Haridhanush Ravichandran

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Education

M.Sc. Data Science and Machine Learning, University of Padova (UNIPD), Italy Oct 2024 – Exp. Jun 2026
Current progress: 48/120 credits completed, GPA 28.5/30
Coursework: Machine Learning, Deep Learning, Statistical Learning, NLP, Optimization, Big Data Analytics

B.E. Computer Science and Engineering, Saranathan College of Engineering, Trichy, India Aug 2019 – May 2023
Coursework: Data Structures, Algorithms, Databases, Artificial Intelligence, Software Engineering

Technical Skills

Programming: Python, R, SQL, C, C++, Bash

ML/DL Frameworks: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas

Data Analysis
Statistics: Regression, Hypothesis Testing, Probability, Statistical Modeling, Data Cleaning, Preprocessing

Data Tools: Jupyter, Google Colab, Git, Docker, Excel, Power BI, Tableau

Specialized: Convolutional Neural Networks (CNNs), Natural Language Processing (NLP), Neuro-symbolic AI, Graph Neural Networks (GNNs), Ensemble Learning, Time-Series Forecasting

Other: LaTeX, Linux/Ubuntu

Projects

Neuro-Symbolic Learning for MNIST Digit Relationships May 2025 – June 2025
Technologies: PyTorch, torchvision, NumPy, Matplotlib, d-DNNF (symbolic logic)

- Implemented a CNN model for MNIST digit classification.
- Developed symbolic logic encodings (e.g., $x - y \leq 1$, $(x + y)\%10 = z$) using d-DNNFs.
- Created custom PyTorch datasets for digit pairs/triplets/sequences with constraint satisfaction labels.
- Integrated the CNN with d-DNNF reasoning via Weighted Model Counting (WMC).
- Evaluated performance, showing ability to jointly classify digits and reason about relationships.
- Visualized predictions including digit probabilities, WMC values, and constraint outcomes.

Weather Forecasting (Deep Learning Challenge) May 2025 – June 2025
Technologies: PyTorch, torchvision, NumPy, Matplotlib, Transformers

- Implemented a data processing pipeline for handling and standardizing multi-station time series data.
- Designed and trained a Transformer-based model for predicting future weather conditions.
- Incorporated techniques like early stopping and learning rate scheduling to improve model training stability and performance.
- Evaluated model performance using metrics like MASE.

Image Classification Model for Deep Learning Challenge Mar 2025 – Apr 2025
Technologies: PyTorch, torchvision, scikit-learn

- Developed and trained a convolutional neural network to classify images into 20 distinct categories for a university deep learning challenge.
- Implemented custom data augmentation techniques to improve model generalization and performance.
- Achieved 75.8% validation accuracy and submitted predictions to the challenge leaderboard.
- Demonstrated proficiency in PyTorch for building, training, and evaluating deep learning models.

Experience

- **PwC Virtual Internship (Data Visualization)**, Remote 2023
  Created business dashboards and communicated insights from data using Power BI and Tableau. Translated data into actionable recommendations for decision-making.
- **Accenture Virtual Internship (Data Analytics)**, Remote 2023
  Analyzed datasets with SQL and Excel to identify business trends. Developed predictive models and provided insights to support business strategy. Strengthened communication skills by presenting findings to non-technical audiences.

Certifications

- Google Data Analytics Professional Certificate – Coursera (2024)

Languages

- English (Fluent)
- Tamil (Native)