

Sumant Bagri

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OBJECTIVE

Pursuing Software Engineering and Machine Learning roles in Robotics/Computer Vision/Finance
Passionate about contributing to AI projects through teamwork and collective problem solving

WORK EXPERIENCE

Kindred AI

May 2023 - December 2023 (expected)

Robotics Software Intern

Toronto, Ontario

- Evaluated state-of-the-art physics engines like PhysX and Bullet for robotic motion planning
- Engineered a GPU-accelerated C++ MVP using PhysX for concave mesh geometries
- Achieved 4-4000x speedup in batched collision queries vs. FCL baseline
- Architected MVP integration into existing motion planning stack enhancing overall system robustness

Flow Traders Asia

October 2020 - April 2022

Trading Operations Engineer

Hong Kong, Hong Kong

- Implemented a distributed workflow management system using Apache Airflow and Kubernetes
- Worked with development to build and test low-latency trading applications using FPGAs
- Optimized and maintained internal, software and hardware stacks integrated with the Linux kernel

The Walt Disney Company

May 2018 - July 2018

Data Analytics Intern

Mumbai, India

- Automated the data-fetching and report generation for daily review using BigQuery and Python

IBM

December 2016 (1 month)

Research Intern

Mumbai, India

- Implemented a PoC for an employee character profiler using IBM Watson's Personality Insights service

PROJECT WORK

Diffusion Models on Edge

University of Toronto

- Investigated diffusion models for image generation on Nvidia Jetson Nano and Android smartphones.
- Implemented pipelines for FP16 quantization and tensor fusion using ONNX runtime and TensorRT
- Generated high fidelity images on edge devices through diffusion model inference under 90 seconds

Comparison of Sampling-Based Path Planners

University of Toronto

- Implemented asymptotically optimal, sampling-based path-planners - FMT*, BIT* and NRRT*
- Evaluated path costs, execution times and success rates through simulations on 2D maps

Synthetic Image Generation of Brain Tumor MRI Scans

University of Toronto

- Implemented and trained UNet-GAN with tuned hyper-parameters using PyTorch
- Trained a brain-tumor CNN classifier using synthetic images achieving 90% accuracy on real images

EDUCATION

University of Toronto

September 2022 - December 2023 (expected)

M.Sc in Applied Computing (A.I.): Deep Learning, Computer Vision, Mobile Robotics, **Overall GPA: 4.0/4**

IIT Bombay

August 2015 - August 2020

B.Tech and M.Tech in Mechanical Engineering, Minor in Electrical Engineer, **Overall GPA: 8.6/10**

PUBLICATION

Bagri, S., et al. "Tool wear and remaining useful life prediction in micro-milling along complex tool paths using neural networks." Journal of Manufacturing Processes (JMP2021)

TECHNICAL STRENGTHS

Programming Languages

C++17, Python

Robotics

ROS2, PhysX, Bullet, FCL, CUDA, OpenGL

Deep Learning

PyTorch, scikit-learn, Matplotlib

Tools

Git, CMake, Bash, Kafka, ELK, Docker, Kubernetes