

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

Thesis: Control and Coordination of Multi-Drone Systems Using Graph Neural Networks

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

August 2020 - Present

Research Assistant | Advisor: Dr. Heni Ben Amor

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 controller based on the Boids model ↗ to a PyBullet based multi-quadrotor simulator.
- Awarded funding for research on multi-agent systems by ASU's Master's Opportunity for Research in Engineering (MORE ↗) program.

Sensagrate

June 2020 - August 2020

Computer Vision Intern

Scottsdale, Arizona

- Developed real-time object detection applications using computer vision models (MobileNet SSD and YOLO) for smart transportation which provided 90% accuracy.
- Optimized developed applications for edge devices (Jetson Nano and TX2), achieving real-time speed of 30 FPS on camera streams.
- Contributed to cloud infrastructure set up which used Microsoft Azure for machine learning development workflows.

Arizona State University

September 2019 - May 2021

Teaching Assistant

Tempe, Arizona

- Directed Java based labs and designed assignments based on programming concepts such as data structures and algorithms for CSE 110: Principles of Programming Languages with Java.
- Designed Python based programming assignments on search methods, game AI, machine learning and reinforcement learning, delivered tutorial sessions, and graded homework submissions for 120 students for CSE 471: Intro to Artificial Intelligence.

PROJECTS

Intelligent Interactive Visualization

Spring 2020

Arizona State University

- Created an interactive visualization for flowering plants from SEINet ↗ . Mined text 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

Fall 2019

Arizona State University

- 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. Used TensorFlow's PoseNet model to extract skeletal key points, achieving 72.97 % accuracy.

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 2nd prize nationally out of 50 teams at IIM Indore Social Hackathon 2017 for innovative ideas on efficient traffic management and helmet defaulter detection.