

Dav Vrat Chadha

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Education

UNIVERSITY OF TORONTO

Bachelor of Applied Science in Engineering Science

📅 Sep 2020 – Apr 2025

📍 Toronto, ON, Canada

- Machine Intelligence Major
- PEY Co-op Student

Relevant Coursework

UNDERGRADUATE

Introduction to Machine Learning

Natural Language Computing

Artificial Intelligence

Data Structures & Algorithms

Digital & Computer Systems

Skills & Tools

PROGRAMMING

Python • Sklearn • Keras • Objax • spaCy • Tensorflow • Jax • PyTorch • OpenCV • NumPy • CircuitPython • Linux • C/C++ • Java • HTML • CSS • JavaScript • MySQL • MATLAB • Git • Verilog • ARM Assembly

Awards & Honours

DEAN'S HONOUR LIST

📍 University of Toronto

SKULEPEDIA HACKATHON – 2ND PLACE

📍 University of Toronto

Researched and wrote an article about Skule history with a team interested in protecting and preserving the history and old traditions of UofT engineering.

Extra-Curricular

COMPUTER TECHNICIAN

📅 May 2022 – July 2022

- Helped senior citizens in my neighborhood troubleshoot and fix software and hardware issues in their computers.
- Made the process of getting computers fixed easier for them by removing the technological barrier between them and the customer service executive.
- Helped senior citizens learn about new useful features in their computers related to accessibility needs.

PYTHON TUTOR

📅 Jan 2021 – Apr 2022

- Tutored a first-year Civil engineering student about the basics of Python.
- Concepts taught ranged from simple list manipulations to using NumPy and Pandas library, based on course requirements.

Work Experience

GPU VALIDATION ENGINEER - AMD DCGPU

📅 May 2023 - Present

📍 Markham, ON, Canada

- Developed a BER automation system in **Python** and **C** to streamline memory tests for **MI300** semiconductor chips, enabling easier and standardized execution, implemented at a wide level.
- Created **Python** tool to efficiently debug and resolve parity issues in memory, ensuring optimal performance and reliability of the memory system, used both internally and externally.
- Improved the efficiency of a shmoo tool by reducing its runtime complexity from **$O(n^2)$** to **$O(n)$** , resulting in a substantial decrease in test time by 6-8 hours.
- Contributed to the advancement of technology by working on **HBM3** in MI300 for El Capitan supercomputer project, which aims to break the **2 exaflops barrier**.

Projects

ML ENGINEER - FINCH SATELLITE MISSION

📅 Sept 2023 - Present

📍 UTAT - Toronto, ON, Canada

- Implementing **VAEs** and **Diffusion models** to augment hyperspectral imaging data for the Field Imaging Nanosatellite for Crop residue Hyperspectral mapping (FINCH) mission.
- Implementing **de-striping** and **superresolution ML** models to enhance the spatial resolution of collected imagery.
- Collaborating closely with multidisciplinary teams to integrate imaging capabilities into the novel payload design of FINCH, ensuring seamless interaction between the imaging subsystem and other mission-critical components.

TROJAN DETECTION LLM ENGINEERING - UTMIST

📅 Sept 2023 - Oct 2023

📍 Toronto, ON, Canada

- Participated in the 2023 Trojan Detection LLM competition, focusing on developing a trojan detection system for **LLMs** and refining trigger generation techniques.
- Engaged in reverse-engineering triggers from target strings, aimed to achieve high recall rates and REASR.
- Utilized **Auto Prompt Engineering (APE)** methods to train a model capable of generating trigger words that prompt specific target word outputs in the **Pythia 6.9B** parameter model.

NO PUN INTENDED - Try API

📅 Jan 2023 - Apr 2023

- Worked in a team to create one of the largest datasets of puns and their explanations, each sentence tagged using a new tagging scheme.
- Utilized an ensemble of **transformer**-based models **DeBERTa** and **RoBERTa** to detect and locate puns with contextual masking using K-means.
- Built upon the recent research done by Amazon to improve the existing methods and achieved 75.58% test accuracy, which is competitive to GPT-4 performance (82.77%).

Miscellaneous

VOLUNTEER - AMD DCGPU

📅 June 2023 - Present

- **Mentor** in the AMD DCGPU organization, providing crucial assistance in educating new hires and internal transfers on the tools and automation systems utilized for GPU validation.
- Contribute to creating a collaborative learning environment, improving onboarding experiences, and sharing knowledge about HBM3 within the organization.