

Prabhasa Kalkur

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[GitHub](#) | [LinkedIn](#) | [Webpage](#)

SUMMARY

Graduate Student with experience in machine learning, data science looking for full-time roles starting Feb 1, 2021.

EDUCATION

Master of Science in Electrical Engineering, Texas A&M University, USA. **GPA:** 3.9/4.0 **Dec 2020**
B.E. in Electronics and Communication, R.V. College of Engineering, India. **GPA:** 4.0/4.0 **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, Oct 2019 - Oct 2020 [[GitHub](#)]

Master's Thesis: "Learning from Demonstrations: Applications to Autonomous UAV Landing & Minecraft"

- Applied imitation learning techniques on human demos to learn behaviors of complex real-world tasks.
- Designed a novel method of autonomous UAV landing from demonstration data of navigating drones.
- Captured a pilot's intuition behind approach & landing onto a ship deck simulated in Microsoft [AirSim](#).
- Achieved imitation accuracy of 84% with just 10 human demos of drone navigation (Python, TensorFlow).

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

- Provided simultaneous pickup & delivery of goods for Nokia's warehouses via efficient routing and task-scheduling.
- Visualized performance of metaheuristic approaches on several variants of the vehicle routing problem (Python).
- Demonstrated 50% time reduction in the traversal of multiple vehicles to pick and deliver goods at many locations.

Project Assistant, Signal Processing & Comms Lab, Indian Institute of Science, July 2016 - Oct 2017

- Computed k-NN from power measurements of embedded nodes to self-localize a device in indoor environments.
- Showed via Monte Carlo studies an exponential reduction in localization uncertainty, on increasing beacons.
- Attained >96% accuracy, low uncertainty on localizing a phone in a large area using few beacons (MATLAB).

PROJECTS

MineRL Competition, NeurIPS 2020: Learning to imitate tasks in Minecraft [[GitHub](#)]

- Used neural networks to process images from Minecraft gameplay data and learn to perform hierarchical tasks.
- Processed data from [MineRL](#), a collection of 60 million samples of users doing tasks (Python, PyTorch).
- Trained imitation learning on the dataset for chopping trees and outperformed RL algorithms by tenfold.

Classification Algorithms for Supervised Learning on Popular Datasets [[GitHub](#)]

- Implemented Bayes classifier with 78% accuracy on the noisy Iris dataset (Python, Keras, scikit-learn).
- Compared SVM classifier, Neural Network classifier on the noisy MNIST dataset. Employed data augmentation to improve performance of ML algorithms (SVMs: sigmoid, 89% and NNs: 3 layers, Adam, batch norm, 85%).

The Passive Chicken and Aggressive Car Problem [[GitHub](#)]

- Building human-aware autonomous cars that are robust and safe, but also 'aggressive' at road intersections.
- Employed Inverse Reinforcement Learning to explain pedestrian behavior trained on an aggressive car.
- Pedestrian backs off, waits before proceeding and the car accelerates/decelerates accordingly (Python).

Tracking COVID-19 Development in USA

- Visualized trend and concentration of COVID-19 cases and deaths in US states (Tableau). Viz [here](#).
- Observed rising trend in states with highest number of cases: California and Texas. Viz [here](#).

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.