

Bhavyakumar Ramani

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EDUCATION

University of Southern California, Viterbi School of Engineering

May 2024

Master of Science in Applied Data Science

Relevant Coursework: Machine Learning for Data Science, Foundations of Data Management

Charotar University of Science and Technology, DEPSTAR, Changa

July 2018-May 2022

Bachelor of Technology in Computer Science and Engineering

GPA: 9.71/10.0

Relevant Coursework: Discrete Mathematics & Linear Algebra, Data Structure & Algorithms, Database Management System, Design and Analysis of Algorithms, Design of Language Processors, Cloud Computing, Software Engineering

WORK EXPERIENCE

Space Applications Centre ISRO – Research Intern, Ahmedabad, India

January 2022-May 2022

- Trained multiple convolutional neural networks (CNN) models to extract building shapes from optical satellite imagery of Indian regions utilizing dataset generated using QGIS.
- Generated a vector layer by combining outputs of the image-segmentation model to build a single overlay-able vector of buildings
- Surpassed accuracies of previous algorithms in same domain with a peak accuracy of 92%.
- Analyzed consequences of high resolution as well as low resolution satellite data on deep learning algorithms applied to remote sensing tasks and understood how high-resolution data aids in learning phase.

ThinkSmart Solutions Pvt Ltd. – Technology Intern, Pune, India

June 2021-July 2021

- Implemented a CNN imaging classification model trained on chest x-rays with an accuracy of 85% for detecting Pneumonia.
- Visualized class activation and saliency maps for each class in binary classification to understand how black box model operates.
- Provided insights about correlation between Pneumonia and COVID-19 symptoms to lead developer.

PROJECTS

- **Kisan-Sathi** - Aggregated climate, soil and crop production data from Indian government data repositories spanning over last decade to curate a dataset. Experimented with different machine learning algorithms to predict crop yield utilizing curated dataset and deployed a flask web application for increased availability for local farmers.
- **AccuDiagnosis** - Programmed multiple CNN models and used transfer learning techniques to detect colorectal, breast and skin cancer from medical images with an average of 90% accuracy for each case. Tuned hyperparameters of each individual model by examining results leading improved the accuracies of trained models by at least 5%.
- **Retina.ai** - Utilized Retinal Fundal Multi-Disease Detection dataset to create deep learning models for identifying retinal diseases. Tuned a binary classifier to predict if given retinal scan is normal or abnormal and used OVR/OVA models for identifying multiple diseases from a retinal scan.
- **StockWiz** - Retrieved stock data from yahoo finance API and forecasted stock prices using Facebook's Prophet library. Utilized plotly library in python to fabricate interactive plots of forecasted stock prices which displays the chart based on users' selection and integrated plots and predictive logic in a dynamic, easy to operate dashboard.

SKILLS

- Programming Languages: C, C++, Java, Python, R
- Database: MySQL, MongoDB
- Libraries/Frameworks: tensorflow, keras, opencv, scikit-learn, scipy, Hadoop, Spark, numpy, pandas, matplotlib, seaborn

PUBLICATIONS

- "Automatic Building Footprint Extraction using Deep Learning", CICTN 2023(Under Review)

LEADERSHIP AND INVOLVEMENT

- **Executive Committee Member IEEE DEPSTAR Student Branch** – Planned and organized various technical and non-technical events such as poster presentations, AWS and Amazon Alexa skill webinars. Engaged in promotion of events organized by peers by serving a role in social media committee.