Adrish Dey

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Experience

Research Engineering Intern | Opaltech.ai | Online
May/2020 – Present

- Working in the Brain team, under supervision of Dr. Shahrouz Ryan Alimo, Lead Research Scientist, **Deep Learning Group, NASA Jet Propulsion Lab**
  Note: This project is neither supported nor endorsed or has any connection with NASA
- Investigating various probabilistic/deep learning based approaches for grid mapping from RGBD images obtained using Time of Flight Cameras.
- Working as a lead programmer on a custom simulator for generating synthetic training data.
- Writing a detailed technical report and implementing a complete module for deploying the service in the flagship product.

Applied Research Intern | Rephrase.ai | Bangalore, Karnataka, India
December/2019 – February/2020

- Implemented Levenberg-Marquardt Optimizer, optimized for handling sparse Jacobians, required by the core feature extractor.
- Worked on lip expression translation between unpaired expression vectors, using adversarial training on cycle consistency.

Google Summer of Code Student | TensorFlow | Online
May/2019 - August/2019

- Added Support for displaying AutoGraphed tf.functions, to TensorFlow saved_model_cli
- Implemented a TPU Trainable Model of **Enhanced Super Resolution GAN** for Single Image Super-Resolution and published the trained model on TensorFlow Hub: https://tfhub.dev/captain-pool/esrgan-tf2/1
- Implemented Knowledge Distillation on Enhanced Super Resolution GAN and built a Proof of Concept Media Player capable of performing high-speed video frame super-resolution at 5 frames/second on a Pixel 3 CPU: https://github.com/captain-pool/GSOC/tree/master/E3_Streamer
- Reference: https://summerofcode.withgoogle.com/archive/2019/projects/5063116054855680/

Education

Netaji Subhash Engineering College, Kolkata West Bengal, India
Bachelor of Technology in Computer Science and Engineering

Technical Skills

LANGUAGES

- **Python -** 20K+ Lines of Code, 4+ years of programming experience
- **Bash, C++, C#.NET -** 5K+ lines of Code, 5+ years of programming experience

FRAMEWORKS

- Docker, Git, TensorFlow, PyTorch, Pandas, OpenCV, Numpy, PyMC3, GPy, GpyOpt

CLOUD PLATFORMS AND SERVICES

- **Google Cloud Platform:** Google Compute Engine, Cloud Tensor Processing Units (TPUs), Stackdriver, Google Cloud Storage (GCS)
- **AWS:** EC2, Relational Database Service (RDS), AWS Simple Storage Service (S3)

Projects

Shadow Fighters | HackInTheNorth - March 2019

- Lead a team of 4, and built a VR Unity Game which tracks human pose using a pre-trained **PoseNet** and transfers the motion to a Game Avatar, which fights with an Intelligent Bot trained using **Unity ML-Agents**.
- Responsible for building the 3D Game Environment and KeyFrame Animations
- Responsible for training the Unity ML-Agents Opponent with Proximal Policy Optimization.
- Responsible for Integrating PoseNet to a Javascript Frontend which connects to the Game.
- Built and Integrated the complete project **under 36 hours**

PASSGRUGAN | ACM B.Tech Awards - March 2018

- Independently researched on various Autoregressive Modelling Architecture like Hidden Markov Models, Likelihood-based RNN model, MaskedAutoencoder based Density Estimation, etc.
- IndependentlyImplemented a Generative Adversarial Network with GRU Unit For hallucinating New Passwords
- Researched on various objective functions for the GAN to stabilize training, and later settled for Wasserstein Distance Metric
- The Project got selected among the top 10 among an application pool of 300 applicants for presentation at ACM B.Tech Project Awards 2018, organized by ACM Kolkata Chapter.