

Aseem Saxena

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Experience

Graduate Research Assistant

Oregon State University

Jun '21–Present

Dynamic Robotics Lab, Prof Alan Fern, Prof Jonathan Hurst

- Sim-to-real Learning of Footstep Constrained Bipedal Locomotion.
- Combining Perception and Control for Bipedal Locomotion.

AI Engineer

Panasonic, Singapore

Jan '19–Jan '21

Technology innovation team

- Bayesian Optimization for Material Design.
- Multi Object Tracking - Using Kalman filters for state estimation and Hungarian algorithm for data association.
- Deep Learning for Gaze Estimation.
- Edge Deployment of Deep Learning Models - Deploying pytorch models on Android by converting to ONNX and using OpenCV as a backend for inference.

Researcher

National University of Singapore

Sep '17–Jul '18

Adaptive Computing Lab, Prof David Hsu

- Implementation of a feature rich visualization tool based on Python Tkinter to visualize and debug QMDPNet, a deep learning algorithm for solving POMDPs.
- Robot infrastructure setup for executing actions output by QMDPnet reliably and safely. Implementation of a robust position controller on the Fetch robot.
- Imitation Learning for autonomous driving in an unstructured environment. Publishing research at Robotics: Science and Systems (RSS) 2019.

Active Participant

Stanford Scholar Initiative

Dec '16–Dec '18

- Led and actively participated in the creation of research talks on influential research papers viz. Deep Residual Learning, FRAUDAR, Rovables, Real-Time 3D Reconstruction and 6-DoF Tracking with an Event Camera and Bayesian Active Learning for Posterior Estimation.

Research Assistant

Robotics Research Center, International Institute of Information Technology

Hyderabad, India

Apr '17–Jul '17

Mahindra Driverless Car Challenge

- Worked on developing a robust system for traffic sign detection, recognition and tracking.

Computer Vision Engineer

Ducere Technologies Pvt Ltd

Hyderabad, India

Jul '16–Apr '17

- Worked on developing a low cost LiDAR system using a Teraranger One ToF sensor on a pan tilt unit for 3D scanning.
- Experimented with various depth perception techniques such as structured light, stereo, ToF for implementing obstacle detection for a visually challenged person.

Research Assistant

**Robotics Research Center, International Institute of Information Technology
Hyderabad, India**

Jun '15–Jul '16

- Research into an End-to-end learning based approach for visual servoing in diverse scenes. Publishing work at International conference of Robotics and Automation (ICRA) 2019.
- Implementation of 'Guess from Far Recognise when Near', a system for object search in unknown environments via frontier based navigation, far object recognition using 2D image segmentation and near object recognition using a bag of words model trained on 3D point clouds.
- Deep Learning for Table Interest Point Detection - Research to find interest points or corner points of tables in a scene using cues from semantic segmentation and vanishing lines.
- Automating GrabCut for Multilabel Image Segmentation - Implementing multi label Image Segmentation without user guidance by learning a Gaussian mixture model for each label and performing alpha expansion algorithm using MRF2.2 Library.

Research Intern

**Strand Life Sciences Pvt. Ltd.
Bangalore, India**

May '14–Jul '14

- Applied Decision Trees and Support Vector Machines and other classification algorithms for classifying mutations as cancerous.

Publications

Exploring Convolutional Networks for End-to-End Visual Servoing

Aseem Saxena, Harit Pandya, Gourav Kumar, K. Madhava Krishna
IEEE ICRA (International Conference on Robotics and Automation), 2017 (Accepted)

LeTS-Drive: Driving in a Crowd by Learning from Tree Search

Panpan Cai, Yuanfu Luo, Aseem Saxena, David Hsu, Wee Sun Lee
RSS (Robotics Science and Systems) 2019 (Accepted)

Education

Masters in Robotics

Mar '21

Oregon State University
Corvallis, Oregon, United States of America
Current GPA: 4.0/4.0

B.E(Hons) in Electrical and Electronics Engineering

Aug '11–May '16

Birla Institute of Technology and Science Pilani
Pilani, India
CGPA: 7.34/10.00

M.Sc(Hons) in Biological Sciences

Aug '11–May '16

Birla Institute of Technology and Science Pilani
Pilani, India
CGPA: 7.34/10.00

Scholarships and Certificates

Kishore Vaigyanik Protsahan Yojana Fellowship
Department of Science and Technology, Government of India.
All India Rank 1 in National Cyber Olympiad
Deep Reinforcement Learning Nanodegree (Udacity)
Climate Reality Leadership Corps

2011–2016
2010
2019
2020

Relevant Coursework

Intelligent Agents and Decision Making, Deep Learning, Optimization, Linear Algebra, Data Analysis in Social Science, Fundamentals of Statistics, Machine Learning, Complex Analysis, Multivariate Calculus, Differential Equations, Probability and Statistics, Control Systems, Signals and Systems, Communication Systems, Object Oriented Programming

Skills

Distributed Computing	Ray
Deep Learning	Pytorch, Tensorflow, Caffe
Computer Vision	OpenCV, Point Cloud Library
Robotics Platforms	Mujoco, Robot Operating System(ROS), Unity, Gazebo, OpenRAVE
Programming Languages	Python, C/C++, JAVA, MATLAB
Audio and Video Editing	Logic Pro X, Cubase, Kdenlive, Audacity

Academic Projects

Avoiding Side Effects in Complex Navigation Environments.
Distributed Deep Q Networks.

Extra-Cirrucular Activities

Faculty Relations Chair at the Robotics Graduate Student Association in Oregon State University.
thegradient.pub - Writing articles on recent developments and long term trends in Artificial Intelligence.
Guitarist, Bassist, Vocalist and Keyboardist at Music Club BITS Pilani.
Avid Marathon runner.
Keen Swimmer.