Amruth Baskar

Email | LinkedIn | Github | Website

Technical Skills

Languages: Python, C, JavaScript, HTML/CSS
Frameworks: , Vue, Node.js, Flask, AWS, Firebase
Developer Tools: Git, VSCode, Linux
Libraries: NumPy,Keras,OpenCV, Bootstrap

Experience

Research Assistant June 2020 – August 2020
Netramark Corporation *Toronto, ON*

- Trained Deep Learning models using an AWS GPU instance on lung cancer gene expression datasets consisting of 16000+ dimensions using Tensorflow.
- Utilized grid search hyperparameter tuning techniques to improve training of Deep Learning models to achieve test accuracies of 85% using k-fold cross validation.
- Assisted in creating an interpretable and explainable representation of trained Deep Learning models using Graph Theory.
- Under NDA. For more details contact Dr.Joseph Geraci at joseph.geraci@netramark.com

Personal Projects

Word Search Solver | *Javascript,Flask,OpenCV,Tensorflow*

- Developed a full-stack web application for users to solve a word search by taking pictures.Used a JavaScript front end and Python back end with a REST API.
- Constructed an image prepossessing pipeline using classical computer vision techniques and OpenCV to extract individual letters from a word search grid. Performed image recognition on individual characters on a grid, then mapped them onto a 2D array to computationally find words.
- Trained, used and evaluated various custom deep learning models, transfer learning models in Keras and compared them to pre-trained OCR models for letter classification. Increased the accuracy of letter recognition by 30% .
- Increased the efficiency of string matching in grid rows, columns and diagonals by implementing Knuth-Morris-Pratt algorithm. Reduced the time it took to find words from a polynomial to linear time.

Centralabel | *Javascript,Vue.js,Firebase,Node*

- Developed a full-stack web application for users to collaboratively annotate image datasets using Vue.js as a frontend and Firebase as a database
- Wrote asynchronous JavaScript functions using Firebase Firestore to store,retrieve and render datasets with 6000+ images
- Utilized Konva.js to create a user-friendly drag and drop interface to draw bounding boxes and render coordinates.

Self Driving Car Simulation | *Python,Keras,OpenCV,Flask*

- Trained a self driving car simulation using Deep Learning, through Udacity's self driving car simulator.
- Learnt about various computer vision techniques like Hough Transforms for lane detection and Deep Learning for steering control.
- Learnt and utilized various techniques such as image data augmentation and hyperparameter tuning to improve the performance of Deep Computer Vision models.
- Constructed a pipeline to transform and pre-process image data from the simulator and predict steering angles. Used Flask to send and receive data.

Education

Univeristy of Waterloo Waterloo, ON
Bachelor of Computer Science *Sept. 2020 – May 2025*

- Relevant Courses: Designing Functional Programs (Racket), Algorithm Design and Data Abstraction (C)