

# Prashanth Reddy Shyamala

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## EDUCATION

### University of Toronto

*Honours Bachelor of Science in Computer Science (ASIP Co-op)*

**GPA:** 3.96

**Sept 2022 – Apr 2027**

*Ontario, Canada*

**Awards:** UoFT International Scholar Award (100,000 CAD), Dean's List

**Current Courses:** Advanced Computer Vision, Computational Imaging, Computer Architecture, Operating Systems

## TECHNICAL SKILLS

**Languages:** Python, Kotlin, Java, C, C++, TypeScript, R

**Technologies/Frameworks:** PyTorch, Docker, OpenCV, Flask, Spring Boot, AWS Sagemaker, Node.js, React

**Developer Tools:** Git, Jupyter Notebook, Vim, DevOps

## EXPERIENCE

### SDE Co-op | AWS Sagemaker, MMDetection, TensorRT, Docker, CUDA

May 2024 – Aug 2025

*Amazon Robotics*

*Toronto, Canada*

- Developed a machine learning retraining pipeline using **AWS Sagemaker** to automate continuous training of an object detection model for tracking containers in Amazon Fulfillment centers.
- Built scalable data collection pipelines with **AWS SQS** and **AWS Lambda**, enabling robust, fault-tolerant ingestion and processing of sensor data.
- Optimized the **MMDetection** object detection framework by creating custom layers, achieving a **15% improvement** in accuracy.
- Contributed to a workcell system that reduced container missorts by **95%**, significantly improving operational efficiency.
- Integrated the model into real-time systems with **AWS Greengrass**, ensuring seamless deployment and scalability.
- Designed and deployed a containerized inference service on **NVIDIA Jetson** using **Docker**, optimizing pipelines with **TensorRT**, **DeepStream**, and custom **CUDA** kernels for low-latency edge deployment.

### Undergraduate Researcher | Python, PyTorch, NeRF, Diffusion Models, Nerfstudio

Sept 2025 – Present

*MiData Lab, University of Toronto*

*Toronto, Canada*

- Conducting research on training **Neural Radiance Fields (NeRFs)** with **diffusion models** as geometric priors to reconstruct high-fidelity 3D representations of knees from 2D ultrasound images.
- Investigating how **diffusion models** can recover structural information missing in ultrasound inputs, improving anatomical accuracy in 3D reconstructions.
- Developing deep learning pipelines in **PyTorch** with customized NeRF architectures and diffusion-based priors for enhanced structural consistency.

## PROJECTS

### Rolling Shutter as IMU | Diffusion Models, Structure from Motion, Computational Imaging Oct 2025 - Present

- Graduate course project for **Computational Imaging** exploring how a rolling shutter can act as an **implicit IMU**.
- Used a **rolling shutter** and **stereo depth sensor** to learn motion and depth directly from image sequences.
- Leveraged a **diffusion model** to estimate motion fields from rolling shutter distortions, which were then used to solve for **camera motion** via **Structure from Motion (SfM)**.

### EVE | LEGO Mindstorms, NVIDIA Jetson, Luxonis AI Camera, Google Gemini

Jul 2024

- Built an autonomous robot to assess building environmental standards (LEED, BREEAM, ISO 14001) using **LEGO Mindstorms** and **NVIDIA Jetson**.
- Integrated AI navigation with a **Luxonis AI Camera** for SLAM and **Google Gemini** for image analysis.
- Winner** — Hack the 6ix Hackathon (Best Environmental Hack).