# Prabhasa Kalkur

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**GitHub, LinkedIn, Webpage**

## EDUCATION

**Texas A&M University, College Station, Texas, USA** **Dec 2020**
*Master of Science in Electrical Engineering* **GPA:** 3.9/4.0

**R.V. College of Engineering, Bengaluru, India** **May 2016**
*Bachelor of Engineering in Electronics and Communication* **GPA:** 4.0/4.0

## SKILLS

**Programming Languages:** Python | MATLAB | C | C++ | R | SQL
**Software, Design, and Analytic Tools:** MS Office | LaTeX | Git | Tableau
**ML Frameworks:** PyTorch | Keras | TensorFlow (TF) | Scikit-Learn
**RL Libraries:** Stable Baselines 2.0 | RLLAB | RLLib

## WORK EXPERIENCE

**Learning from Demonstrations: Applications to Autonomous UAV Landing & Minecraft, Oct 2019 – Oct 2020**
*Master's Thesis under Prof. Dileep Kalathil, Dept. of ECE, Texas A&M University, USA*

- Sample-efficient imitation learning to learn behaviors of sparsely rewarded real-world systems.
- Capture a pilot's intuition behind navigating drones onto a ship deck simulated in Microsoft AirSim.
- Designed a novel method of autonomous UAV landing using human demonstrations (Python, TF).
- Achieved imitation accuracy of 84% with just 10 demos of the task, visualization available here.

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

- Routing and task-scheduling of robots for simultaneous pickup and delivery of goods, in simulation.
- Performance comparison of metaheuristic algorithms on vehicle routing problem variants (Python).
- Demonstrated 2x reduction in the traversal of 12 vehicles to pick and deliver goods at 50 locations.

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

- Addressed 'uncertainty' of device self-localization in indoor environments, using reference beacons.
- Performed Monte Carlo studies to show an exponential reduction in localization uncertainty (MATLAB).
- Attained >96% accuracy with <1% uncertainty in localizing within a 10mx10m area using 5 beacons.

## PROJECTS

**Tracking COVID-19 development in USA, Nov 2020**

- Visualize 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.

**MineRL Competition: NeurIPS 2020, Texas A&M University, USA, Aug 2020 – Nov 2020**

- Identify & utilize sample-efficient algorithms paired with human demos to perform tasks in Minecraft.
- Outperformed vanilla RL algorithms by 10x on pairing them with the MineRL dataset (Python, PyTorch).

**The passive chicken and aggressive car problem, Texas A&M University, USA, May 2019 – Aug 2019**

- Leverage pedestrian-vehicle interaction to induce 'passive-aggressive' behavior in autonomous vehicles.
- Employed Inverse Reinforcement Learning on a car model to recover pedestrian utility (Python).
- Pedestrian backs off, waits before proceeding, and the car accelerates/decelerates accordingly.

## COURSEWORK

Analysis of Algorithms, Machine Learning, Reinforcement Learning, Graphical Models, 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.