80 Strathmore Rd, Apt 3
Boston, 02135 https://dspoorthy.github.io/divyaappapogu/

Divya S Appapogu

(484)320-9174
divsp@bu.edu
https://github.com/dspoorthy

Education

Boston University — **Boston, MA** — **Aug 2021 – Dec2022 (Expected)**

- **M.S. in Artificial Intelligence, GPA: 3.90**
- **Coursework:** Machine Learning, Deep Learning, Image Video Computing, Natural Language Processing, Artificial Intelligence, Graduate Algorithms

Indian Institute of Technology, Hyderabad — **Hyderabad, India** — **Aug 2015 – May 2019**

- Bachelor of Technology in Engineering Science(with focus on Computer Science)
- **Coursework:** Data Mining, Information Retrieval, Practical Challenges in Image Analysis, Bayesian Data Analysis, Computer Networks and Hardware Security, Advanced Data Structures and Algorithms, Discrete Structures, Compilers, Software Engineering

Experience

Research Assistant — **Dr. Plummer and Dr. Kate Saenko** — **Aug 2021 - Current**

- **Text Based Image Inpainting Detection** An approach that uses an image caption to improve manipulation detection with the assumption that the salient entities are also more likely to be manipulated, and can be used to help guide the manipulation detector towards the entities referred to by the caption.
- **Synthetic Media Attribution** Given a falsified image asset detecting the falsification and identify the generator or tool that was used to create the falsification. Types of generators classifies are a mix of GANs and Diffusion models (StyleGAN2, StyleGAN3, taming-transformers, latent-diffusion, LSGM, and CLIP-guided-diffusion).

Software Development Engineer II — **OYO, India** — **June 2019 - Aug 2021**

- Designed and implemented new micro services breaking the monolith traum service (legacy system) which enabled better scalability, maintenance and efficiency.
- Developed a search feature for retrieval of marketing information and implemented a caching algorithm to improve its performance.
- Designed a big data architecture to queue and manage time consuming tasks on distributed clusters using Kafka.
- Designed a more maintainable alternative to a complex architecture and implemented safe interfaces to migrate large scale production data stored using it.

Languages and Technologies

- C, C++, Python, Java(Spring Boot), PHP(Laravel), MySQL, PostgreSQL, HTML, CSS, NodeJS, AngularJS, Prometheus, Graphana, Kafka, Kibana, Kubernetes, Git, Eclipse, JetBrains, Linux
- Numpy, OpenCV, PyTorch, Tensorflow, Matlab & Simulink, Jupyter Notebook, Keras, Pandas, Scikit Learn, Regression, Clustering and classification, Web scraping, Data structures, Data modeling, Data visualization, nltk, Gensim, spaCy, TextBlob

Research Publications/Projects

- **Identification of Mixed Retinal Cells using DBSCAN** Designed a high-dimensional version of DBSCAN for automatic spatial and temporal cell identification of high-resolution time-lapse microscopic images.
- **Manipulating Stochastic Gradient Descent with Data Ordering Attacks** Taking advantage of stochasticity of SGD and the fact that order of data influences training procedure data ordering attacks were implemented. Batch reordering, Batch reshuffling and Backdoor attacks were introduced where a surrogate model is trained simultaneously to reorder the data points wrt the losses or gradients and the test accuracy of the source models drastically. Different kinds of models used were as follows: LeNet, ResNet18, ResNet50, ViT-b-16.
- **Multilingual Emoji Prediction**Multiple Transformer based models have been fine-tuned on the English and Spanish tweets and the resulting experiment outperformed the baseline of SemEval Competitionin terms of overall accuracy.
- **COVID-19 Instagram posts emotion detection** Emotion Detection on Instagram posts using **Sentiment140 dataset**. Used BERT fine tuned model to train on training data of twitter. Used BERT(small) with Adam optimizer and obtained accuracy upto 72 - 74 percentage.