Isuri Devindi

Department of Computer Engineering, University of Peradeniya, Sri Lanka

gaisuridevindi@gmail.com | +94713713686 | isuridevindi.medium.com | Writergate

isuridevindi.github.io | github.com/isuridevindi

INTERESTS

Computer Vision   Deep Learning   Neuromorphic Computing   Low Complexity Algorithms

EDUCATION

University of Peradeniya | **BSc.Eng(Hons.) in Computer Engineering**   2018 Nov - 2023 Dec
Field Rank - **1 / 60**   GPA: **4.00 /4.00**

Hillwood College, Kandy | **G.C.E. Advanced Level Examination**   2004 - 2017
District Rank - **6 / 2784** , National Rank - **113 / 32075**   Z-Score: **2.2768**

PUBLICATIONS

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

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

Intended publisher: Oral Oncology Reports

Application of White Light Images and Artificial Intelligence for the Early Detection of Oral Cancer in Sri Lanka | 🗎

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

Intended publisher: Oral Oncology Reports

Low Complexity Algorithm for Real-time ECG Signal Compression | 🌐

Isuri Devindi, Sashini Liyanage, Titus Jayarathna, Roshan Ragel
Intended publisher: Scientific Reports - Nature

ACHIEVEMENTS

Gold medal for excellence in Computer Engineering   2024
Awarded for the best performance at the Department of Computer Engineering, University of Peradeniya (Out of 60)

Prof. T.D.M.A. Samuel prize for Engineering Mathematics   2024
Awarded for the enthusiasm and excellence in Engineering Mathematics at the Faculty of Engineering, University of Peradeniya (Out of 415)

NBQSA 2023 | **National ICT Awards**   2023
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"

IEEEXtreme 16.0 | **24 hour global algorithmic programming competition**   2022
Team Name – bitLasagna, Country Rank – 27, Global Rank – 427 (Out of 14600+ participants)

Hackfest | **An inter-university hackathon organized by the University of Peradeniya**   2022
Rank (Healthcare category) – 1 (Out of top 20 teams)

EXPERIENCE

Visiting Research Assistant Supervised by Prof. Archan Misra   2023 Jan - 2023 May
Pervasive Sensing & Systems Lab, Singapore Management University
Exploring spatiotemporal compressive sensing techniques for event-based data fed into and processed by Spiking Neural Networks.

Casual Instructor | *Department of Computer Engineering, University of Peradeniya*   2021 - 2022
CO321 Embedded Systems, CO253 Programming and Networking, CO222 Programming Methodology
Supervised 2hr long weekly lab sessions based on C programming language and programming an ATmega328P microcontroller in C language

Technical article writer | Medium blog | Syncfusion blog | Enlear Pvt. Ltd.   2021 Feb - Present

PROJECTS

Oral Cancer Prediction System from White Light Images | *Group* | 🌐 📄
2022 - Present

- A web-based tool that minimizes the delay of diagnosing high-risk oral cancer patients by incorporating an automated oral cancer prediction model trained on a white light image database derived from Sri Lanka.
- Contribution:
  * Developing a segmentation model to extract the oral cavity region in an image.
  * Developing an ensemble machine learning model to predict oral cancer using multiple data sources such as images and risk factors.
- Technology: TensorFlow, Keras
- Techniques: **U-Net, DenseNet, XGBoost**

Low Complexity Algorithms for Arrhythmia Detection | *Group* | 🌐 |
2023 May - Present

- A pre-packaged software solution containing a set of low-complexity algorithms for QRS-peak detection and ECG signal compression addressing the null-power consumption environments, along with a Spiking Neural Network implementation to classify ECG beats based on arrhythmia conditions.
- Technology: C, Python, snnTorch
- Techniques: **Leaky-boundary based QRS-peak detection, Quantization, Spiking Neural Networks**

Reconstructing highly degraded license plates | *Group* | 🌐 |
2022 Feb - 2022 April

- 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.
- Technology: Python, OpenCV, EasyOCR
- Techniques: **Otsu thresholding, Morphological transformation, Contouring, Spatial and Frequency domain filtering and Degradation modeling(Wiener Filter)**

Remote proctoring system | *Group* | 🌐 |
2021 July - 2022 Nov

- A single device with a 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
- Techniques: Handling and **synchronization** of API requests & responses with promised-based library **Axios**.

TECHNICAL SKILLS

Languages	Python, C/C++, Java, JavaScript, HTML/CSS, SQL, Verilog HDL, ARM Assembly
Libraries	Pytorch, snnTorch,TensorFlow, Keras, OpenCV, NumPy, Matplotlib, pandas
Frameworks	React.js, Express.js
Developer Tools	Git, Google Cloud Platform, VS Code

SOFT SKILLS

Technical Writing: Currently working as a technical writer at Enlear Private Limited, writing content related to software application development.

Public Speaking: Moderated several virtual events organized by IET On Campus University of Peradeniya and virtual and physical events organized by the Faculty of Engineering, University of Peradeniya.

EXTRA-CURRICULAR ACTIVITIES & LEADERSHIPS HELD

Member of the Web Consultation team of University of Peradeniya	2020 - Present
Secretary in IET on Campus of the University of Peradeniya	2022 - 2023
President of the Music Society of the University of Peradeniya	2021 - 2022

REFERENCES

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

Head of Department, 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

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

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