

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), L^AT_EX(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.
 - Improved the ship detection system by implementing the **Selective search method** (Graph based object segmentation followed by grouping 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.
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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.
 - 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%**.
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