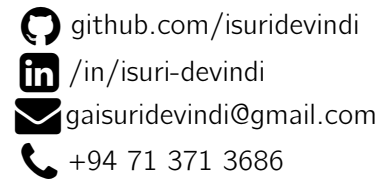
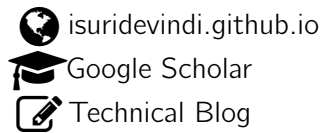


# ISURI DEVINDI

Department of Computer Engineering,  
University of Peradeniya, Sri Lanka



My primary research interests evolve around applying **Machine Learning** and **Computer Vision** techniques in **biomedical context**. I am also interested in building low-energy pervasive sensing applications using **Neuromorphic vision sensors**.

## EDUCATION

### BSc.Eng (Hons.) in Computer Engineering

University of Peradeniya  
2018 Nov - 2023 Dec

GPA: **4.00/4.00**  
Class rank: **1/415**  
First Class Hons.

### G.C.E. Advanced Level Examination

Hillwood College, Kandy  
2004 - 2017

Z-Score: **2.2768**  
District rank: **6/2784**  
National Rank: **113 / 32075**

## PUBLICATIONS

### [J 3] IEEE Access **Multimodal Deep Convolutional Neural Network Pipeline for AI-Assisted Early Detection of Oral Cancer**



**Isuri Devindi**, Dinura Dissanayake, Sashini Liyanage, Achintha Harshamal, Dhanushki Mapitigama, Nadisha Piyaarachchi, Kalani Hettiarachchi, Sumudu Rasnayaka, Ruwan Jayasinghe, Roshan Ragel, Isuru Nawinne

**Contribution:** Conceptualization, Methodology, Software, Validation, Writing - Original Draft, Review & Editing

### [J 2] Nature Scientific Reports



### **A Novel ECG Compression Algorithm Using PWM-Integrated Quantization for Low-Power Real-Time Monitoring**

**Isuri Devindi**, Sashini Liyanage, Titus Jayarathna, Janaka Alawatugoda, Roshan Ragel  
**Contribution:** Conceptualization, Methodology, Software, Validation, Writing - Original Draft, Review & Editing

### [J 1] ScienceDirect Oral Oncology



### **Comprehensive Dataset of Annotated White Light Images of Oral Cavity and Novel Web Tool for Image Annotation**

N. S. Piyaarachchi, S.N. Liyanage, R.M.S.G.K. Rasnayaka, P.V.K.S. Hettiarachchi, **G.A.I. Devindi**, F.B.A.H. Francis, D.M.D.R. Dissanayake, R.A.N.S. Ranasinghe, M.B.D. Pavithya, I. Nawinne, R.G. Ragel, R.D. Jayasinghe

**Contribution:** Software, Data curation

### [C 1] IEEE: Moratuwa Engineering Research Conference 2024



### **EEG Based Brain-Computer Interface for Inner Speech Classification**

Praveen Dhananjaya, Isurika Adikari, Sumudu Lakmali, **Isuri Devindi**, Sashini Liyanage, Mahanama Wickramasingha, Theekshana Dissanayake, Roshan G. Ragel, Isuru Nawinne

**Contribution:** Writing - Review & Editing, Visualization

### [C 2] IEEE: Moratuwa Engineering Research Conference 2024



### **Self-Paced Brain-Computer Interface on Sensorimotor Rhythms for Controlling Virtual Objects**

A.D. Athapattu, P.S.B. Dassanayake, G.S.C. Nanayakkara, S.N. Liyanage, **G.A.I. Devindi**, Roshan G. Ragel, Theekshana Dissanayake, Isuru Nawinne

**Contribution:** Writing - Review & Editing, Visualization



## Decoding Non-Motor Imagery Tasks with Non-Invasive EEG Based Brain Computer Interface: A Review

Sumudu Lakmali, Praveen Dhananjaya, Isurika Adikari, **Isuri Devindi**, Sashini Liyanage, Mahanama Wickramasingha, Theekshana Dissanayake, Roshan G. Ragel, Isuru Nawinne

**Contribution:** Writing - Review & Editing

## EXPERIENCE

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2024 Jan  
- Present

### Instructor

**Department of Computer Engineering, University of Peradeniya, Sri Lanka**

Computer Architecture (CO224), Image Processing (CO543), Operating Systems (CO327), Python Programming (CO1010)

2023 Jan  
- 2023 May

### Visiting Research Assistant Supervised by Prof. Archan Misra

**Pervasive Sensing & Systems Lab, Singapore Management University**

Exploring spatiotemporal compressive sensing techniques for event-based data fed into and processed by Spiking Neural Networks.

