Parth Khopkar

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EDUCATION

Master of Science in Computer Science — Fall 2019 - Spring 2021
Arizona State University; Current GPA: 4.0/4.0 — *Tempe, Arizona*
Relevant Coursework: Intro to AI, Coordination of Multi-Robot Systems, Mobile Computing

Bachelor of Engineering in Computer Science — Fall 2015 - Spring 2019
Medi-Caps Institute of Technology and Management (RGPV): GPA: 8.3/10 — *Indore, India*

SKILLS

- **Languages**: Python, C++, Java, MATLAB, HTML, SQL, JavaScript
- **Tools and Frameworks**: Tensorflow, Tkinter, Pandas, Bootstrap, Git, Android

EXPERIENCE

REACT LAB — Arizona State University
Research Volunteer — *Fall 2019 - Ongoing*
- Working on Reinforcement Learning and POMDP research problems with application to sequential pipeline repair and search and rescue problems.
- Performed comparative analysis between current state of the art online POMDP planning algorithms - POMCP and DESPOT.
- Contributed to code for research projects and helped maintain repository.

Arizona State University — Tempe, Arizona
Teaching Assistant — *Fall 2019*
- Teaching Assistant for CSE 110: Principles of Programming Languages with Java.
- Responsible for delivering hands on programming lab sessions, creating presentation material and holding weekly office hours to provide tutoring to students.

PROJECTS

- **Helmet Detection for two-wheeler riders**: A machine learning system which detects two-wheeler riders not wearing helmets and generates traffic tickets by reading vehicle license plates. (Fall 2017)
  - Ideated at IIM Indore Social Hackathon 2017 where our team won 2nd prize nationally out of 50 teams for innovative ideas on efficient traffic management and helmet defaulter detection.
  - Created an ML pipeline which identified two wheelers in images and then checked if the rider was wearing a helmet or not in order to generate traffic tickets.
  - Trained an ML model using **Tensorflow Object Detection API** which used transfer learning on COCO dataset.
- **Multi-Robot SLAM in Dynamic Environments**: Techniques for performing Simultaneous Localization and Mapping in dynamic environments in a multi-robot setting. (Fall 2019)
  - Utilized **occupancy grid mapping** method for robots which allowed them to track and differentiate between static and dynamic objects in a simulated environment.
  - Integrated **FastSLAM** from Python Robotics library with the occupancy grid method.
  - Used **Matplotlib** to visualize the simulated environment containing robots as well as static and dynamic (moving) objects.
  - Used a time-map approach to allow the robots to share their maps with each other, which led to substantially less mapping and localization errors which occur due to presence of moving objects.
- **Simulation of EKF and FastSLAM**: Implemented a simulation of **Extended Kalman Filter SLAM** and **Fast SLAM** methods for Simultaneous Localization and Mapping in robotics in Python and used Python's **Tkinter** module for visualization. (Spring 2018)
  - Won best poster award for the project at Medi-Caps Institute of Technology and Management's annual Computer Science project poster presentation competition.
- **Online Service for Detection of Sign Language in Videos**: Developed an online **RESTful API** service which uses a **CNN model** to classify videos containing hand signs from the American Sign Language(ASL). (Fall 2019)
- **SafeWalk**: Developed an Android application that suggests safe paths for walking around Arizona State University campus on the basis of proximity of other users to the paths and allows for users to chat in order to schedule travel together. (Fall 2019)

POSITIONS OF RESPONSIBILITY

AIESEC in Indore — Indore, India
Product Head — *January 2016 - December 2016*
- Responsible for handling international youth organisation AIESEC's Global Talent Program in central India, achieving 40% growth in exchanges compared to previous year.
- Managed internal international partnerships and provided strategic support to enhance customer experience.
- Responsible for organizing and delivering sessions at two youth leadership conferences MLC '19 and ALC '19.