

# Parth Khopkar

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## EXPERIENCE

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### Radius AI

January 2023 - Present

Data Scientist

Bellevue, Washington

- Worked on the development of an edge video analytics system that generates real-time data and alerts for operations across 1000 convenience store locations.
- Worked on the complete life-cycle for a food tracking and customer action recognition product from POC to deployment in production and validation of resulting business metrics which helped reduce food wastage by 15%.
- Collaborated with the sales team to generate business insights into retail operations for eight prospective clients from in-store videos, two of which decided to move forward with a 90-day pilot deployment with 3 stores each.
- Led data science efforts working in a cross-functional team to rapidly prototype models for new pilot store use cases along with monitoring the performance of existing models and fine-tuning them which resulted in the client expanding the pilot from 3 stores to 30 stores.
- Worked on accelerating model development by improving data collection and validation strategies at the edge and using prelabeling methods which led to shortened data annotation cycles.

### Micron Technology, Inc.

July 2021 - January 2023

Machine Learning Engineer | Deep Learning Accelerator Team

Seattle, Washington

- Worked on inference optimization, ML research, and SDK development for Micron's Deep Learning Accelerator (DLA) which enables power-efficient inference at the edge.
- Analyzed inference optimization opportunities by using Block Floating Point (BFP) quantization and pruning strategies.
- Developed a real-time driving gaze detection demo that involved optimizing a three network pipeline for product showcases at international conferences.
- Wrote ONNX backend tests to verify ONNX operators work on the DLA according to specification which led to multiple critical bug fixes.
- Worked on research to optimally schedule instructions for Micron's Coarse Grained Reconfigurable Array (CGRA) architecture using Reinforcement Learning which yields schedules that are 10% faster than existing methods.

### Interactive Robotics Lab at ASU

August 2020 - June 2021

Research Assistant | Advisor: Dr. Heni Ben Amor

Tempe, Arizona

- Researched Graph Neural Network(GNN) based methods for coordination of multi-agent systems showing their robust scaling and perception noise resistance capabilities.
- 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 YOLOv3) for smart transportation which achieved 90% detection accuracy.
- Optimized developed applications for edge devices (Jetson Nano and TX2), achieving real-time speed of 30 FPS on camera streams.

## EDUCATION

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### Master of Science in Computer Science

May 2021

Arizona State University | GPA: 4.0/4.0

Tempe, Arizona

**Thesis:** Control and Coordination of Multi-Drone Systems Using Graph Neural Networks ( thesis ↗ | slides ↗ )

### Bachelor of Engineering in Computer Science

June 2019

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

Indore, India

## PUBLICATIONS

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- Reinforcement Learning Approach for Mapping Applications to Dataflow-Based Coarse-Grained Reconfigurable Array, arXiv ↗
- Mixed-Initiative Flexible Autonomy in Drone Swarms for COVID-19 Applications, ISTAS 2020 ↗

## SKILLS

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- **Languages:** Python, C++, Java, MATLAB, HTML, SQL, JavaScript, R, Rust, Bash
- **Frameworks:** PyTorch, Tensorflow, ONNX, Snowflake, MongoDB, ROS, Bootstrap, Android, D3.js, Flask, Django, LaTeX
- **Tools:** Git, Docker, Kubernetes, Linux, Jira, AWS, Azure, GCP