Prabhasa Kalkur

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Webpage, **GitHub**, **LinkedIn**

Education

- Master of Science in Electrical Engineering, Fall 2020. Texas A&M University (TAMU), College Station
  GPA: 3.9/4.0. Received a merit scholarship from the Department of ECE
- Bachelor of Engineering in ECE, May 2016. R.V. College of Engineering (RVCE), Bengaluru, India
  GPA: 4.0/4.0, Received a Summer Research Fellowship from the Indian Academy of Sciences

Work Experience

- **Learning from demonstrations: A Case Study on Autonomous UAV Landing, Texas A&M University**
  Master's Thesis under Prof. Dileep Kalathil, Dept. of ECE, Oct 2019 – present
  - Designed a novel method of autonomous UAV landing with just human demonstrations
  - Teach drones to navigate rough seas just as a trained Navy pilot would (simulation)
  - Applied imitation learning techniques on a custom OpenAI Gym environment (Python)
  - Trained a drone to land on a custom ship deck built on Microsoft AirSim, with just 10 expert trajectories, demonstrating sample efficiency of imitation learning algorithms. Short video here
- **Code Design and Analysis Lab, Indian Institute of Science (IISc),** India
  Project Assistant under Prof. Navin Kashyap, Dept. of ECE, Nov 2017 – July 2018
  - Routing and task-scheduling of robots for simultaneous pickup and delivery of goods
  - Compared performance of metaheuristic algorithms used in the Vehicle Routing problem
  - Demonstrated a reduction in robot's traversal, hence energy consumption (Python)
- **Signal Processing for Communications Lab, Indian Institute of Science (IISc),** India
  Project Assistant under Prof. Prof. Chandra R Murthy, Dept. of ECE, July 2016 - Oct 2017
  - Addressed 'uncertainty' associated with device self-localization in indoor environments
  - Leveraged results from group testing, order statistics to derive bounds on the uncertainty
  - Performed Monte Carlo experiments to verify our claims with empirical results (MATLAB)
  - Extended the problem to an outdoor setting, where energy-harvesting beacons are used

Projects

- **MineRL Competition: NeurIPS 2020, Texas A&M University**, USA, Aug 2020 - present
  - Develop sample efficient RL / IL algorithms using human priors, for solving complex, hierarchical, sparse environments, with constraints on training time and compute (Python)
  - Obtain a Diamond in Minecraft using the MineRL datatset and Microsoft's Malmo simulator
- **Laboratory for Embedded & Networked Sensor Systems, Texas A&M University,** USA
  Summer Graduate Researcher under Prof. Dileep Kalathil, Dept. of ECE, May 2019 – Aug 2019
  - Leverage pedestrian-vehicle interaction at road intersections without signals to induce a 'passive-aggressive' behavior in autonomous vehicles. Used Duckietown for simulations (Python)
  - Pedestrian backs off & waits before proceeding; the car accelerates or decelerates accordingly

Skills

- **Software**: Python, MATLAB, C, LaTeX, Git
- **ML Frameworks**: TensorFlow, PyTorch, Keras
- **RL Libraries**: Stable Baselines 2.0, RLLAB, RLLib

Coursework

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

Leadership

- **ECE Graduate Student Association**(ECE-GSA): External Officer, Texas A&M University
- **Indian Graduate Student Association**(IGSA): VP of Editorial, Texas A&M University

Volunteering

- Created "Tales at TAMU," a platform for Indian Graduate students to share their stories
- Represented IGSA, and won the Brazos Valley Worldfest for Best Cultural display, Oct 2018