Janith Bandara Senanayaka

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Education

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B.Sc. Engineering (Electrical & Electronic Engineering) (Honours)
Nov. 2015 - July 2020

University of Peradeniya · *Peradeniya, Sri Lanka*

- Graduated with First-Class Honours.
- Final GPA 3.8 out of 4.0
- [Washington Accord] accredited four-year full-time degree.
- [Transcript] [Academic Rank Certificate] [Degree Certificate]

G.C.E. Advanced Level Examination (University Entrance Exam)
Aug. 2014

Sri Pragnarathana Central Collage · *Gelioya, Sri Lanka*

- Physical science stream.
- Three distinction 'A' passes for Combined Mathematics, Physics, and Chemistry.
- Z-Score 2.6175
- Ranked 10th in Kandy District and 60th in the Country.
- [Certificate]

Research Projects

Computer Vision for Road Safety and Traffic Planning
Sep. 2021 - PRESENT

University of Peradeniya · *Peradeniya, Sri Lanka*

- Extraction of relevent information from CCTV footage using deep learning models.
- Identification of traffic rule violatons.

Computer Vision for Human Behaviour & Group Activity Monitoring
May 2021 - PRESENT

University of Peradeniya · *Peradeniya, Sri Lanka*

- Using deep learning and graph signal processing to identify human behaviours and group activity from CCTV footage.
- COVID threat assessment from CCTV footage.
- This project is funded by [IDRC - Canada].

Fetal and Maternal Well-Being Monitoring During Pregnancy
Aug. 2020 - PRESENT

University of Peradeniya · *Peradeniya, Sri Lanka*

- Developing a non-invasive low-cost instrument that pregnant mothers can use without the expert know-how in-home to record fetal movement data and mother's respiratory signal.
- Fetal movement and mother's respiratory data collection using inertial measurement units (IMUs).
- Fetal movement detection using signal processing and deep learning methods.
- Monitoring fetal and maternal well-being using non-invasive methods.

Digital Image Forensic Techniques for Identification of Image Tampering
June 2019 - July 2020

University of Peradeniya · *Peradeniya, Sri Lanka*

- Undergraduate project.
- Developed an image segmentation algorithm. [Paper][Code]
- Used image and signal processing techniques to identifiy image tampering.

Error Identification and Localization in Product Labels
Oct. 2021 - PRESENT

Farbe Technologies · *Colombo, Sri Lanka*

- Identifying and localizing errors in printed product labels using deep learning.

Publications

INTERNATIONAL CONFERENCES

Fetal Movement Identification from Multi-Accelerometer Measurements Using Recurrent Neural Networks
Dec. 2021

16th IEEE International Conference on Industrial and Information Systems (ICIIS) 2021 · *Sri Lanka*

- Authors: **Janith Bandara Senanayaka**, Eranda Somathilake, Upekha Delay, Samitha Gunarathne, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Janaka Wijayakulasooriya and Chathura Ratnayake
- In-proceedings. [Final Manuscript]

Fetal Movement Detection using Long Short-Term Memory Network
Aug. 2021

10th International Conference on Information and Automation for Sustainability (ICIAfS) 2021 · *Sri Lanka*

- Authors: Eranda Somathilake, **Janith Bandara Senanayaka**, Upekha Delay, Samitha Gunarathne, Thoshara Nawarathne, Thanushi Withanage, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Janaka Wijayakulasooriya and Chathura Ratnayake
- Link: https://ieeexplore.ieee.org/document/9606131

Comprehensive Study on Denoising of Medical Images Utilizing Neural Network Based Auto-Encoder *Mar. 2021*

3rd International Conference on Advanced Computational and Communication Paradigms (ICACCP) 2021 · *India*

- Authors: Thoshara Nawarathne, Thanushi Withanage, Samitha Gunarathne, Upekha Delay, Eranda Somathilake, Janith Bandara Senanayaka, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Chathura Ratnayake
- In-press. [Pre-print]

Adaptive Centroid Placement Based SNIC for Superpixel Segmentation *July 2020*

Moratuwa Engineering Research Conference (MERCon) 2020 · *Sri Lanka*

- Authors: Janith Bandara Senanayaka, Dilshan Thilanka Morawaliyadda, Shehan Tharuka Senarath, Roshan Indika Godaliyadda and Mervyn Parakrama Ekanayake
- Link: https://ieeexplore.ieee.org/document/9185361
- [Code]

PREPRINTS

Assessment of Fetal and Maternal Well-Being During Pregnancy Using Passive Wearable Inertial Sensor *Dec. 2021*

arXiv Prepint

- Authors: Eranda Somathilake, Upekha Delay, Janith Bandara Senanayaka, Samitha Gunarathne, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Janaka Wijayakulasooriya and Chathura Ratnayake
- Link: https://arxiv.org/abs/2111.10066

DATASETS

Fetal Movement Dataset Recorded Using Four Inertial Measurement Units *Nov. 2021*

Mendeley

- Contributors: Janith Bandara Senanayaka, Eranda Somathilake, Upekha Delay, Samitha Gunarathne, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Janaka Wijayakulasooriya and Chathura Ratnayake
- Link: https://data.mendeley.com/datasets/m873dbhy9j/1

Experience

Teaching Assistant · University of Peradeniya · *Peradeniya, Sri Lanka* *Aug. 2020 - PRESENT*

- Conducting laboratory sessions for undergraduates.
- Assisting professors to grade lab reports, assignments, and tutorials.
- Assigned courses are EE201 Network Analysis, EE251 Principle of Electrical Measurements, EE252 Electronic Devices and Circuits, EE253 Digital Logic Design, EE254 Electronic Instrumentation, EE257 Signals and Systems, EE322 Embedded Systems Design, EE325 Digital Signal Processing, EE357 Communication Systems, EE401/512 Communication Theory, and EE402/501 Advanced Signal Processing.
- [Appointment Letters]

Volunteering Research Assistant · University of Peradeniya · *Peradeniya, Sri Lanka* *Aug. 2020 - PRESENT*

- Working in the project "Computer Vision for Road Safety and Traffic Planning."
- Working in the project "Computer Vision for Human Behaviour & Group Activity Monitoring."
- Working in the project "Fetal and Maternal Well-Being Monitoring During Pregnancy."

