Aseem Saxena

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EDUCATION

Oregon State University – School of Electrical Engineering and Computer Science Corvallis, OR
Master of Science in Robotics | GPA: 3.61/4.0 March 2021 - Expected June 2024
Courses Taken: Reinforcement Learning, Deep Learning, Algorithms, NLP, Optimization

Birla Institute of Technology and Science, Pilani Pilani, India
Dual Major in Electrical Engineering and Biological Sciences | GPA: 7.34/10 2011- 2016
Courses Taken: Control Systems, Signals and Systems, Communication Systems, Bioinformatics

SKILLS

Programming: Python (10+ years exp.), MATLAB (9+ years exp.), C++ (9+ years exp.)
Software and Libraries: PyTorch, OpenCV, ROS, Scikit-image, Numpy, MUJOCO, TensorFlow, Git, Gazebo, Google Colab, Docker

EXPERIENCE

Oregon State University 06/2021 – Till Date
Research Staff under the guidance of Prof Alan Fern

- **Offline Policy Evaluation in Multi-Dynamic Settings** - We show that multi-task dynamics networks suffer from negative interference at small dataset sizes. **Skills - Pytorch, Mujoco, Crop Simulators**
- **Multi-Task Learning for Grape Cold-Hardiness Prediction** - We show that with just upto thirty seasons of data for any cultivar, our MTL model can consistently outperform the state-of-the-art scientific model. Our work is deployed on AgWeatherNet which is used daily by 14K subscribers. Published research at Machine Learning Journal, AAAI 2023, AIAFS 2023. [1] [2] [3]. **Skills - Pytorch, RNNs**
- **Sim-to-real Learning of Footstep Constrained Bipedal Locomotion** - We develop an RL formulation for training dynamic gait controllers that can respond to specified touchdown locations. Published research at IEEE ICRA 2022. [4] **Skills - Pytorch, Mujoco**
- **Side Effect Minimization in Reinforcement Learning** - We propose a formal criterion for side effect regularization via the assistance game framework and empirically demonstrate the reasonableness of our problem formalization via ground-truth evaluation in two gridworld environments. Published research at NeurIPS ML Safety Workshop 2022. [5] **Skills - Pytorch, AI Safety Gridworlds**
- **Teaching Assistant** ME 430 **Systems Dynamics and Control**. Fall 2021

Panasonic Singapore 01/2019 – 01/2021
AI Engineer at the Technology Innovation Team

- **Bayesian Optimization for Material Design** - Showed that with a single trial, we can obtain a material with similar properties to another material which was obtained over trial and error for a period of 2 years. **Skills - Pytorch, Gaussian Processes**
- **Edge Deployment of Deep Learning Models** **Skills - Pytorch, OpenCV, TensorFlow, Android 6.0, ONNX**

National University of Singapore 09/2017 – 06/2018
Research Staff under the guidance of Prof David Hsu

- **Imitation Learning for Autonomous Driving in an Unstructured Environment** - Published research at Robotics: Science and Systems (RSS) 2019. [6] **Skills - Pytorch, C++, Unity**
- **Feature rich visualization tool** to visualize and debug QMDPNet, a deep learning algorithm for solving POMDPs. **Skills - TensorFlow, Tkinter**

Ducure Technologies Pvt Ltd 07/2016 – 04/2017
Computer Vision Engineer

- **Low cost LiDAR system** using a Teraranger One ToF sensor on a pan tilt unit for 3D scanning. **Skills - PointCloud Library**

International Institute of Information Technology, Hyderabad India 04/2017-07-2017, 06/2015 – 07/2016
Research Staff under the guidance of Prof Madhava Krishna

- **Mahindra Driverless Car Challenge** - Robust system for traffic sign detection, recognition and tracking. **Skills - Caffe, C++**
- **End-to-end learning based approach for visual servoing in diverse scenes.** Published research at **ICRA 2019**. [7] **Skills - Caffe, OpenRAVE, MATLAB**

COURSE PROJECTS

Avoiding Side Effects in Complex Navigation Environments
Distributed Q-Learning
Offline-RL for Bipedal Robots
Studying Robustness of Semi-supervised Visual Features to Adversarial Attacks
MC Dropout for Efficient Exploration