Ritwik Bera

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EDUCATION

TEXAS A&M UNIVERSITY
MS in Aerospace Engineering
Jul 2020 | College Station, TX
Cum. GPA: 3.5 / 4.0

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR
BS in Mechanical Engineering
May 2018 | Kanpur, India
Cum. GPA: 9.6 / 10.0

LINKS

Github:// **ritwikbera**
LinkedIn:// **ritwik-bera-130642173**
Google Scholar: Ritwik Bera

COURSEWORK

Theory of Distributions
Statistical Analysis
Applied Game Theory
Robot Motion Planning
Probabilistic Mobile Robotics
Linear Algebra
Advanced Calculus

SKILLS

PROGRAMMING LANGUAGES
Python • C++ • Bash • R

SOFTWARE TOOLS
General Development
Git • Docker • Linux • PostgreSQL • LaTeX

Machine Learning-specific
PyTorch • MLFlow • HDFS • Data Version Control (DVC) • OpenAI Gym • numpy • scipy • scikit-learn • matplotlib • pandas

Miscellaneous
ROS • Autodesk Inventor • Arduino • MATLAB • UNIX-based OSs

EXPERIENCE

TEXAS A&M ENGINEERING EXPERIMENT STATION | Graduate Assistant - Research
Sep 2019 – present | College Station, TX
Worked at **Vehicle Systems and Control Laboratory** headed by *Dr. John Valasek*, spearheading research efforts in human-in-the-loop machine learning sponsored by *Army Research Lab, MD*. Also involved in giving internal presentations and mentoring activities to engage more people in such research. Projects worked on:

- Gaze-guided Imitation Learning
- Plannable Option Discovery Network for learning Composable Skills from Unstructured Demonstrations
- Distributed DDPG for Parrot Anafi Drones Cycle-of-Learning in Gazebo

PROJECTS

HUMAN RESEARCH AND ENGINEERING DIRECTORATE, ARL | Contract Researcher
May 2020 – present | Remote
Worked with **Dr. Nicholas Waytowich** on multimodal human-in-the-loop learning, specifically on leveraging human eye-gaze data to improve visuomotor capabilities in quadrotors in an end-to-end learning fashion.

OTHER PROJECTS
Solutions to Multi-Agent Systems based in Applied Game Theory
Visual Odometry using Careful Feature Selection and Tracking
FastSLAM guided semi-autonomous Ground Vehicle for Indoor Exploration
Flask-served, Arduino-Raspberry Pi powered *Smart Lock*

AWARDS/HONORS

2020 CCDC Army Research Laboratory (ARL) Summer Student Experience
2020 TAMU AERO Graduate Research Excellence Fellowship
2019 Stillwell Fellowship by UIUC Aerospace Engineering (declined)
2018 Banco Foundation Prize for Department Rank 1 at IIT, Kanpur

PUBLICATIONS

[1] R. Bera, V. G. Goecks, J. Valasek, and N. R. Waytowich. Podnet: A neural network for discovery of plannable options. In *Proceedings of AAAI Spring Symposium 2020*, 2020.

[2] R. Bera, V. R. Makkapati, and M. Kothari. A comprehensive differential game theoretic solution to a game of two cars. *Journal of Optimization Theory and Applications*, 174(3):818–836, 2017.