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Work Experience

Student Developer (TensorFlow)

Google Summer of Code (June - August 2020)

- Systematic study of data adaptive image augmentation techniques to enhance classification performance of modern CNN architectures
- Worked on **3+ PRs** and a **repository of reusable components** for the TensorFlow ecosystem
- Implemented **RandAugment** and **AutoAugment** using TensorFlow 2 ops
- Developed various image processing functions and a **high-level API** to help construct pipelines that can well support various image data augmentation strategies

Projects

DeepFace (September - October 2019)

- Developed an **tf.keras** based implementation of the popular *DeepFace publication*, no other open source implementations exist so far
- Proposed network architecture by Taigman et al. achieves **97.35%** accuracy on LFW face recognition benchmark
- Model was trained on a publicly available million-scale face recognition dataset with the help of tf.data (**ETL**-based) pipelines and **Cloud TPU** accelerators

Attendance using Facial Recognition (September 2018 - December 2019)

- Compared various **machine learning** and **deep learning** techniques discussed in face recognition and computer vision literature (implementations using OpenCV, Scikit Learn, Keras)
- Developed a complete **web app** based system for automatic marking of students' attendance
- Constructed a generic face recognition dataset and by applying transfer learning **98%** recognition accuracy could be achieved on the test set

Stock Exchange Simulator (September 2016, April 2017)

- Wrote a programmatic interface from scratch using **CoreGraphics** that could allow plotting on iOS Views (the graphical plotting component could draw **2D mathematical functions** and **line plots**)
- Delivered a production-ready web as well as **iOS app** simulating a basic stock exchange and a portal to simulate market updates
- Was awarded a **Letter of Appreciation** by Delhi Public School, Newtown as the app was used by **10** participating teams at school fest

Virtual Trader (August 2017, August 2018)

- Worked with Christ University, Bangalore to develop a cloud-native (exact iOS-like UI) web app
- **40+** participants used the application to perform virtual trading on an automated stock commodity market developed using **Node.js** and **PHP**

Activities

Workshop on API Development using vanilla Node.js (October 2019)

- Introduced **15+** students (*GD Goenka University Coders Club*) to asynchronous programming and helped them understand how to develop API servers from scratch using **Node.js** http library only

Workshop on Git and Open Source (February 2019)

- Introduced **30+** students (*GD Goenka University Coders Club*) to **Git** VCS and promote awareness about open source technologies

Kharagpur Winter of Code (December 2018)

- Worked on an **OpenStreetMaps** based project aimed at real time disaster relief

Education

B.Tech. (Computer Science and Engineering)

- 2017-2021, GD Goenka University, Gurgaon
- Current CGPA: **9.24**/10.0

Indian School Certificate (Science)

- 2017, Delhi Public School, Newtown, Kolkata
- Aggregate: **86%**

Relevant Coursework

- Stanford Machine Learning (Coursera)
- Artificial Neural Networks
- Basics of Image Processing
- Multivariate Analysis
- Design and Analysis of Algorithms
- Calculus for Engineers
- Software Engineering and Testing Methodologies
- NoSQL Databases
- Google Maps APIs (Udacity)

Technical Skills

- **Areas:** Computer Vision, Machine Learning, Open Source, Web Micro Services, DevOps
- **Languages:** Python, C, JavaScript, Swift, Java, PHP, R
- **Libraries and Frameworks:** TensorFlow, Keras, Node.js, OpenCV, Scikit-Learn, Flask, Paho
- **Tools:** Git, Docker, Markdown, Google Maps
- **Platforms:** Linux, Google Cloud Platform, Cloud TPUs, Amazon Web Services, Heroku
- **Databases and Storage:** MongoDB, Google Cloud Storage, AWS S3, MySQL, PostgreSQL