Vishruth Veerendranath

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EDUCATION

Carnegie Mellon University – School of Computer Science *Pittsburgh, PA*
Master of Science in Intelligent Information Systems. (Program Focus on **ML & NLP**) *May 2025*
Coursework: Intro to ML (Master's), Advanced NLP (PhD), On-Device ML (PhD)
Research: **Efficient Code Generation** & Reasoning using Large Language Models (LLMs) advised by Prof. Daniel Fried

PES University *Bangalore, India*
Bachelor of Technology in Computer Science and Engineering; **CGPA:** 9.81/10 **(3.92/4.0)** *May 2023*
Graduated at *Rank 5/1000,* Awarded CNR Rao Scholarship - all semesters*. Teaching:* Data Analytics, Network Analysis Mining.

SKILLS

Programming Languages: Python (Advanced), C/C++ (Proficient), JavaScript (Moderate), Java (Moderate), R (Basic)
Machine Learning: PyTorch, TensorFlow, Keras, HuggingFace, FAISS, NLTK, Scikit-Learn, OpenAI Gym, PyG, vLLM, llama.cpp
Cloud/Web/Big Data: MongoDB, Express, React, Node.js, Flask, SQL, Azure, AWS, Hadoop, Spark

EXPERIENCE

Intel Corporation *Bangalore, India*
Machine Learning Intern *Dec 2022 – Jul 2023*

- Extended edge-deployed continual learning solution for retail to accommodate large inventories of big-box retailers.
- Accelerated EfficientNet model training by **2x** & inference by **5x** by integrating **FAISS** Nearest Neighbor Search optimizations with **TensorFlow** to optimize softmax classification heads with **50k+** classes (tailored to CPU).
- Boosted accuracy **10%** by designing experiments and data augmentation strategies during pilot phase in first store.

Indian Institute of Science *Bangalore, India*
Research Intern *Jun 2022 – Aug 2022*

- Designed novel reward functions for reinforcement learning agents to predict optimal driving decisions on highways.
- Simulated highway dataset using **OpenAI Gym**, trained DQN on **PyTorch** and improved safety of maneuvers by **50%.**

Microsoft *Bangalore, India*
Student Developer *Jun 2021 – Aug 2021*

- Leveraged **Azure ML** to automate bank's onboarding processes, reduce errors & customer journey time by **60%**.
- Hosted a web-app **(MERN)** used to pitch to banks on Azure integration for document verification over chat and calls.

SELECTED PUBLICATIONS

ScripTONES: Sentiment-Conditioned Music Generation for Movie Scripts. [LINK]
Presented at ML for Audio workshop, **NeurIPS 2023**. To appear in proceedings of AIMLSys 2023 – GenAI.
Piano MIDI music generated using transformers & sentiment regularized VAEs to match sentiment analyzed from script text.

XLDA: Linear Discriminant Analysis for Scaling Continual Learning to Extreme Classification at the Edge. [LINK]
PAC-Bayes meets Interactive Learning workshop, **ICML 2023** (Work at Intel)

Predictive Maneuver Planning with Deep Reinforcement Learning (PMP-DRL) for comfortable and safe autonomous driving.
Preprint, Under Review (Work at IISc) [LINK]

C3PO: A Lightweight Copying Mechanism for Translating Pseudocode to Code. **AACL-IJCNLP 2022** (SRW) [LINK]
Tagging & masked copy mechanism exploiting repeated tokens in code & pseudo. Reduced training time & vocab size to **50%.**

GraphCoReg: Co-training for Regression on Temporal Graphs. [LINK]
Best Student Paper Award at the 18th Mining and Learning on Graphs (MLG) workshop, **ECML-PKDD 2022**
Semi-Supervised node regression method on spatiotemporal graphs. Improved forecast accuracy with only **20%** labeled data.

Multivariate Covid-19 Forecasting with Vaccinations as a Factor: the case of India and USA. [LINK]
IEEE TENSYMP 2022. Presented at the Healthcare AI and Covid-19 workshop, **ICML 2022**
Improved long-horizon caseload forecast accuracy using multivariate models by integrating vaccination data with case data.

PROJECTS

(CMU) *On-Device Math Chatbot:* Quantized LLM inference & improving reasoning, reducing hallucination with tool-use.

(CMU) *Calc-BERT:* Calculator Usage as a pretraining objective to improve numerical abilities of encoder-only models.

(PES) *Sentiment Analysis on Streaming Data:* Incrementally trained classifiers on tweet streaming data using Spark & Sklearn.