SHREEDHAR KODATE

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Education

Worcester Polytechnic Institute   **Aug. 2021 – May. 2023**
M.S. in Data Science (AI/ML)   *Worcester, MA, USA*

Indian Institute of Science   **Aug. 2016 – Dec. 2018**
M.Tech. in Computer Science and Automation, Advisor: Dr. Shalabh Bhatnagar   *Bengaluru, KA, India*

Accepted Papers

Intelligent Coordination among Multiple Traffic Intersections Using   **Dec. 2019**
Multi-Agent Reinforcement Learning (NIPS 2019)
Advisor: Dr Shalabh Bhatnagar, Paper: https://arxiv.org/abs/1912.03851   *Vancouver, BC, Canada*

Relevant Coursework

Deep Learning, Reinforcement Learning | *Natural Language Processing, Game Theory, Business Applications*

Experience

Openwater.cc   **Aug 2022 – Present**
Machine Learning Intern (Fall) Applied Research | Python, PyTorch, Transformers, Google Colab   *San Francisco, CA*
- Working on a high-impact project changing more than **1 million** lives by helping detect **stroke in the first response.**
- Auto-generating labels by one-shot data augmentation for MRI segmentation dataset, and implementing UNETR, a **Vision Transfomer (ViT) based** model. Also working on a time series transformer model for blood flow classification for stroke detection.

Quantiphi Inc.   **May 2022 – Aug 2022**
Summer Intern Applied Research - Deep Learning | Python, PyTorch, Graph ML, GPT, GCP   *Marlborough, MA*
- Implemented **Graph Machine Learning** and GPT, T5, Transformer based algorithms to large Knowledge Graphs for automatic multi-hop Question Generation. This helps to generate **100s** of meaningful questions from every single document which further enhances the document understanding for Question Answering.

Quantiphi Inc.   **Feb. 2021 – Jul. 2021**
Senior Machine Learning Engineer | Python, TensorFlow Extended, Google Cloud Platform   *Bengaluru, KA, India*
- Created a pipeline of OpenCV data augmentation, model-assisted data cleaning and labelling to qualify dataset to train Efficientnet models which improved classification accuracy by **20%** of frequently varying image designs into **500** classes.

Yantriks India Pvt. Ltd.   **Jan. 2019 – Aug. 2020**
Software Engineer Machine Learning| Python, TensorFlow Extended, Google Cloud Platform   *Bengaluru, KA, India*
- Designed and implemented end-to-end ML systems for Global Returns Forecasting, Dynamic Capacity Planning, etc.
- Increased inference performance by **70%** and decrease running cost by **20%** for deployment code by bootstrapping.
- Implemented parameterized code to enable **Neural Architecture Search (NAS)** driven by JSON config.
- **Mentored an intern** for 4 months while implementing EDA and ML data flow pipelines for Anomaly Detection.

Projects

DDPG for Turtlebots Path planning | *Python, Laser data, TensorFlow, GPU*   **Mar. 2022 – May 2022**
- Trained RL agents using **DDPG** algorithm to handle mapless navigation in simple and obstacle filled environments.
- Designed the state space and reward function to help the RL agents learn to take efficient actions and reach goals without any collisions. The solution is scalable, dynamic, and has minimal manual intervention.

OffRoadNet - Path detection for Autonomous Vehicles | *Python, Segmentation, PyTorch*   **Mar. 2022 – May 2022**
- Our motivation for this project was to improve the offroad path detection performance and make it light enough to deploy the trained model on edge devices and fast inference. And thus, progress towards autonomy level 5 in difficult terrains.
- We trained various Deep Learning architectures like PSPHead, ENCHead, with ResNet pretrained backbone. We also finetuned the hyperparameters and also **met the state-of-the-art performance** on the RUGD and Yamaha dataset.

Brain Tumor Radiogenomic Classification using 3D-CNN | *Python, TensorFlow, GPU*   **Oct. 2021 – Dec. 2021**
- Worked on a very important and challenging dataset of brain MRI scans downloaded from a Kaggle competition. We tried a **one-shot atlas** based data augmentation and **ensemble** methods to improve DNA methylation classification.
- Trained 3D CNN and Resnet50 models on 4 different types of brain MRI scan data. Created an ensemble of these models to increase the methylation classification performance by **4%**.