

SATHIRA PROMODYA WIDYAWANSA

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PERSONAL STATEMENT

I'm a committed, self-motivated, knowledgeable, and innovative engineering physics undergraduate who wishes to contribute to the field of science for the betterment of humanity by applying the knowledge, expertise, and experience I gained during my studies.

EDUCATION

BSc (Hons) in Engineering Physics

2021 - 2025

Department of Physics, University of Colombo, Sri Lanka.

- Degree Class: Second Class (Lower Division)
- GPA: 3.18 out of 4.00
- Core Courses: Quantum Mechanics, Classical Mechanics, Electromagnetic Fields, Statistical Physics, Solid State Physics, Advanced Analogue and Digital Electronics, Embedded Systems Laboratory, Circuit Analysis and Simulation, Data Acquisition & Signal Processing, Design and Machining Laboratory.

Secondary Education

2006 - 2019

St. Aloysius' Collage, Ratnapura, Sri Lanka.

- GCE Advanced Level (2019), Majored in Physical Sciences. (Physics: A, Chemistry: A, Combined Maths: B)

RESEARCH EXPERIENCE

Research Publication

APS GPS 2025 March Meeting

- Abstract Publication: Title – **IOT Enabled Printed LP Gas Sensor using Reduced Graphene Oxide / Tin(IV) Oxide Nanocomposite on Flexible Substrate.**

The Undergraduate Research Project was completed and extended to publish an abstract to the American Physical Society, General Physics Summit 2025, March Meeting. Abstract Available at: <https://summit.aps.org/events/VIR-C07/3>

Undergraduate Research Project: Grade A⁺

2024 – 2025

- Dissertation Title – **Graphene-Based Flexible LP Gas Sensor.**

The research involved developing a chemiresistive nanomaterial which is sensitive to LPG and printing it on a flexible substrate with a circuit. This included the nanomaterial's synthesis, characterization, optimization, and application, providing hands-on experience in its fabrication and analysis along with the full sensor fabrication.

- Supervisor: Prof. Dilushan R. Jayasundara
- Co-supervisor: Prof. Darshana Lakmal Weerawarne

RESEARCH INTERESTS

Experimental/Applied Physics Research within the realms of Condensed Matter Physics, Materials Physics, Flexible Electronics, Instrumentation and Sensor Development.

WORK EXPERIENCE

Temporary Demonstrator

2025 May – 2025 July

Department of Physics, University of Colombo, Sri Lanka.

1. PH 1052 Electronics for Medical Imaging by Dr. Luckshitha Suriyasena: Demonstrator In-Charge
2. PH 2006 Nanoscience and Nanotechnology by Prof. Dilushan Jayasundara: Demonstrator In-Charge
3. PH 4014 Introduction to Robotics by Dr. M. K. Jayananda: Demonstrator
4. PH 2022 Analog and Digital Electronic Principles Laboratory by Prof. H. E. Jayaweera & Dr. Deshitha Wickramaratna: Demonstrator

5. PH 1022 Physics Laboratory I by Prof. Mahesh Edirisinghe & Dr. Thanuja Sooriyagoda

- **Research Student** **2024 May - Present**
[Materials Research Laboratory](#), Department of Physics, University of Colombo, Sri Lanka.

Principal Investigator: [Prof. Dilushan R Jayasundara](#) (Senior Lecturer)

The MRL carries out research mainly in the areas of materials science and nanotechnology. These include graphene and graphene applications, understanding physics and chemistry at the interface, and industrial applications of nanotechnology.

- **Research Student** **2024 May - Present**
[Center for Instrument Development](#), Department of Physics, University of Colombo, Sri Lanka.

Principal Investigator: [Prof. Darshana L Weerawarne](#) (Senior Lecturer)

The CID Research Laboratory specializes in advanced materials, electronics, and instrumentation, and data analytics, focusing on creating innovative bio/nanosensors, flexible electronics, and machine-learning applications to address real-world challenges.

