

Sathvik Meripe

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EDUCATION

Indian Institute of Technology Dharwad
Computer Science and Engineering - CGPA: 8.70

Dharwad, Karnataka
Dec 2022 – Apr 2026

PROJECTS

Multi-Objective Pruning of Vision Transformers

Deep Learning Research

- Explored **EvolutionViT**, an automated patch pruning framework for accelerating **Vision Transformers (ViT)** through **multi-objective optimization**.
- Studied existing **pruning methods** to balance cost and performance for resource-constrained edge devices.
- Proposed and implemented a novel **initialization heuristic** to guide the evolutionary search, enhancing the efficiency of the patch pruning optimization.
- Implemented all ViT pruning experiments in **PyTorch** for model acceleration and structured analysis.

Recommendation System

Machine Learning & Web Development

- Developed a **Content-Based Filtering** engine for a **Movie Recommender** using **Bag of Words**, **TF-IDF**, and **BM25** to generate personalized suggestions.
- Built robust **data preprocessing pipelines** (text normalization, stopword removal, lemmatization) to enhance model performance.
- Collaborated on integrating the recommender model with a user-friendly **front-end interface** using **HTML**, **CSS**, and **JavaScript**.
- Enhanced interactivity and communication between the ML backend and UI for real-time recommendation updates.

BitTorrent File Sharing System

Computer Networks

- Developed a peer-to-peer file sharing system implementing core BitTorrent protocols, featuring **peer discovery**, concurrent downloads using **multi-threading**, and data integrity checks via **SHA1 hashing**.
- Engineered the system's architecture, including distinct modules for **torrent creation**, a centralized **tracker** for peer management, and logic for **seeding** and **leeching** over direct **socket connections**.
- Integrated the **Dropbox API** to streamline '.torrent' file distribution and implemented an automated role transition mechanism, enabling a **leecher** to become a **seeder** upon download completion.

TECHNICAL SKILLS

Languages & Tools: Python, C++, C, SQL, Git, GitHub, L^AT_EX

Web Technologies: HTML5, CSS, JavaScript, React, Tailwind CSS

AI/ML Libraries: PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib

ACHIEVEMENTS

- Awarded AP Grade**, in Advanced Topics in Deep Learning Course (CS707), IIT Dharwad.
- 4th place (out of 200 participants)**, in Summer Of Innovation by Coding Club, IIT Dharwad.

KEY COURSES

Computer Science: Data Structures and Algorithms, Software Systems, Computer Architecture, Operating Systems, Computer Networks, Database Management System, Deep Learning, Advanced Topics in Deep Learning

Mathematics: Linear Algebra, Calculus, Discrete Mathematics, Probability, Data Analysis, Theory of Computation

EXTRACURRICULARS

- Outreach Team Member**, PARSEC Annual Techfest, IIT Dharwad.
- Participant at Sleepless Coding Saga**, Hackathon on Devfolio.