

# Pravindu Goonetilleke

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## Profile

Curious and innovative Electronics and Telecommunications engineering student at the University of Moratuwa, with a passion for FPGA based systems, embedded systems, and analog circuit design. I enjoy working close to metal, and am currently exploring FPGA based AI acceleration, non-invasive glucometry and High Altitude Balloon deployment. With a solid foundation in digital and analog design, and a rich background in music and theatre, I bring a disciplined, creative and innovative mindset to technical challenges.

## Education

**University of Moratuwa**, Undergraduate Bsc. (Hons) Engineering April 2023 – Present

- Semester 1; GPA 4.0/4.0 (Dean's List) - 14 credits
- Semester 2; GPA 4.0/4.0 (Dean's List) - 23 credits
- Semester 3; GPA 3.96/4.0 (Dean's List) - 21 credits

**Royal College Colombo 07** March 2008 – February 2022

- G.C.E. A/Ls - 3As in Physical Science Stream - 2.7033 Z Score
- G.C.E. O/Ls - 9As

## Certifications

**CMOS Analog IC Design and Simulation**  June 2025 – September 2025 (Ongoing)

- Comprehensive course covering MOS device physics, analog circuit design, and IC layout techniques
- Hands-on experience with OSIC tools including xschem, ngspice, and KLayout for schematic design and simulation
- Includes hands-on design project with tapeout commitment through Tiny Tapeout
- Covers advanced topics: current mirrors, differential amplifiers, post-layout simulation (LVS, PEX), and CMOS fabrication technology

## Other Academic Test Scores

**Scholastic Aptitude Test (SAT) | The College Board**

- CB Student ID: 130099771
- Total Score: 1590 (out of 1600)
- Percentile: 99th

**Test of English as a Foreign Language (TOEFL) | ETS**

- Test Date: October 30, 2022
- Total Score: 117 (out of 120)

## Major Achievements

- Accepted into **Duke University**, class of 2027, with a 50% scholarship (unable to pursue due to financial concerns.)
- **Country ranking 27th**, Physical Science Stream, Advanced Level Examination 2021/2022
- **Diploma** Performing Speech and Drama - **Trinity College London**
- Member of the **Colombo Wind Orchestra** and **Symphony Orchestra of Sri Lanka**.

## Experience

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**Intern, Vidullanka PLC**

October 2023 - December  
2023

- Executed PVsyst Simulations for rooftop and ground mounted projects.
- Designed PV Module layouts using Helioscope for rooftop solar project.
- Developed a Return-On-Investment calculator tailored for customers venturing into the solar energy market.
- Researched on floating solar technology and assisted in preparation of documents for an Expression of Interest (EOI) document for the Samanalawewa 200MW Floating Solar Project.
- Conducted extensive research on the technical and financial pre-feasibility of investing in renewable energy across diverse countries, namely Ghana, Madagascar, Gambia, and Mozambique.
- Delivered a comprehensive presentation at the management meeting on the PUCSL hearing, specifically addressing the proposed tariff revision.

## Projects

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**Hardware Accelerator for LLM Fine Tuning and Inference** 

Ongoing

- Self-initiated FPGA project for an international engineering competition, motivated by personal interest in edge AI and digital hardware acceleration (not university-mandated).
- Designing a hardware accelerator to enable inference and fine-tuning of lightweight LLMs (e.g., TinyLlama) on embedded devices, using QLoRA for quantization.
- Focused on developing a custom quantization and matrix multiplication IP cores and pipelining for efficient throughput on FPGA hardware.
- Tools Used: High Level Synthesis (HLS), VHDL, SystemVerilog, Vivado, Python, PyTorch,

**UART Module** 

2025

- Designed and implemented a UART communication system as a personal project, with separate receiver and transmitter modules, each equipped with dedicated input and output FIFOs for efficient data handling, and state machines to ensure reliable communication.
- Incorporated control and status registers to provide intuitive interaction and detailed communication feedback.
- This was done with the intention of later using it in a logic analyzer that I am working on.
- Tools Used: VHDL, Vivado

**Analog Function Generator** 

2024

- Designed the circuit for an analog function generator, capable of producing square, triangle, sine, pwm, and sawtooth waveforms from 20-20kHz, in partial fulfillment of the requirements for the module EN 2091 Laboratory Practice and Projects
- Tools Used: LTspice, Multisim, Altium Designer

**Project Phoenix** 

Ongoing

- Project Phoenix is a two-stage initiative to develop a Cube Satellite. Currently working on the first phase: high-altitude balloon deployment with integrated payload and communication systems to gain initial sensor data and test subsystems. The second phase will involve full CubeSat development.
- Vice President and member of the Attitude Determination and Control subsystem.
- Currently developing sensors for attitude determination and working on communication systems.

**GlucoPal**

Ongoing

- Developing a non-invasive glucometer using NIR technology.
- Responsible for signal acquisition and conditioning, MCU programming (ESP32), and PCB design.

**Audio Feedback Based Parking Assistant** 

2024

- Developed an audio feedback based parking assistant in partial fulfillment of the requirements for the module EN 1190 Engineering Design Project
- Tools Used: Arduino

## Skills and Interests

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**Programming Languages and HDL:** System Verilog, Verilog, VHDL, Python, C/C++ , Java

**EDA:** Vivado, Intel Quartus, LTspice, Matlab, Altium Designer, Solidworks

**Interests:** FPGA and Digital Design, Analog Circuit Design, Embedded Systems

## Other Activities and Qualifications

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- Senior Prefect - Royal College (2022 and 2023)
- Senior Coordinator – Royal College Western Orchestra (2019 and 2020)
- Level 4 Diploma in Performing - Associate of Trinity College London, Speech and Drama (2019)
- 4th Asia Pacific Choir Games organized by Interkultur- Choir Obtained 2 Gold Medals (2017)
- Junior Prefect (2016)
- Bronze Medal in the Sri Lankan Junior Astronomy Olympiad Competition (2016)
- Troop Leader and Patrol Leader 6th Scout Troop (2014, 2015, and 2016)
- First Place, National Level – Orchestra Open A1 Category at the All Island Inter-School Western Music and Dance Competition (2015, 2016, 2017, 2018 and 2019)
- Saxophonist - Royal College Western Orchestra (2015, 2016, 2017, 2018, 2019 and 2020), Colombo Wind Orchestra (2016 to present), National Youth Orchestra (2016, 2017, 2018, 2019), Symphony Orchestra of Sri Lanka (2019) and performed alongside the Worldship Orchestra (2016)
- Bowl Champions – Juvenile Category at the Royal College Basketball Carnival (2013)

## References

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### **Dr. Ranga Rodrigo**

*Senior Lecturer*

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### **Riyaz Mohamed Sangani**

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