SKILLS AND TECHNIQUES

- **Programming Languages:** Python, Java, C, MATLAB, Embedded C.
- **Software-based Skills:** LabVIEW, Origin, EAGLE, Fusion 360, NI Multisim, OrCAD, AutoCAD.
- **Laboratory Skills:** Design of Experiments (DOE), Data Analysis, Data Visualization, Precision Measurement Techniques, Troubleshooting, Safety Compliance, Programming and Automation, Machine Shop Operations.
- **Management & Leadership Skills:** Effective Communication, Decision-Making, Project Planning and Execution, Motivational Leadership, Adaptability, Team Coordination, Collaboration, Time Management, Initiative and Proactiveness, Problem Solving, Quality Control, Inspiring and Influencing.

ACADEMIC PROJECTS

- A study on “Reflectance Spectroscopy of Metals as Photoactive Materials” using a home-built, cost-effective portable spectrometer. (Level 1 Project) (DOI: [10.13140/RG.2.2.19893.59363](https://doi.org/10.13140/RG.2.2.19893.59363))
- Investigating The Effect of Environmental & Technical Factors on Solar Power Generation using an Arduino Development Board interfaced with relevant sensors. (Level 2 Project)
- Design and Implementation of a Real-time 360-degree Ultrasonic Surveillance System using ATmega32A Microcontroller for Object Detection and Monitoring. (Level 3 Project)
- Designing and precision-machining a metal prototype of an Oil Press Machine using the Machine Shop(Engineering Workshop) within the Department of Physics. (Level 3 Project)
- Design and implementation of a prototype of a fully automated solar tracking and wireless power monitoring system for a solar-powered agricultural farm. (Level 4 Project)

LEADERSHIPS & EXTRACURRICULAR ACTIVITIES

- **President** **2024 - Present**
Physics Society of the University of Colombo, Sri Lanka.
- **Junior Treasurer** **2023 - 2024**
Physics Society of the University of Colombo, Sri Lanka.
- **Level 2 Coordinator** **2022 - 2023**
Chemical Society of the University of Colombo, Sri Lanka.
- **Level 1 Coordinator** **2021 - 2022**
Chemical Society of the University of Colombo, Sri Lanka.

VOLUNTEERING EXPERIENCE

- **Project “[Science Bus – Phase III](#)” : Main Coordinator** **2023 - 2024**
A community service project done by the Physics Society of the University of Colombo, funded by [SPIE, the International Society for Optics and Photonics](#), to help science-enthusiastic students who are in rural and less-resourced areas in Sri Lanka.
- **Physics Journal Club by Physics Society, University of Colombo: Founding Coordinator** **2024**
As a founding coordinator, I helped establish the Physics Journal Club under the guidance of the Physics Society's Academic Advisor to promote continuous learning and collaboration among physics students. The club hosts monthly discussions on scientific developments, enhancing learning, research skills, and collaboration. Both undergraduates and graduate students actively participate in these sessions by presenting their ongoing research projects.
- **Electronics Workshop for Advanced Level (Secondary Education) Physics Students.** **2024**
I was one of the main coordinators from the Physics Society who actively contributed to the success of the Electronics Workshop conducted by the Physics Society for the students of a less-resourced school.
- **Organizing the Musical Event “Sathsara’ 23”** **2023**
“Sathsara” is one of the signature projects of the Physics Society, where the academic staff, non-academic staff, and the students of the Department of Physics engage in hosting a musical concert open to everyone in the university. The Department personnel are involved in all the music activities, such as playing and singing. I have volunteered to coordinate the Level 3 Physics students for the concert, along with the organizing of the event.

PROFESSIONAL MEMBERSHIPS

- American Physical Society (APS).
- Physics Society, University of Colombo.
- Astronomical Society, University of Colombo.

REFERENCES

[Prof. Dilushan R Jayasundara](#), (Senior Lecturer)
Department of Physics,
Faculty of Science, University of Colombo, Sri Lanka.
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[Prof. Darshana L Weerawarne](#), (Senior Lecturer)
Department of Physics,
Faculty of Science, University of Colombo, Sri Lanka.
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Email: dweerawa@phys.cmb.ac.lk

[Dr. W A Monika Madhavi](#), (Senior Lecturer)
Department of Physics,
Faculty of Science, University of Colombo, Sri Lanka.
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I hereby declare that the above information is true and correct to the best of my knowledge and belief.

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Sathira Promodya Widyawansa
2025/06/16