SAMYAK SIDDHARTH SANGHVI

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Computer Science & Engineering	Indian Institute of Technology Delhi	9.29
2023	MAHARASHTRA STATE BOARD	Alpha Junior College of Science	92.00%
2021	MAHARASHTRA STATE BOARD	Kilbil St. Joseph's High School	93.20%

SCHOLASTIC ACHIEVEMENTS

- **Joint Entrance Exam Advanced (JEE) 2023:** Secured **All India Rank 83** amongst more than 1.5 Lakh candidates.
- **KVPY Scholar 2022:** Awarded the KVPY scholarship by securing **All India Rank 27** amongst more than 50000 students.
- **INPhO 2023:** Among **top 35 students from the country**, selected to attend Orientation and Selection Camp, TIFR Mumbai.
- **APhO 2023:** Selected for **national team** of **Asian Physics Olympiad** 2023 to represent India at Ulaanbaatar, Mongolia.
- **Joint Entrance Examination (JEE) Main**: Secured **99.97 Percentile** among over 1 million candidates in JEE Main.
- **Chemenigma 2024: Winner** of Experimental, Theoretical and Computational Chemistry competition by IISC Banglore.
- **National Olympiads**: Ranked **top 1%** in National Standard Examination in Chemistry, Astronomy and Junior Science.
- **Semester Merit Award:** Awarded **Merit Prize** for being in top **7% Merit List** in batch of 1200 for 2nd Semester.
- **Eightfold AI INNOV8 Challenge:** Selected as one of the **20 national** finalists in hackathon organized by Eightfold AI.

PUBLICATIONS & PATENTS

- **Towards Support-Free Printing in Extrusion-based Additive Manufacturing: Path Planning and Process Control**
  International Mechanical Engineering Congress and Exposition, 2025 | (Prof. Sagar Sarkar)
  - Created a pipeline to achieve **graphics based multi-axis adaptive slicing** to allow **support-less overhang printing**
  - Designed and implemented a method to **Identify, label, and segment mesh extrusions** using SDF to cut the Mesh.
  - Designed a **fault detection interrupt** pipeline via **deterministic computer vision** analysis to flag **bumps and strings**

INTERNSHIPS

- **Stylout AI, Founding Engineer** (May, 2025 - Present) : *Virtual Tryon Pipeline and Recommendation System*
  - Utilized **MediaPipe, DensePose, and SAM-2** for **advanced human parsing** and **body pose and depth estimation**.
  - Developed **VITON pipeline** using DensePose, body poses, and **fine-tuned diffusion model** for image generation.
  - Built **recommendation engine** incorporating Exploration-Exploitation via **GCN embeddings** for fashion relationships.
- **FAIRPHILE INNOVATION LABS** (December 2024, - January, 2025) : *Efficient 3D reconstruction and segmentation*
  - Developed **fine-tuned masking models** with **SAM-2 and YOLO-v8** for object **segmentation and mask generation**.
  - Implemented custom **NeRF** and its pipeline to **reconstruct segmented point-cloud** from **sparse multi-view imagery**.

PROJECTS

- **Ligand Generation for Protiens using PLM** | **(Prof. Tarak Karmakar)** (May, 2025 - Present)
  - Developed **binding affinity predicter** using **PNA networks** using **custom model for protein binding site analysis**.
  - Developing **Diffusion ligand generation** model with feedback using **RAG architecture** for structure-based generation.
- **Nil Proxy Pro - Portable Bio-metric Attendance System** (May 2024 - August 2024)
  - Implemented **custom lightweight operating system and micro-kernel** with **specialized drivers for fingerprint sensor and RTC**, supporting **WiFi connectivity** and **sensor integration** for ESP32 microcontroller compatibility.
  - Integrated **secure cloud access infrastructure** to store, upload and manage attendance data with high availability.
- **RISC-V Pipeline,Cache Coherence Simulator** | **(Prof. Rijurekha Sen)** (March 2025–April 2025)
  - Implemented a simulator for **all processor stages with and without bypassing** during RISCV program execution.
  - Implemented the **MESI protocol to simulate N-way set associative L1 cache coherence across multiple cores**.
- **Antonym Detection using Graph Neural Nets** | **(Prof. Ashwini Vaidya)** (March 2025–April 2025)
  - Made an **Antonym/Synonym detection** model on **WordNet-Wordnik** using **Dual Encoder Graphs and Projections**.
  - Used **fine-tuned BERT embeddings** to **generate initial graph** and accelerate learning through **knowledge transfer**.
- **FileRec - Advanced forensic file recovery and carving tool** (March 2025)
  - File recovery system using **signature-based detection** to recover **JPEG, PNG, PDF, ZIP** files from **corrupted disks**.
  - Supports **Ext4, NTFS, and FAT32 filesystems** with **overlapping file detection** and fast **multi-threaded scanning**.
- **Fake Resume Detection in a Batch** | **INNOV8 Challenge** (October 2024)
  - Checked for **coherence and consistency** using **LLM** across given resumes and recommendations to assess alignment.
  - Modelled **candidates as a graph**, applied community detection to **identify clusters**, and propagated alignment scores.

TECHNICAL SKILLS

- **Programming Languages**: Python, MATLAB, C/C++, JavaScript, CSS, PHP, Rust, VHDL, Assembly, R
- **Frameworks**: PyTorch, Keras, TensorFlow, OpenCV, Hugging Face, Scikit-Learn, MediaPipe, MuJoCo, CGAL