Rajaram Sivaramakrishnan Email : rajaramsivaramakrishnan@gmail.com
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Education

- **North Carolina State University** Raleigh, NC
  Master of Science in Electrical Engineering; GPA: 3.59/4.0 *August 2018 – May 2020*
  Coursework: Signal Processing, Digital Imaging Systems, Probability and Random Process, Computer Vision, Neural Networks, IOT Analytics.

Experience

- **RTI International** Durham, NC
  Artificial Intelligence Developer - Contractor *July 2020 - present*
  - **Developing an algorithm to predict path of travel**: Worked on setting up a platform for predicting the path a visitor takes and mapping it from camera angle into 2D space.
  - **Providing data analysis report for the client**: Created a Jupyter notebook with interactive features from object tracking results to understand visitor engagement for Museum of Natural Sciences, NC.
  - **Performance improvement on object tracking**: Orchestrated an algorithm to subsample video files in order to improve GPU inference speed up to 25%

- **RTI International** Durham, NC
  Artificial Intelligence Engineer Intern *Feb 2020 - May 2020*
  - **Developed Azure pipelines to automate ML process**: Worked on setting up a fully scaled MLops pipeline for automating machine learning tasks at Lab58.
  - **Building Data pipeline for Multiple Object Tracking**: Implemented a data pipeline that would clean the recorded videos and feed it to the algorithm in Azure Blob Storage.
  - **Automated provisioning resources for VM's**: Used Terraform to automatically provision virtual machines with GPU resources for running Machine learning tasks.

- **RTI International** Durham, NC
  Artificial Intelligence Intern *June 2019 - August 2019*
  - **Visual People Engagement**: Developed Facial Emotional Recognition (FER) application in Keras with Transfer Learning. Used VGG16 model and added couple extra layers to get better classification results. Fine-tuned the model to increase F-1 score by unfreezing last few layers. Explored various other ways of feature extraction like, Action Units data generated by OpenFace, classifying based on dominating values from these units and knowledge distillation.
  - **Speech to Text on survey videos with a dockerized application**: Incorporated **Microsoft cognitive service**, specifically speech to text translation, into a dockerized web application that takes in video and Email ID, and returns a customized report that summarizes the entire audio using TF-IDF (term frequencyinverse document frequency).

Projects

- **Visual Tracking using VGG16 and LSTM**: Applied three-step implementation of preprocessing, training and testing a code which can keep track of object of interest. Deployed CNN and LSTM for the object detection and stitching of frames respectively. TensorFlow was picked as deep learning framework choice for object detection and LSTM cells. Tracking of object possible for up to 32 frames per second.
- **Body Rocking Behavior Recognition applying RNN and LSTM**: scripted a code to detect body rocking (commonly observed in individuals with autism) with accuracy over 90 percent. The entire implementation was written using PyTorch Framework.

Skills

- **Programming Languages** : Python, C++, SQL, JavaScript, Golang.
- **Software Frameworks/Tools** : Linux, Docker, Kubernetes, Git, GitHub and Gitlab, CircleCI.