

AKSHAT TAYAL

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🐙 GitHub

🌐 LinkedIn

🌐 Portfolio

EDUCATION

• **Bachelor of Technology in Computer Science and Engineering (Internet of Things)**

2023-27

SRM Institute of Science and Technology Kattankulathur, Chennai

CGPA: 9.65

PROJECTS

• **IRS — AI-Powered PDF Question Answering System (RAG)** 🔄

Python, LangChain, FAISS, Streamlit, HuggingFace, OpenRouter

- Developed a **Retrieval-Augmented Generation (RAG)** system to enable natural language querying over PDF documents, supporting multi-document ingestion with context-grounded, source-attributed responses.
- Implemented a **semantic search pipeline** using HuggingFace embeddings and FAISS vector database, improving factual grounding and retrieval precision across document corpora.
- Deployed a **real-time conversational AI application** with persistent memory and sub-second query latency, enabling explainable outputs with traceable source citations.

• **Self-Pruning Neural Network with Learnable Gates & Sparsity Analysis** 🔄

Python, PyTorch, NumPy, Matplotlib, TorchVision, Neural Network Optimization

- Designed a **PyTorch** neural network with **per-neuron differentiable gates** enabling dynamic structural pruning during training.
- Formulated a **composite loss** (task + L1 sparsity penalty) achieving **85%+ parameter sparsity** without accuracy loss on **CIFAR-10**.
- Conducted **hyperparameter sweeps** over gate initialization and sparsity coefficients, visualizing gate distributions to validate pruning stability.

EXPERIENCE

• **Intel Unnati Industrial Training Program** 🔄

May 2025 - July 2025

Summer Intern

- Developed a lightweight CNN for real-time image sharpening using **knowledge distillation (VGG19 → student)**, achieving **50% reduction in model size** while preserving **95%+ PSNR/SSIM** via a **multi-loss optimization framework** (Perceptual + SSIM + KD Loss).
- Built a real-time video inference pipeline with **multi-threading, FP16 GPU acceleration, and adaptive resolution scaling**, enabling **sub-second processing on 640×480 streams**.

TECHNICAL SKILLS

Languages: Python, C++, JavaScript

AI / Machine Learning: PyTorch, scikit-learn, OpenCV, CNNs, Model Training & Evaluation (Accuracy, PSNR, SSIM), Neural Network Optimization, Knowledge Distillation

GenAI / LLM: LangChain, RAG Pipelines, Prompt Engineering, Vector Databases (FAISS), HuggingFace, Embeddings

Backend Development: Flask, REST APIs, Streamlit

Databases: MySQL, SQLite

Tools: Git, GitHub, Linux, VS Code

Core Concepts: Data Structures & Algorithms, OOP, DBMS, Operating Systems, Computer Networks

POSITIONS OF RESPONSIBILITY

– **Corporate Member, Placify** SRM Placement Team – SRM, Chennai

Aug 2025 – Present

* **Coordinated** with corporate recruiters and internal placement teams to support end-to-end recruitment operations.

– **Technical Committee Head** Directorate of Student Affairs (DSA) – SRM, Chennai

Mar 2025 – Feb 2026

* **Developed** and deployed an events website, **enhancing** student engagement and information accessibility across campus.

ACHIEVEMENTS

– **Winner, CITI Bank Blockchain Hackathon**

Sept 2025

– **Runner-Up, ByteRunners Hackathon, Tryst'25 IIT Delhi**

Mar 2025

– **Performance Based Scholarship**

2024 – 2025

CERTIFICATIONS

– **AWS Certified AI Practitioner**

Apr 2026

– **Oracle Cloud Infrastructure 2025 Certified Generative AI Professional**

Oct 2025