ROHITH GANDHI GANESAN

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EDUCATION

New York University - Tandon School of Engineering *December 2020 (expected)*
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	C, C++, Python, Java, JavaScript, SQL, HTML, CSS
Frameworks & Tools	Pytorch, Tensorflow, Caffe, CUDA, OpenCV, Spark, Git, Docker
Softwares, Cloud Platforms & OS	ArcGIS, QGis, R, GCP, Linux

EXPERIENCE

New York University - RiskEcon and ARPL lab, *Graduate Research Assistant* Feb. 2020 - present

- Developed a 2D & 3D simulation environment for path planning & task assignment for autonomous drone swarms.
- Conducted experiments with various policy networks such as transformers and Graph Neural Nets trained with Reinforcement Learning algorithms such as REINFORCE and A3C for task assignment.
- Explored different mapping, localization & motion planning algorithms to avoid obstacles in a multi-agent setting of drones.
- Worked on improving object detection models for drone swarms by sharing sparsely encoded multi-view information

Indian Institute of Technology, Madras, *Project Associate* Aug. 2018 - May 2019

- Developed a Deep Learning pipeline to convert Indian Sign Language videos to words under Prof Pratyush Kumar.
- Created a Dataset of size 55GB consisting of high resolution Indian Sign Language Videos with 264 classes
- Built a pipeline based on DL that uses pose estimation, video feature extractor and sequence modeling to classify signs
- Proved the validity of our model by achieving state of the art results on the American Sign Language (ASLLVD) dataset
- Performed post-training Quantization and Pruning to reduce the memory footprint of the model

CFILT Lab - Indian Institute of Technology, Bombay, *Research Intern* Dec. 2017 - July 2018

- Developed an interactive OCR framework for Sanskrit, Hindi & Gujarati Languages under Prof Ganesh Ramakrishnan
- Developed a cross-platform GUI desktop application in *C++* language using *Qt Creator* that converts Sanskrit documents into editable format & used language models (LSTMs) & n-gram based edit distance methods to reduce OCR conversion errors

PUBLICATION

- 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

Center for Urban Science and Progress, New York University April. 2020
Adversarial Training to improve Robustness of BERT *https://github.com/grohith327/TextFooler*

- Obtained adversarial examples for the sentiment classification task which perturb the input words based on attention.
- Performed Masked Language Model pre-training using the Pytorch framework on the adversarial samples to improve the robustness of the BERT model & improved the adversarial accuracy from 13% to 66% on IMDB dataset.

Center for Urban Science and Progress, New York University Oct. 2019
Automatic Speech Recognition *https://bit.ly/2QjbQqO*

- Developed an automatic speech recognition model that could automate certain tasks on a laptop such as taking picture, changing volume etc. Created a dataset to build a model that could learn from my voice.
- The audio sample is denoised and a short-time fourier transform (STFT) is applied on the signal and converted to mel-scale which is used as input by a CNN implemented in Tensorflow to classify audio commands real-time and perform actions

Center for Urban Science and Progress, New York University Feb. 2020
SimpleGAN: A python library to ease training of generative models *https://github.com/grohith327/simplegan*

- Built SimpleGAN, a python framework built on top of TensorFlow that aims to facilitate the training of AutoEncoders and GANs by provding *high-level APIs*. Built the library from scratch using few dependencies as possible & has over 5000 downloads.