

## 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, Java, C, C++, PDDL, SQL, Html, JavaScript  
**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

**Software Developer, Computer Vision | DiDi Labs | Mountain View, 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%.
- Constructing different metrics to measure the accuracy of our algorithms.

**Technology Stack:** C++, Python, PyTorch

**Software Developer, Computer Vision | AmazonGO | Seattle, Washington**

Feb 2020 - Sept 2021

- Developed 3D hand tracking from 2D hand locations across multiple image frames.
- Designed 3D projections of products mask from product coordinate space to camera coordinate space.
- Architected SQS based Java service to take requests from client & run vision based algorithms to predict final shopping events.

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

**Graduate Researcher | Arizona State University | Tempe, 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 | Boston, Massachusetts**

May 2019 - August 2019

- Engineered an ML application to perform PHI scrubbing on unstructured medical reports using a Spacy and dictionary based model.
- 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

- Implementing Proximal Policy Optimization algorithm to play football game designed by google. (Tensorflow, Numpy, Tensorboard).
- 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++).