2021 - 2022

### Teaching Assistant

**Department of Computer Engineering, University of Peradeniya, Sri Lanka**

Embedded Systems (CO321), Data Structures and Algorithms (CO322), Programming and Networking (CO253), Programming Methodology (CO222)

2021 - Present

### Technical Article Writer (Part-time)

**Enlear Pvt. Ltd**

Writing technical content on computer vision, machine learning, and web development.

## ACHIEVEMENTS

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2024

### Best Paper Award in Biomedical Engineering Track at MERCon 2024

Received the Best Paper Award for the paper **EEG Based Brain-Computer Interface for Inner Speech Classification** in the Biomedical Engineering track at the Moratuwa Engineering Research Conference (MERCon) 2024.

2024

### Gold medal for excellence in Computer Engineering

Awarded for the best performance at the Department of Computer Engineering, University of Peradeniya (Out of 60)

2024

### Prize for Engineering Mathematics

Prof. T.D.M.A. Samuel prize awarded for the enthusiasm and excellence in Engineering Mathematics at the Faculty of Engineering, University of Peradeniya (Out of 415)

2023

### Bronze Award in NBQSA 2023 | National ICT Awards

**Bronze** award in Tertiary Student Projects (Technology) (Out of 46 teams) for the project "Oral Cavity Image Annotation and Cancer Prediction from White Light Images"

2022

### IEEEExtreme 16.0 | 24 hour global algorithmic programming competition

Team Name – bitLasagna, Country Rank – 27, Global Rank – 427  
(Out of 14600+ participants)

2022

### ACES Coders V9.0 | 12 hour national algorithmic programming competition

The biggest annual on-ground inter-university 12-hour coding competition in Sri Lanka organized by the University of Peradeniya.

Team Name – Zblunt, Country Rank – 6 (Out of 100+ teams)

## OTHER PROJECTS

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2023 Jan -  
2023 May



### Efficient Event Stream Compression for Low-Energy Neuromorphic Systems | Individual

Explored compressive sensing techniques (rate coding, latency coding, delta modulation, event and time window slicing, voxel cubes) to convert event-based neuromorphic sensor data into 2D frames for low-energy spiking neural networks (SNNs) and evaluated their impact on classification and object detection performance.

**Technology:** snnTorch, PyTorch, Python

2022 Jan -  
2022 March



### Reconstructing Highly Degraded License Plates | Group

Demonstration of the efficacy of traditional image processing techniques to reconstruct highly degraded images of license plates obtained from CCTV footage, when the source of degradation is unknown.

**Contribution:** Exploring traditional image processing techniques such as Otsu thresholding, Morphological transformation, Contouring, Spatial and Frequency domain filtering and Degradation modeling(Wiener Filter) for image reconstruction.

**Technology:** Python, OpenCV

2021



### Remote Proctoring System | Group

A single device with video streaming facility that integrates the hardware and software components needed to conduct virtual proctoring of an examination in a university.

**Contribution:** Designing a scalable web application for administrators of the university and proctors of examinations. Developing the hardware solution for the device using a Raspberry Pi microcontroller.

**Technology:** React.js, Express.js, MongoDB, Node.js

2020



### 8-bit single cycle processor | Group

An 8-bit single cycle CPU with associated memory hierarchy. The processor includes an ALU, register file, control logic, forwarding unit, data memory, data cache, instruction memory and instruction cache.

**Technology:** Verilog-HDL

## EXTRA-CURRICULAR ACTIVITIES & LEADERSHIPS HELD

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2020 - 2024

### Member of the Web Consultation team of University of Peradeniya

*Group focused on improving university's digital presence*

2023

### Committee member of the Association of Computer Engineering Students (ACES) of the University of Peradeniya

*Contributed to the team that designed algorithmic programming questions for the ACES Coders v10.0 competition.*

2022 - 2023

### Secretary of IET on Campus of the University of Peradeniya

2021 - 2022

### President of the Music Society of the University of Peradeniya

2022 - 2023

### Compère at various events at the University of Peradeniya

## REFERENCES

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**Prof. Roshan G. Ragel** | roshanr@eng.pdn.ac.lk

*Head of Department, Department of Computer Engineering, Faculty of Engineering, University of Peradeniya, Sri Lanka*

**Dr. Isuru Nawinne** | isurunawinne@eng.pdn.ac.lk

*Senior Lecturer, Department of Computer Engineering, Faculty of Engineering, University of Peradeniya, Sri Lanka*

**Prof. Archan Misra** | archanm@smu.edu.sg

*Vice Provost (Research), School of Computing & Information Systems, Singapore Management University, Singapore*