# Sathvik Meripe

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## Education

**Indian Institute of Technology Dharwad** — Dharwad, Karnataka
*Computer Science and Engineering - CGPA: 8.70* — *Dec 2022 – Apr 2026*

## Projects

**Evolutionary Vision Transformer Research**
*Deep Learning Research*

- Explored **EvolutionViT**, a 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.

**Continual Learning and Loss of Plasticity Research**
*Deep Learning Research*

- Investigated **Continual Learning** and **Loss of Plasticity** in neural networks by re-implementing and analyzing a novel training algorithm on the **MNIST dataset**.
- Implemented **Continual Backpropagation (CBP)** and benchmarked its performance against standard backpropagation, validating its superior plasticity retention.
- Replicated experiments across 800 sequential learning tasks, conducting **statistical analysis** on performance metrics to verify the paper's findings.
- Utilized **PyTorch** for model implementation, experimental design, data preprocessing, and result visualization.

**Recommendation System**
*Machine Learning*

- Built a **Content-Based Filtering** module for a **Movie Recommender** to provide personalized suggestions.
- Implemented robust **preprocessing pipelines** including text normalization, stopword removal, and lemmatization to clean and standardize data.
- Applied algorithms such as **Bag of Words**, **TF-IDF**, and **BM25** using **scikit-learn** to analyze movie data and compute similarity scores.
- Assisted integrating the ML model with the front-end interface built using **HTML, CSS,** and **JavaScript**.

## Technical Skills

**Programming Languages**: C, C++, Python

**Technologies**: HTML5, React, Tailwind CSS, SQL, NumPy, Pandas, LaTeX, 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.