

# Parth Khopkar

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## EDUCATION

### Master of Science in Computer Science

Arizona State University; Current GPA: 4.0/4.0

May 2021

Tempe, Arizona

**Relevant Coursework:** Intro to AI, Mobile Computing, Foundations of Algorithms, Robot Learning, Data Visualization

### Bachelor of Engineering in Computer Science

Medi-Caps Institute of Technology and Management (RGPV): GPA: 8.3/10

June 2019

Indore, India

## SKILLS

- **Languages:** Python, C++, Java, MATLAB, HTML, SQL, JavaScript, R, Rust
- **Tools and Frameworks:** Tensorflow, PyTorch, Docker, MongoDB, ROS, Bootstrap, Git, Android, D3.js, Flask, Django, Agile development

## EXPERIENCE

### Interactive Robotics Lab at ASU

Research Assistant | Advisor: Dr. Heni Ben Amor

August 2020 - Present

Tempe, Arizona

- Researching Graph Neural Network(GNN) based methods for control and coordination of multi-agent systems through Imitation and Reinforcement Learning.
- Worked on zero-shot transfer of Imitation Learning trained GNN policy based on the Boids model to a PyBullet based multi quadrotor simulator.
- Awarded funding for research project by ASU's Master's Opportunity for Research in Engineering (MORE) program.

### Sensagrate

Computer Vision Intern

June 2020 - August 2020

Scottsdale, Arizona

- Developed real-time object detection applications using computer vision models (MobileNet SSD and YOLOv3) for smart transportation use cases.
- Optimized developed applications for edge devices (Jetson Nano and TX2), achieving real-time detection speed of 30 FPS on camera streams.
- Contributed to cloud infrastructure set up which used Microsoft Azure for machine learning development workflows.

## PROJECTS

### Intelligent Interactive Visualization

Arizona State University

Spring 2020

- Created an interactive visualization for flowering plants from SEINet (a data portal for the environmental research community in Arizona) which made it easier for users to discover plants from the portal on the basis of flower color.
- Mined data, geographic information and images for 5800 plants, categorized them according to flower color using k-means algorithm and then performed visualization using D3.js and Leaflet.

### Online Service for Detection of Sign Language in Videos

Arizona State University

Fall 2019

- Created an online RESTful API service hosted on AWS EC2 that used ML to classify videos showing hand signs from the American Sign Language(ASL) to enable people with speech impairments to communicate with smart assistants.
- Achieved 72.97% accuracy by using TensorFlow's PoseNet model to extract skeletal key points from 360 videos of humans demonstrating 6 ASL signs which were used to train a CNN model.

### Helmet Detection for Motorcycle Riders

Medi-Caps Institute of Technology and Management

Fall 2017

- Developed a machine learning system to analyze traffic camera videos to detect motorcycle riders not wearing helmets and generate traffic tickets.
- Achieved 85% detection accuracy by utilizing Tensorflow's Object Detection API. Worked on all stages of the Machine Learning process, from collecting ~300 images to modeling, testing and deploying the system.

## ACHIEVEMENTS

- Conference paper: Parth Khopkar, 2020, "Mixed-Initiative Flexible Autonomy in Drone Swarms for COVID-19 Applications", IEEE International Symposium on Technology and Society, 12-15th November, Tempe: Arizona.
- Awarded 2<sup>nd</sup> prize nationally out of 50 teams at IIM Indore Social Hackathon 2017 for innovative ideas on efficient traffic management and helmet defaulter detection.