused workshops, organized industry speaker sessions, and mentored juniors on practical RF design. (Sept 2025 - Present)

EXMO Telecom Lab Coordinator: Volunteered as Telecom lab coordinator, presenting on PSTN networks and mobile phone operations.

University Weightlifting Team: Active member (2022 - Present)

Squash Captain: Appointed as Squash Captain for School Team (2020)

Personal Trainer: Coach strength and conditioning programs at the campus gym, supporting peers in meeting performance goals. (2023 - Present)

Advanced Level Physics Tutor: Deliver weekly A/L Physics tuition sessions for high-school students; teaching experience of 4+ years.

REFERENCES

Dr. Chamira U. S. Edussooriya

B.Sc.Eng. (Moratuwa), M.A.Sc., Ph.D. (UVic), MIEEE

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