Eshwar Prasad Sivaramakrishnan

Deep Learning | Computer Vision | NLP | Genetic Algorithms

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Education

University of Southern California, CA *May 2023*
Master of Science in Computer Science (Artificial Intelligence) **GPA: 3.85/4.00**

SRM Institute of Science And Technology, India *May 2020*
B.Tech Computer Science and Engineering **GPA: 9.48/10.00**
Overall Proficiency Award - Rank II, Academic Performance Based Scholarship, Wall of Fame Award

Experience

Research Assistant *Jan 2022 - Present*
University Of Southern California

- **AI & Optimization for wildfire mitigation in California**: Working with large volumes of spatial simulation data of wildfires across California to implement multi-objective optimization approaches to minimize risks of wildfire
- **Genetic & Evolutionary Algorithms**: Using multi objective evolutionary algorithms (MOEAs) to find diverse pareto optimal solutions with large scale geo-spatial data from natural reserves in California

Machine Learning Intern *April 2021 - June 2021*
Rivi Ventures Pvt. Ltd.

- **Natural Language Generation & Understanding**: Designed and Developed the Natural Language Understanding Engine for flagship app *Rivi* using Rasa NLU, using preliminary data from closed user testing
- **Rule-Engine**: Built and deployed a python Rule-Engine using the Cancer Research UK *NICE (NG12) Suspected Cancer: Recognition & Referral guidelines*, to help practitioners with preliminary diagnosis of Cancer
- **Results**: Resulted in 40x decrease in inference time compared to manual diagnosis

Computer Vision Engineering Intern *December 2020 - March 2021*
Bipolar Factory

- **Object Detection & Video Tagging**: Researched and built deep learning classifiers to classify clothing from fashion images using Xception & ResNet backbones. Designed a YOLOv3-style multi-object detection model to identify products from social media content for generating video tags
- **Results**: Achieved 0.80 mIOU for Detection and over 90% accuracy for Classification

Research Assistant *August 2019 - October 2019*
SRM Institute of Science and Technology, India

- **Computational Linguistic Analysis of L1-L2 Japanese**: Assisted the study of apparent and hidden L1-L2 differences based on Lexical Richness, Collocation, Mean word rank and Idiom frequency using statistical and deep learning approaches

Publication

Eshwar Prasad Sivaramakrishnan, R. Ahmed, V. Chaurasia, S. Niveditha, *"Political Orientation Prediction Using Social Media Activity."* International Research Journal of Engineering and Technology Volume 07 Issue 04 (Apr 2020)

Projects

Twitter Text Analytics – Political Orientation Prediction
Deep Learning | NLP | BERT | Keras | Tensorflow

- **Political Leaning**: Modified and fine tuned BERT to perform sentiment analysis (political leaning) and classification on users' twitter tweets; Designed a Bidirectional LSTM architecture with self attention for the same classification task; Compared the performance of BERT(Transformer Encoder) and Bidirectional LSTM architectures
- **Results**: Achieved over 87% accuracy with fine-tuned BERT, with over 0.8 mean confidence

Heart Failure Treatment Expert Systems
Answer Set Programming | Named Entity Recognition | spaCy

- **Improved Expert System**: Improved Heart Failure Treatment Recommendation Systems with Answer Set Programming, integrated with Electronic Health Records using Named-Entity Recognition
- **Results**: Reduced treatment look-up time by 5x compared to traditional systems

Technical Skills

- **Languages**: Python, C++, C, MATLAB, HTML/CSS, JavaScript, SQL
- **Technologies**: Tensorflow, Keras, Scikit-learn, OpenCV, PyTorch, spaCy, DEAP, Pymoo, ORtools, Rasterio, Numpy, Pandas, Geopandas, DialogFlow, matplotlib