

Jayant Chandwani

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RESEARCH INTERESTS

Federated Learning, Multimodal Learning, Agentic AI, Privacy-Preserving ML, Distributed Learning Systems

EDUCATION

BITS Pilani, K. K. Birla Goa Campus

B.E. (Hons.) in Computer Science, Minor in Data Science

CGPA: 9.5/10

Goa, India

Aug. 2023 – Present

PUBLICATIONS

BLOSSOM: Block-wise Federated Learning Over Shared and Sparse Observed Modalities

IJCNN 2026

First Author

[arXiv](#) — [Code](#)

RESEARCH EXPERIENCE

Undergraduate Thesis Researcher

Queen Mary University of London

Sep. 2026 – Present

Advisor: Prof. Ahmed M. Abdelmoniem

- Investigating **federated agentic learning** to enable heterogeneous AI agents to share task-relevant knowledge without direct exchange of private information.
- Exploring **knowledge graph-based communication**, focusing on entity alignment, retrieval, and a shared relation schema for cross-agent knowledge transfer.

Undergraduate Student Researcher

Data, Systems and HPC (DaSH) Lab

Sep. 2024 – Present

Advisor: Prof. Arnab K. Paul

- Proposed **BLOSSOM**, a framework for multimodal learning in missing-modality settings, using a **block-wise aggregation strategy** to enable **partial personalization** through selective sharing of modality-specific encoders while keeping fusion and task-head modules private.
- Evaluated BLOSSOM across diverse multimodal benchmarks, demonstrating up to **19% average improvement** in modality-incomplete and up to **38% improvement** in modality-exclusive settings
- Extending BLOSSOM to **decentralized cross-silo federated learning** by developing a **modality-wise scoring strategy** that accommodates clients with missing modalities; positioned as a multimodal extension to [UnifyFL](#)

Undergraduate Student Researcher

Multi-depot Capacitated Vehicle Routing Problem (mCVRP)

Oct. 2025 – Present

Advisor: Prof. Anand Narasimhamurthy

- Developing **amatching-based heuristic** for the multi-depot capacitated vehicle routing problem (mCVRP), exploring reductions to minimum-weight matching and variants of Edmonds' Blossom algorithm.
- Revising the experimental evaluation on **Cordeau instances** with **stronger baselines**, studying feasibility and approximation bounds under capacity and tour-size constraints. [Code](#)

INDUSTRY EXPERIENCE

Software Engineering Intern

LinkedIn

May 2026 – Present

Reliability Infrastructure

- Evaluated **AI agent reliability** in production environments across four dimensions: **consistency, robustness, predictability, and safety** using **LLAJ** and mathematical metrics to generate actionable insights for agent developers.
- Developed a reliability improvement workflow to **diagnose agent failures** and recommend **code-level fixes** within the codebase, supporting systematic improvements to agent reliability.

Backend Developer

GSNP+ (HIV Support CBO)

Aug. 2025 – Present

Gujarat, India

- Working with **GSNP+** to develop a **privacy-first matrimonial platform** for **HIV-positive** individuals
- Implemented a secure **backend API** using **Spring Boot** and **Spring Security** with a focus on **user safety**

Software Developer

CloudDefense.AI

May. 2025 – Jul. 2025

Remote

- Worked on an **end-to-end B2B sales funnel** automation system integrating data ingestion and outreach generation
- Developed a **browser extension** to enable direct profile imports from third party applications like **LinkedIn** and **Apollo.ai**

PROJECTS

Robust Vision | *Python, PyTorch* | [Code](#)

Hackenza '26 Winner

- Built a robust vision pipeline combining **Symmetric Cross-Entropy** for noisy-label training with unsupervised test-time adaptation using BatchNorm statistics and entropy minimization.
- Integrated **Black Box Shift Estimation (BBSE)** for label-shift correction; won the **Test-Time Adaptation in the Wild** category at Hackenza '26.

Adaptive GMM for Anomaly Detection | *Python, NumPy, scikit-learn* | [Code](#)

2026

- Implemented an online **Dirichlet Process Gaussian Mixture Model** for anomaly detection under evolving data distributions.
- Developed an evaluation pipeline comparing mixture models under **simulated distribution drift** and on the **NSL-KDD** intrusion-detection benchmark, including streaming evaluation.

Aegis: A Text Editor with Persistent Text Protection | *C, Systems Programming*

In Progress

- Building a **text editor** from scratch in **C**, with support for locking selected text in a code file.
- Designing a **file format** and **data structure** that embeds line-lock metadata in the file, **preserving editing constraints** when files are shared across machines.

Face Recognition in Challenging Environments | *Python* — [Code](#)

Jun. 2025

- Developed a **face recognition model** robust to **environmental noise** as a submission to **COMSYS Hackathon**

Multimodal Product Price Prediction | *Python, Machine Learning* — [Code](#)

Oct. 2025

- Developed a multimodal regression pipeline for predicting product prices from images, text, and structured metadata
- **Amazon ML Challenge 2025 submission**; analysis highlighted limitations of generic encoders (e.g., BERT), motivating structured and tree-based feature modeling

Nuclear Nemesis | *Unity, C#* — [Game](#) | [Code](#)

Jan. 2024

- Built a 2D puzzle shooter in **Unity** during a **three-day Game Jam** in collaboration with two teammates
- Implemented **core game mechanics** and created **custom assets** such as the title logo

TECHNICAL SKILLS

Research: Federated Learning, Multimodal Learning, Deep Learning, Vehicle Routing, Operations Research

Tools & Technologies: Docker, Linux, Git, Python, PyTorch, C++, LEMON, AWS, Azure, SpringBoot

ACHIEVEMENTS

- **Merit Scholarship** recipient at BITS Goa, awarded to the **top 30** students per batch
- Specialist on [Codeforces](#) (Rating **1546**); solved **600+** problems
- **NSEP State Topper** (Top 1%), Indian Association of Physics Teachers