Janith Bandara Senanayaka

No. 146-C, Pethiyagoda, Gelioya, Kandy, Sri Lanka

📱 (+94) 77-6-980-894 | ✉ janithbsenanayaka@gmail.com | ⌂ Homepage | ○ GitHub | G Google Scholar | ⓘ Orcid ID

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
- Link: https://link.springer.com/chapter/10.1007/978-981-16-4369-9_17

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]

JOURNAL PAPERS UNDER REVIEW
Holistic Interpretation of Public Scenes Using Computer Vision and Temporal Graphs to Identify Social Distancing Violations *Dec. 2021*
Submitted to Elsevier Sustainable Cities and Society Journal for review
- Authors: Gihan Jayatilaka, Jameel Hassan, Suren Sritharan, **Janith Bandara Senanayaka**, Harshana Weligampola, Roshan Godaliyadda, Parakrama Ekanayake, Vijitha Herath, Janaka Ekanayake, Samath Dharmaratne
- Link: https://arxiv.org/abs/2112.06428

Assessment of Fetal and Maternal Well-Being During Pregnancy Using Passive Wearable Inertial Sensor *Nov. 2021*
Submitted to IEEE Transactions on Instrumentation and Measurement for review
- 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.

Volunteering Research Assistant · University of Peradeniya · *Peradeniya, Sri Lanka* *Aug. 2020 - PRESENT*
- Working on the projects "Computer Vision for Road Safety and Traffic Planning."
- Working on the project "Computer Vision for Human Behaviour & Group Activity Monitoring."
- Working on the project "Fetal and Maternal Well-Being Monitoring During Pregnancy."

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.

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

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* [Certificate] *2018 - PRESENT*
President, Robarosiya, University of Peradeniya, *Peradeniya, Sri Lanka* [Certificate] *2019 - 2020*
Secretary, IEEE Industry Application Society Chapter University of Peradeniya, *Peradeniya, Sri Lanka* [Certificate] *2019 - 2020*
Member, Art Circle - Faculty of Engineering, University of Peradeniya, *Peradeniya, Sri Lanka* [Certificate] *2018 - 2020*
Member, Taekwondo Team, University of Peradeniya, *Peradeniya, Sri Lanka* [Certificates] *2017 - 2020*
Vice President, Robarosiya, University of Peradeniya, *Peradeniya, Sri Lanka* [Certificate] *2018 - 2019*
Founding Committee Member, Robarosiya, University of Peradeniya, *Peradeniya, Sri Lanka* [Certificate] *2017 - 2018*
Volunteer, Sasnaka Sansada, *Battaramulla, Sri Lanka* *2015 - PRESENT*

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