Parth Khopkar

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Education

Master of Science in Computer Science May 2021
Arizona State University; Current GPA: 4.0/4.0 *Tempe, Arizona*

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

Bachelor of Engineering in Computer Science June 2019
Medi-Caps Institute of Technology and Management (RGPV): GPA: 8.3/10 *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 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 June 2020 - August 2020
Computer Vision Intern *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 Spring 2020
Arizona State University

- 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 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.
- 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 Fall 2017
Medi-Caps Institute of Technology and Management

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