

# Gunjan Dhanuka

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[github.com/GunjanDhanuka](https://github.com/GunjanDhanuka)

## Education

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**Carnegie Mellon University** Pittsburgh, PA  
Master of Science in Computer Science Dec 2025  
Current Coursework: ML with Large Datasets, Advanced Introduction to ML (PhD), Distributed Systems

**Indian Institute of Technology, Guwahati** Guwahati, India  
Bachelor of Technology in Computer Science and Engineering, Minor in Robotics and AI May 2024  
Overall GPA: 9.06/10.00 | Major GPA: 9.30/10.00  
Selected Coursework: Machine Learning, Databases, Compilers, Parallel Algorithms, Operating Systems, Networks, Computer Architecture, High Performance Computing, Blockchain Technology

## Experience

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**Rubrik Inc.** Bengaluru, India  
Software Development Engineer Intern May 2023 - Jul 2023

- Devised a leader-worker architecture for horizontal scaling in RSC-P (on-prem) to pin stateful services on leader node and scaling stateless services to worker nodes, which led to 5X improvement on core services.
- Engineered a CLI in Golang using Kubernetes to allow seamless addition and removal of nodes within RSC-P Cluster; performance gain of 13M (2-Node cluster) compared to 2.5M (single node) events ingested/day.

## Research

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**MLC LLM - Catalyst Lab, Carnegie Mellon University** Pittsburgh, PA  
Prof. Tianqi Chen, Carnegie Mellon University Jun 2024 - Present

- Contributing to open-source project [MLC-LLM](#), enabling universal native deployment of LLMs through machine learning compilation techniques including TVM. Added support for multilingual LLM Aya-23-8B and multimodal Florence-2 by re-implementing architecture using TVM and facilitating 4-bit group quantization.

**Dynamic Mitigation of Black Hole Router Trojan on Network-on-Chip** Guwahati, India  
Prof. John Jose & Prof. Sukumar Nandi, IIT Guwahati | Submitted to VLSID 2025 May 2023 - May 2024

- Designed an improved threat model for BHR attack based on intermittent activation using C++ in gem5 simulator, and proposed a consensus-based distributed mitigation scheme, reducing packet drops by 46%.

**Distilling Aggregated Knowledge for Video Anomaly Detection (VAD)** Remote (Pittsburgh, PA)  
Prof. Min Xu, Carnegie Mellon University | [Paper](#) (Accepted at WACV 2025) May 2022 - Dec 2023

- Proposed a novel Temporal Aggregation Module with disentangled cross-attention mechanism and bi-level knowledge distillation in Weakly-supervised Video Anomaly Detection task, outperforming state-of-the-art methods by 7.02% on XD-Violence and 1.36% on UCF-Crime benchmarks, with one-third model size.

## Projects

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**Route Optimization and Volume Estimation for Last-Mile Deliveries** | [Report](#) | [Code](#) Feb 2023

- Devised 3D point-cloud reconstruction and depth-based pipelines in Python to estimate Volumetric Weight on conveyor-belt setting, getting a speedup of 10X and improved error-rate by 3X in depth-based vs. point-cloud.

**Compiler for C-like Language** | [Code](#) Nov 2022

- Developed a compiler for Nano-C, a subset of C implementing features like I/O management, error-handling and control statements using Lex, Bison and C++ with lexical and syntactical analysis, three-address code generation and target MIPS code generation.

**xv6: Unix-based Operating System** | [Code](#) Nov 2022

- Implemented a Shortest-job-first and Round-robin based hybrid CPU scheduling algorithm, synchronization primitives, sys calls with handlers and virtual memory management (paging, lazy memory allocation, dynamic page swapping) using C language.

## Skills

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**Programming languages:** C, C++, Python, Go, SQL, Javascript  
**Libraries:** PyTorch, Tensorflow, Pandas, Numpy, scikit-learn, Matplotlib, PySpark, HuggingFace, OpenCV  
**Miscellaneous:** Git, Docker, Kubernetes, gem5, Linux, Django, Flutter, Jupyter, LATEX

## Honors and Activities

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**Narotam Sekhsaria Scholarship, 2024:** Awarded funding of \$60K among 5,000 applicants for graduate studies.  
**Amazon ML Challenge, 2023:** Ranked 25th out of 5000 in predicting dimensions from Amazon product metadata.  
**Coding Club IIT Guwahati, 2023:** Led team of 75+ members to organize lectures, workshops and hackathon.  
**Inter-IIT Technical Meet, 2022:** Won the Silver Medal in the Bosch Video Model Extraction competition.  
**JEE Mains and Advanced, 2020:** Ranked amongst top 500 out of 1.1 million students appearing for IIT entrance.

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