

ACADEMIC DETAILS

| Degree    | Specialization                   | Institute                                 | Year      | CPI / % |
|-----------|----------------------------------|---|-----------|---------|
| B.Tech.   | Computer Science and Engineering | Indian Institute of TechnologyGandhinagar | 2023-2027 | 9.11    |
| Class XII | Physics, Chemistry, Maths        | Central Board of Secondary Education      | 2022-2023 | 94.0 %  |
| Class X   |                                  | Central Board of Secondary Education      | 2020-2021 | 96.0 %  |

RESEARCH EXPERIENCE

- Multi-Target, Multi-Camera Tracking, Summer Research Internship, IIT Bombay

[May'2025–July'2025]

(Advisor: Prof. Ganesh Ramakrishnan)

  - Designed and implemented a state-of-the-art model for 3D object detection and multi-target tracking across multiple cameras with depth sensors on synthetic datasets of AICITY 2025 having varying conditions and high occlusions.
  - Used advanced geometric constraints, 3D pose estimation, and hierarchical clustering to improve tracklet association and cross-camera identity matching, improving results with spatio-temporal modeling and multi-view integration.
  - Currently targeting a research paper for submission based on these findings.

PROJECTS

- FusionEdge – TinyWL based Window Manager for Linux (Open-source Project)

[Jan'2025–May'2025]

(Advisor: Prof. Balgopal Komarath) | Project link

  - Designed a feature-rich window manager atop the Wayland protocol, introducing advanced layered surface support, foreign window integration, and dynamic memory management for efficient multi-application workflows.
  - Improved system reliability and user experience by resolving upstream bugs, applying optimizations, and enabling deep customization for minimal desktop environments on Ubuntu, facilitated user-driven enhancements.
  - The project is maintained and has been cloned by numerous users on GitHub, reflecting its growing adoption.
- Animal Pose Transfer and regeneration

[Aug'2025–Present]

(Advisor: Prof. Shanmuganathan Raman)

  - Designing a pipeline for generating 3-d quadruped avatars from monocular images using diffusion models.
  - Designing a pipeline for transferring poses between different quadruped species and generating realistic images with the target pose while preserving texture and background using the generated 3-d avatars.
- Exploration Beyond Vanilla HNSW: Learning Graph Structure for Smarter ANN Search.

[Feb'2025–Apr'2025]

(Advisor: Prof. Anirban Dasgupta) | Project link

  - Implemented data-driven enhancements to HNSW graphs, combining frequency-based layer assignment, clustering-informed strategies, and SCC-aware pruning to optimize the graph structure for high-performance approximate nearest neighbor (ANN) search in high-dimensional spaces.
  - Demonstrated that the optimized HNSW variants achieved substantial improvements in recall and query speed over standard baselines, validating the practical benefits of the approach on large-scale, high-dimensional datasets.
- Inter IIT Tech Meet 13.0 – Zelta Automations Algorithmic Trading

[Dec'2024]

(IIT Gandhinagar Contingent) | Project link

  - Developed algorithmic trading strategies for BTC and ETH pairs as part of the Inter IIT Tech Meet 13.0 challenge.
  - Utilized technical indicators with dynamic risk management techniques, and explored machine learning techniques.
  - Conducted extensive backtesting and validation on multi-year historical data to ensure robust performance across diverse market conditions, and achieved strong returns and sharpe ratio of 2.83 on ETH and 1.96 on BTC.

TECHNICAL SKILLS

- Programming Languages:** Python, C/C++, MATLAB, Verilog
- Libraries:** PyTorch, TensorBoard, NumPy, Pandas, Matplotlib, Scikit-Learn, OpenCV, SeaBorn, TensorBoard, MM3d
- Developer Tools:** Git, GitHub, VS Code, Jupyter Notebook, Xilinx Vivado, Autodesk Inventor

ACHIEVEMENTS

- Ranked **1st in the Electrical Engineering branch** in both semesters and included in the **Dean's List** in Semester I at IIT Gandhinagar for outstanding academic performance.
- Awarded **Branch Change** to Computer Science and Engineering from Electrical Engineering based on exceptional academic performance.
- Performed in top **150** teams out of **15000** teams in Hackon by Amazon in the domain of Natural language processing.
- Honored with the **Academic Citation** for outstanding academic achievements and branch rank in the third semester.
- Secured **All India Rank(AIR) 3510 in Joint Entrance Examination(JEE) Mains** out of 1.3 Million students with **100 percentile in Physics**; achieved **AIR 3703 in JEE Advanced**.