Prashanth Reddy Shyamala

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EDUCATION

University of Toronto — **Sept 2022 – Apr 2027**
Honours Bachelor of Science in Computer Science (ASIP Co-op) — *Ontario, Canada*
GPA: 3.96

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

Software Development Intern | *AWS Sagemaker, MMDetection, TensorRT, Docker* — 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* — 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).