

EDUCATION

MS, CS, Arizona State University | GPA 3.92

August 2017 - December 2019

BTech, CS, Maulana Abul Kalam Azad University of Technology | GPA 8.67/10

July 2012 - July 2016

TECHNICAL SKILLS & COURSEWORK

Languages: Python, C++, C, Java, SQL, Html5, JavaScript, PDDL

Databases: MySQL, PostgreSQL, SQLite

ML Technologies: Pytorch, TensorFlow, Numpy, OpenCV, Pandas, Scikit-learn, Matplotlib

Coursework: Foundations of Algorithm, Artificial Intelligence, Perception in Robotics, Intelligent & Assistive Robotics, Statistical Machine Learning

WORK EXPERIENCE

Research Engineer, Lead, Computer Vision | DiDi Labs | California

Nov 2021 - March 2023

- Architected & Implemented a Graph-Based Neural Network to forecast the heading direction of pedestrians within a scene to aid our car's decision-making process.
- Boosted the model's efficiency from 65% to 72%.
- Optimize and deploy models using techniques such as model compression, pruning, and quantization to improve performance and reduce computational cost.
- Constructed different metrics to measure the accuracy of our algorithms.

Technology Stack: C++, Python, PyTorch

Backend Software Developer | AmazonGO | Washington

Feb 2020 - Sept 2021

- Designed Java APIs based on SQS to receive requests from clients and utilize vision-based algorithms for predicting the ultimate shopping events.
- Collaborate with data scientists and software engineers to take machine learning models from research and development to production.

Technology Stack: Python, Java, Numpy, Scikit-learn, OpenCV, SQS, Guice

Graduate Researcher | Arizona State University | Arizona

Jan 2018 - October 2019

- Developed a visual programming interface with dynamically populated puzzle shaped blocks encoding the robot's possible actions to allow users to perform navigation and manipulation by simply connecting them in some logical order and integrated a feedback mechanism to explain failures based on the user's capability of understanding ([Thesis](#)).
- Designed and developed programming assignments on AI search problems in ROS and the Ping Pong game for Game Trees in RVIZ.

Technology Stack: Python, OpenRAVE, PDDL, ROS, Gazebo, RVIZ, Java, Html5, JQuery, AJAX

AI Engineer Intern | Invitae | Massachusetts

May 2019 - August 2019

- Developed and deployed an ML-based PHI scrubbing model using an API, reducing the risk of unauthorized access to sensitive healthcare data by removing PHI elements while retaining data utility for analysis and research.
- Designed and build an end-to-end object detection [pipeline](#) for scanned images using OpenCV, OCR and ML models.
- Performed various data augmentation methods for generating a large custom dataset.

Technology Stack: Python, Numpy, Pandas, NLTK, Spacy, OpenCV, Sklearn, Flask, JS

ACADEMIC PROJECTS

Multi view 3D Object Reconstruction using Deep Neural Networks | Robotics

Spring 2018

- Integrated ROS enabled 3D Recurrent Reconstruction Neural Network (3DR2N2) to generate the 3D shape of an object from 2D images and detected grasping poses on it.

Technology Stack: Python, Numpy, CNN, GRU

Smart Video Surveillance System using Deep Neural Network & POMDPs | Robotics

Spring 2018

- Utilized a deep object detection network (YOLO) to capture an object's movements in the current camera frame which then served as evidence to a Partially Observable Markov Decision model for visual servoing.

Technology Stack: Python, Java, OpenCV, CNN

PERSONAL PROJECTS | GITHUB

- Implemented Policy Gradient & Double DQN to play the famous Atari game Pong (Tensorflow, OpenAI Gym, Numpy, OpenCV).
- Designed and developed a high-performance algorithm for matrix multiplication and transpose using threads and without using any linear algebra library (C++).