Sairam Tabibu

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Summary of Qualifications

Interests: Computer Vision, Machine Learning, Deep Learning, Natural Language processing
Software and Languages: Python(proficient), C++(proficient), C(basic), R(basic), Matlab(proficient), LaTeX(intermediate)
Embedded Platforms: Raspberry Pi, Arduino
Packages and Framework: Pytorch, Keras, Tensorflow, Numpy, Scikit-learn, OpenCV, MatConvnet

EDUCATION

University of Washington, Seattle — UW College of Engineering, *Seattle, WA*
Master of Science in Electrical and Computer Engineering *Sept. 2019 – Mar. 2021 (expected)*
Selected coursework - Intro to Artificial Intelligence for mobile robots, Machine Vision, Machine Learning

Indian Institute of Technology(BHU), Varanasi, *Varanasi, India* *GPA-3.5/4*
Bachelors of Technology in Electronics Engineering *Jul. 2013 – May. 2017*
Coursework - Data structures and algorithms, Linear algebra, Image processing

RELEVANT EXPERIENCE

Research Fellow, *IIIT, Hyderabad India*
Cancer detection and Survival Prediction using Deep learning *Nov. 2017 – Mar. 2019*

- Spearheaded and developed a fully automated model which detected kidney Cancer and it's sub-types from tissue slide images (**Gigapixel Images**) using **Deep Neural networks**. **Paper published in Nature Scientific reports.**
- Designed and Implemented a novel **Directed Acyclic graph based SVM model** to be used on top of Deep learning model to deal with **Class Imbalance** which increased the classification accuracy by **6-7%** (86% - 93%).
- Developed a survival prediction system using a **COX Regression model** trained on the features extracted from the Deep Net **without any pathologist supervision**.

Research Project, *IIT, BHU, India*
Lexical and visual analysis of social media posts *Jan. 2017 – Apr. 2017*

- Spearheaded the project on developing a system to detect whether a social media post requires empathetic response.
- Designed and Implemented a pipeline to extract verbal and visual (**facial action units** for expression) and used **Logistic Regression and Random forest** for classification achieving **80% accuracy**. **Paper accepted in FLAIRS'17.**

Research Project, *IIT, BHU, India*
Multi-modal analysis for deception detection *Sep. 2016 – Dec. 2016*

- Developed a data-driven method for automatic deception detection in real-life trial data.
- Implemented an automated pipeline to extract the visual cues (face expressions, color attributes etc.), verbal cues (utterances etc.) & audio cues and did a **Decision level fusion using SVM model** on top of these modalities for classification.
- Achieved an accuracy of 78% surpassing the Human level accuracy(58-60 %) by **more than 15%**. **Paper accepted in ICDM workshop'16.**

Research Intern, *NTU, Singapore*
Infrared Image processing and vessel detection in Maritime Environment *May. 2016 – Jul. 2016*

- Developed a **automated Ship tracking system using IR cameras** along the Singapore coastline with possible variations in orientation,shape, distance and surrounding effects. Project Report
- Improved the ship detection system by implementing the **Selective search method** (Graph based object segmentation followed by grouping based based on location, shape, color of the object to generate probable bounding boxes).
- Implemented and trained **Deep Neural networks** nets on the IR images to extract relevant features and used SVM's for classification.

ADDITIONAL EXPERIENCE

Deep Learning Certificate Program Mentor
Great Learning, Bangalore, India *Dec. 2016 – May. 2017*

- Mentored **30+ working professionals** by teaching them Computer Vision and Machine Learning concepts.
- Created and organised assignments covering projects of **Face and object detection** and graded them.

Hand gesture Recognition on Indian Sign language
IIT BHU, India *Dec. 2016 – Mar. 2017*

- Implemented a geometric based feature method to extract hand gesture removing any ring artifact.
- Designed a custom 5 layer Neural network for feature extraction and classification.

Real time Face recognition based on Embedded Systems
Changwon National University, South Korea *May. 2015 – Jul. 2015*

- Spearheaded the project on improving and deploying a Real time face recognition algorithm on Embedded systems such as Raspberry Pi to be deployed as a low cost product. Project presentation
- Designed a system which extracted **higher order Local derivative patterns** and used Histogram matching for recognition.
- Implemented and improved the accuracy by using transforms such as **Adaptive Histogram equalisation** to bring illumination in-variance and increased the accuracy by **7-8%**.