SAIRAM TABIBU

Seattle, WA 98105

stabibu@uw.edu

+1 (206) 617-9736

Willing to relocate: Anywhere

Sponsorship required to work in the US

WORK EXPERIENCE

Research Fellow

IIIT HYDERABAD - Hyderabad, Telangana
November 2017 to March 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 - Varanasi, Uttar Pradesh
January 2017 to April 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 - Varanasi, Uttar Pradesh
September 2016 to December 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
May 2016 to July 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 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.

Research Intern

Changwon National University - Changwon, South Korea
May 2015 to July 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%.

EDUCATION

Master's in Electrical and Computer Engineering

University of Washington, Seattle - Seattle, WA
September 2019 to Present

Bachelor's in Electronics Engineering

Indian Institute of Technology(BHU) - Varanasi, Uttar Pradesh
July 2013 to May 2017

SKILLS

- **C++**
- **Python**
- **MATLAB**
- **Software Development**
- **Computer Vision**
- **Machine Learning**
- **Natural Language Processing**
- **System Design**
- **pytorch**
- **Keras**
- **Tensorflow**
- **Scikit-learn**
- **Deep learning**
- **OpenCV**

LINKS

http://tabibusairam.github.io

PUBLICATIONS

“Hang in There”: Lexical and Visual Analysis to Identify Posts Warranting Empathetic Responses

https://aaai.org/ocs/index.php/FLAIRS/FLAIRS17/paper/view/15505/14960
April 2017

In the past few years, social media has risen as a platform where people express and share personal incidences about abuse, violence and mental health issues. There is a need to pinpoint such posts and learn the kind of response expected. For this purpose, we understand the sentiment that a personal story elicits on different posts present on different social media sites, on the topics of abuse or mental health. In this paper, we propose a method supported by hand-crafted features to judge if the post requires an empathetic response. The model is trained upon posts from various web-pages and corresponding comments, on both the captions and the images. We were able to obtain 80% accuracy in tagging posts requiring empathetic responses.

Pan-Renal Cell Carcinoma classification and survival prediction from histopathology images using deep learning

https://www.nature.com/articles/s41598-019-46718-3
August 2019

Histopathological images contain morphological markers of disease progression that have diagnostic and predictive values. In this study, we demonstrate how deep learning framework can be used for an automatic classification of Renal Cell Carcinoma (RCC) subtypes, and for identification of features that predict survival outcome from digital histopathological images. Convolutional neural networks (CNN’s) trained on whole-slide images distinguish clear cell and chromophobe RCC from normal tissue with a classification accuracy of 93.39% and 87.34%, respectively. Further, a CNN trained to distinguish clear cell, chromophobe and papillary RCC achieves a classification accuracy of 94.07%. Here, we introduced a novel support vector machine-based method that helped to break the multi-class classification task into multiple binary classification tasks which not only improved the performance of the model but also helped to deal with data imbalance. Finally, we extracted the morphological features from high probability tumor regions identified by the CNN to predict patient survival outcome of most common clear cell RCC. The generated risk index based on both tumor shape and nuclei features are significantly associated with patient survival outcome. These results highlight that deep learning can play a role in both cancer diagnosis and prognosis.

The Truth and Nothing But the Truth: Multimodal Analysis for Deception Detection

https://ieeexplore.ieee.org/document/7836768
December 2016

We propose a data-driven method for automatic deception detection in real-life trial data using visual and verbal cues. Using OpenFace with facial action unit recognition, we analyze the movement of facial features of the witness when posed with questions and the acoustic patterns using OpenSmile. We then perform a lexical analysis on the spoken words, emphasizing the use of pauses and utterance breaks, feeding that to a Support Vector Machine to test deceit or truth prediction. We then try out a method to incorporate utterance-based fusion of visual and lexical analysis, using string based matching.