Volunteering Teaching Assistant · University of Peradeniya · *Peradeniya, Sri Lanka* *Feb. 2020 - Mar. 2020*

- Assisting professors to conduct laboratory sessions for first years.

Research Engineer (Internship) · CodeGen International (Pvt.) Ltd. · *Colombo, Sri Lanka* *Feb. 2019 - May 2019*

- Worked in the unmanned ariel vehicle development project in the QBITS lab at University of Peradeniya.
- [Report]

Electrical Engineer (Internship) · National Water Supply & Drainage Board · *Kandy, Sri Lanka* *Oct. 2017 - Jan. 2018*

- Worked as an electrical engineer.
- [Report]

Honours & Awards

1st Place, LED Cube Competition, Innovators 2016 organized by Inventors' Club, University of Peradeniya. [Certificate] *2016*

Mahapola Higher Education Merit Scholarship, Merit based scholarship awarded by government of Sri Lanka for performance at GCE A/L examination. [Certificate] *2016*

Best Student, Prize Giving 2012, Sri Pragnarathana Central College. [Certificate] *2012*

Extracurricular Activities

Senior Member · University Explorers' Club, University of Peradeniya · *Peradeniya, Sri Lanka* *2018 - PRESENT*

University Explorers' Club is the most active Nature Exploration student body for undergraduate students at the University of Peradeniya.

- Hiking with the University Explorers' Club improved team spirit and the confidence to face risky challenges.
- Participated in over 35 hiking events around Sri Lanka.
- Climbed many mountains and visited several waterfalls in Sri Lanka.
- [Certificate]

President · Robarosiya, University of Peradeniya · *Peradeniya, Sri Lanka* *2019 - 2020*

The aim of Robarosiya society is to share life experiences and promote peer help and the mental well-being of the undergraduates. It consists of undergraduates as well as staff members and professionals from the nine faculties in the university.
- Excellent leadership and communication skills and perfect management skills gained by working as the president of Robarosiya.
- Organized peer supporter training programme, which offers annually free of charge.
- Conducted motivation, guidance, and personality development programmes with other members for over 400 freshers.
- [Certificate]

Secretary · IEEE Industry Application Society Chapter University of Peradeniya · *Peradeniya, Sri Lanka* *2019 - 2020*
- Organized several events.
- [Certificate]

Member · Art Circle - Faculty of Engineering, University of Peradeniya · *Peradeniya, Sri Lanka* *2018 - 2020*
- Participated in Fiato-3 and Fiato-4 musical events as guitarist and many other events.
- [Certificate]

Member · Taekwondo Team, University of Peradeniya · *Peradeniya, Sri Lanka* *2017 - 2020*
- Taekwondo junior green belt holder.
- Won the third place in the 54kg – 58kg weight category – Inter Faculty Taekwondo Championship 2019.
- Represented the university in Sri Lankan University Games (SLUG) - 2019.
- Represented the university in Inter University Games - 2018.
- [Certificates]

Vice President · Robarosiya, University of Peradeniya · *Peradeniya, Sri Lanka* *2018 - 2019*
- Organized peer supporter training programme, which offers annually free of charge.
- Conducted motivation, guidance, and personality development programmes with other members for freshers.
- Conducted three days motivation, guidance, and personality development programme with other members for school students.
- [Certificate]

Founding Committee Member · Robarosiya, University of Peradeniya · *Peradeniya, Sri Lanka* *2017 - 2018*
- Made posters and other graphic contents to promote the society.
- [Certificate]

Volunteer · Sasnaka Sansada · *Battaramulla, Sri Lanka* *2015 - 2016*

Sasnaka Sansada is a charitable social service organization.
- Conducted over 10 ordinary level mathematics seminars for school children in Sri Lanka.

Professional Memberships

Associate Member · Institution of Engineers Sri Lanka (IESL) · *Peradeniya, Sri Lanka* *2020 - PRESENT*

The Institution of Engineers, Sri Lanka is the multidisciplinary professional engineering institution in Sri Lanka.
- Membersip Number: AM-27064

Associate Member · Engineering Council Sri Lanka (ECSL) · *Peradeniya, Sri Lanka* *2020 - PRESENT*

The Engineering Council of Sri Lanka is Sri Lanka's regulatory authority for registration of engineering practitioners.
- Membersip Number: 213533

Student Member · Institute of Electrical and Electronics Engineers (IEEE) · *R10 -Asia and Pacific* *2019 - 2020*
- Membersip Number: 95783824

Skills

Applications	MATLAB, R Studio, AWR Design Environment, MPLAB®X IDE, Proteus, EAGLE, AutoCAD®, CorelDRAW, Adobe Photoshop
ML Frameworks	TensorFlow, PyTorch
Programming	Python, MATLAB, R, Java, C, PIC Assembly
Word Processing	LaTeX (including Tikz), Open Office, Microsoft Office
Operating Systems	Windows (GUI and CLI), Linux (GUI and CLI)

References

Available upon request.