

Narmada Balasooriya

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Summary

Currently working as a Software Developer at StrobelTEK Inc. 6+ years of experience in Deep Learning and Computer Vision, focusing on Machine Learning for critical applications. Skills in Python, C++, Tensorflow, Pytorch, OpenCV, Scikit-learn, Open3D, PCL, ROS, and Git.

Experience

StrobelTEK Inc.

Software Developer

Feb 2023 - present

St. John's, NL, Canada

- Developing software for Single Rotor Sprinter UAV
- Programming in C++, C, Python, and bash scripting
- Deploying software on NVIDIA Jetson and Arm-based development boards
- Developing code for PX4 drone development stack
- C++, Python, ROS, Mavros, Mavlink, Eigen, SDL2, Sensor Fusion, Object Detection, Precision Landing, Indoor Navigation Systems

Upwork

Freelance Computer Engineer

Oct 2021 - present

St. John's, NL, Canada

- Devised Computer Vision and Deep Learning based solutions in 3 client projects using videos, satellite images etc.
- Programmed in Python, Deep Learning APIs, and bash scripting
- Deployed NVIDIA Maxine SDK on an AWS cloud workspace
- Reviewed and analyzed source code
- Python, C++, Pytorch, Tensorflow, OpenCV, Scikit-image, Object Detection, object tracking, Background removal in videos

Intelligent Systems Lab, Memorial University of Newfoundland

Graduate Researcher

Jan 2020 - Dec 2022

St. John's, NL, Canada

- Developed Deep Learning based LiDAR semantic segmentation ROS pipeline for UAV navigation (collaboration with National Research Council, Canada)
- Worked with 3 variations of aerial LiDAR datasets
- Created AI-based navigation module using NVIDIA Jetson AGX Xavier for sea-ice detection with an average accuracy of 97%
- Authored 2 conference papers and one journal paper, which is under review
- Python, C++, PyTorch, PyTorch C++, Tensorflow, Tensorflow Lite, OpenCV, Open3D, PCL, Eigen, ROS, 3D and 2D semantic segmentation, object detection, Networking in Linux

Conscient AI Labs

Research Engineer (Contract)

Mar 2019 - Aug. 2019

Colombo, Sri Lanka

- Designed more than 3 computer vision-based deep learning solutions for clients
- Digital image processing, color image to line art, OCR
- Worked with docker, online benchmark datasets, Python, PyTorch, Tensorflow, Git
- Published work at ICLR workshop on AI for Social Good in 2019

Mila - Quebec AI Institute

Independent Researcher

Jan 2019 - Mar. 2019

Montreal, Canada

- Collaborated on the visualizing climate change using AI project with Prof. Yoshua Bengio's team
- Volunteered in developing CycleGAN for flood visualization for street-view images
- Developed a web application using Python, Flask, and Google Compute Engine for visualization - video at <https://youtu.be/ffM-Y67koJo>

Dept. of Computer Engineering, University of Peradeniya

Teaching Assistant & Independent Researcher

Dec. 2016 - Dec. 2018

Peradeniya, Sri Lanka

- Teaching assistant in courses Embedded Systems, Artificial Intelligence, Computer Networks, Computer Security
- Mentor at Deep Learning and Computer Vision research group
- Worked on brain tumor glioma classification using deep learning
- Developed a convolutional neural network using TFLearn based on Tensorflow, OpenCV, Scikit-learn
- Worked with DICOM images, conversion to jpeg format
- Developed an autoencoder model for Google Landmark Retrieval challenge on Kaggle

IFS R&D International

Software Engineering Intern

Oct 2015 - Mar. 2016

Colombo, Sri Lanka

- Developed web application for company directory
- Used JAVA, GlassFish server and Windows Server 2012

Education and Certifications

M.Eng. Computer Engineering

Memorial University of Newfoundland, GPA 4.00/4.00

Sep 2020 - Dec 2022

St. John's, NL, Canada

- Aided-Navigation Systems, Machine Learning for navigation systems
- Deep Learning and Reinforcement Learning, Computer Vision

M.Sc. Computer Science

University of Peradeniya, GPA 3.48/4.00

May 2017 - Jan 2019

Peradeniya, Sri Lanka

B.Sc. Computer Engineering

University of Peradeniya

Mar 2013 - Oct 2016

Peradeniya, Sri Lanka

Self-Driving Cars with Duckietown Certificate

EdX and ETH Zurich

Neural Networks and Deep Learning Certificate

DeepLearning.AI and COURSERA

Skills

Programming	Python, C++, MATLAB, Arduino, C, GO(Beginner), R(Beginner), HTML, LaTeX, CMake
ML APIs	MLOps, PyTorch, Tensorflow, Keras, OpenCV, Numpy, Scipy, Scikit-learn, Matplotlib, Pandas, TensorRT, Open3D, PCL
Robotics APIs	ROS1, PX4, Mavros, Mavlink, Gazebo
Compute Envs	Linux, Google Compute Engine, Compute Canada, Google Colaboratory, Nvidia Jetson SDK, Armbian on NanoPi, Microsoft Azure (Beginner), Windows
DevOps	Docker, Git
APIs and Tools	Eigen, SDL2, CloudCompare, QGIS, Bash, Ceres, Flask, BeautifulSoup, Intel RealSense SDK
Hardware	Arduino, Raspberry Pi, Nvidia Jetson Nano, Nvidia Jetson AGX Xavier, NanoPi Boards, HTC Vive, Intel RealSense Camera, Marvelmind Starter Set, Modbus Weather Station, BigTreeTech Board

Publications

Balasooriya, N.M., De Silva, O., Jayasiri, A., Mann, G.K.I., 2024, April. **AI-based landing zone detection for vertical takeoff and land LiDAR localization and mapping pipelines**. Drone Systems and Applications Journal: Volume 12. Canadian Science Publishing.

Balasooriya, N., Dowden, B., Chen, J., De Silva, O. and Huang, W., 2021, September. **In-situ Sea Ice Detection using DeepLabv3 Semantic Segmentation**. OCEANS 2021: San Diego-Porto (pp. 1-7). IEEE.

Atapattu, S., **Balasooriya, N.M.**, De Silva, O., Jayasiri, A., Mann, G. and Gosine, R., 2020. ***Landing Zone Identification Using a Hardware-accelerated Deep Learning Module***. 77th Annual Forum & Technology Display. The Vertical Flight Society.

Schmidt, V., Luccioni, A., Mukkavilli, S.K., **Balasooriya, N.**, Sankaran, K., Chayes, J. and Bengio, Y., 2019. ***Visualizing the consequences of climate change using cycle-consistent adversarial networks***. arXiv preprint arXiv:1905.03709.

Balasooriya, N.M. and Nawarathna, R.D., 2017, December. ***A Sophisticated Convolutional Neural Network Model for Brain Tumor Classification***. 2017 IEEE International Conference on Industrial and Information Systems (ICIIS) (pp. 1-5). IEEE.