Prabhasa Kalkur

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SUMMARY

Graduate Student on F1-OPT seeking full-time opportunities in software engineering, machine learning, data science.

EDUCATION

Master of Science in Electrical Engineering, Texas A&M University (TAMU), USA. **GPA:** 3.9 **Dec 2020**
B.E. in Electronics and Communication, R.V. College of Engineering (RVCE), India. **GPA:** 4.0 **May 2016**

SKILLS

Languages & Tools: Python | NumPy | pandas | Matplotlib | MATLAB | SQL | Tableau | Git | C | C++ | R
ML Frameworks & RL Libraries: PyTorch | scikit-learn | Keras | TensorFlow | Stable Baselines 2.0 | RLLib

EXPERIENCE

Graduate Researcher, Department of ECE, Texas A&M University [GitHub] **Oct 2019 - Oct 2020**
Thesis: "Learning from Demonstrations: Applications to Autonomous UAV Landing & Minecraft"

- Learned to model simulators of complex tasks using imitation learning on demonstrations of the tasks.
- Designed a novel method of autonomous UAV landing that captures a pilot's maneuvers onto a ship deck (Python).
- Attained high imitation accuracy with only 10 demos of drone navigation in AirSim, a physics-based environment.

Project Assistant, Code Design and Analysis Lab, Indian Institute of Science **Nov 2017 - Jul 2018**

- Optimized pickup & delivery of goods for Nokia's warehouses using the Gurobi simulator.
- Studied classical metaheuristics to find the shortest path and reduced overall delivery time by 30% (Python).

Project Assistant, Signal Processing and Comms Lab, Indian Institute of Science **Jul 2016 - Oct 2017**

- Studied indoor localization of a device using k-NN on power measurements of embedded nodes.
- Performed Monte Carlo studies to show an exponential reduction in uncertainty on increasing nodes.
- Tracked a phone with 96% accuracy and low localization uncertainty in a large area with few nodes (MATLAB).

PROJECTS

MineRL Competition, NeurIPS 2020: Learning to Imitate Tasks in Minecraft [GitHub]

- Used Neural Networks to learn tasks in Minecraft by processing images from gameplay (Python, PyTorch).
- Wrote an efficient data pipeline to process 60 million data points from MineRL, boosting performance by 80%.
- Applied imitation learning for teaching agents to perform tasks in Microsoft Malmo, outperforming RL methods.

Classification Algorithms for Supervised Learning on Popular Datasets, TAMU [GitHub]

- Implemented a Naive Bayes classifier with 86% accuracy on the noisy Iris dataset (Python, Keras, scikit-learn).
- Performed classification of the noisy MNIST dataset to compare performance of SVMs with Neural Networks.
- Utilized data augmentation to improve performance, with accuracies of up to 89% for SVMs and 87% for NNs.

The Passive Chicken and Aggressive Car Problem, TAMU [GitHub]

- Avoided deadlocks at road intersections by teaching autonomous cars to take initiative to cross (Python).
- Employed Inverse Reinforcement Learning to explain pedestrian behavior trained on 'passive-aggressive' cars.
- Reduced wait-time by 60% as a simulated pedestrian learned to back off or accelerate as car inches forward.

Tracking COVID-19 Development in USA [Tableau]

- Visualized trend, concentration of COVID-19 cases, deaths in US states using Tableau's COVID-19 Data Hub.
- Showed rising trend, even with vaccines deployed, in states with highest number of cases: California and Texas.

COURSEWORK

Analysis of Algorithms, Machine Learning, Reinforcement Learning, Probabilistic Graphical Models, Game Theory, Linear Algebra, Stochastic Systems, Probability Theory, Intro to Optimization, Real Analysis, Signals & Systems.

LEADERSHIP

Indian Graduate Student Association (IGSA): VP of Editorial & Mentoring, TAMU, Oct 2018 - May 2020.
ECE Graduate Student Association (ECE-GSA): External Officer, TAMU, Oct 2018 - Oct 2019. Article here.