ROHITH GANDHI GANESAN

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EDUCATION

New York University - Tandon School of Engineering *December 2020*
Master of Science in Informatics, *GPA: 3.7/4*
Coursework: Data Science, Big Data, Machine Learning, Natural Language Understanding, Deep Reinforcement Learning

PSG College of Technology *May 2018*
Bachelor of Engineering in Computer Science, *GPA: 7.3/10*
Coursework: Advanced Data Structures, Design & Analysis of Algorithms, Distributed Systems, Object Oriented Programming

TECHNICAL SKILLS

Programming Languages	Python, C++, C, SQL, Java, JavaScript
Frameworks	Pytorch, Tensorflow, Sklearn, OpenCV, Dask, PySpark, SparkML, NLTK
Tools & Techniques	Git, Docker, PostgreSQL, MySQL, MapReduce
Softwares, Cloud Platforms & OS	R, GCP, Linux

EXPERIENCE

Graduate Research Assistant, **New York University - RiskEcon and ARPL lab** Feb. 2020 - present
· Developed a 2D & 3D simulation for testing path planning & task assignment algorithms for autonomous drone swarms.
· Reduced mapping coverage time by 45% by using transformers & Graph Neural Nets as policy networks.
· Utilized Wavefront, PotentialField & Velocity Obstacle method to perform motion planning and obstacle avoidance in 3D.
· Improved the accuracy of object recognition models for drone swarms by 10% by sharing sparsely encoded multi-view information.
· Increased the spectral & spatial resolution of satellite images by 2% using CycleGAN & Pix2Pix with custom encoder models.

Machine Learning Researcher, **Indian Institute of Technology Madras** Aug. 2018 - May 2019
· Primary designer & developer for building a deep learning pipeline to convert Indian Sign Language videos to words.
· Created a large scale Indian Sign Language dataset of high resolution videos.
· Built a pipeline that uses pose estimation model, CNN video feature encoders and bidirectional LSTMs to classify signs.
· Achieved state-of-the-art accuracy of 92.1% on the American Sign Language (ASLLVD) dataset for the architecture.
· Increased throughput of the model by 15% by performing post-training quantization & pruning.

Research Intern, **Indian Institute of Technology Bombay** Dec. 2017 - July 2018
· Developed an interactive OCR framework for low-resource languages including Sanskrit, Hindi & Gujarati.
· Built a cross-platform GUI desktop application in C++ language using Qt Creator that converts documents into editable format.
· Reduced OCR conversion errors by 5% by using LSTMs, n-gram based edit distance methods & updating LSTMs on the fly.

PUBLICATIONS

· INCLUDE: A Large Scale Dataset for Indian Sign Language Recognition *ACM Multimedia (MM'20)*
· Task Assignment and Path Planning for Drone Swarms Using Reinforcement Learning

PROJECTS

Adversarial Training to Improve Robustness of BERT Code: https://bit.ly/34w0Lt2
· Created adversarial examples for the sentiment classification task by perturbing the input words based on attention.
· Reduced training time from 12 hrs to 3 hrs by utilizing distributed data parallelism.
· Improved adversarial accuracy from 13% to 66% on selected GLUE & SuperGLUE tasks by performing adversarial pre-training.

Personal Voice Assistant Demo: https://bit.ly/2QjbQqO
· Built a personal voice assistant through a automatic speech recognition model for automating tasks on a desktop.
· Created a custom dataset & built a CNN to classify audio spectrograms into tasks & used shell scripts to automate the task.
· Performed model compression using Tensorflow-Lite & deployed it on the browser using TensorflowJS.

SimpleGAN: A python library to ease training of generative models Code: https://bit.ly/3e5Y6JN
· Primary designer & developer for SimpleGAN, a framework built using Tensorflow that aims to facilitate the training of Autoencoders & GANs.
· The open-source project achieved over 5000 downloads and is featured in Hacktoberfest of MadewithML.

Housing Price Prediction in NYC Boroughs
· Performed feature selection for housing price prediction by performing Data Wrangling & Exploratory Data Analysis.
· Reduced processing time for data pipelines by 1.5 times using Dask & PySpark.
· Created a dashboard for Visualization of the features that influence the price of a house for each zipcode in NYC boroughs.
· Built Linear Regression, Decision Tree & Ensemble models to accurately predict the price of a house in NYC boroughs.