

ACADEMIC DETAILS

Degree	Specialization	Institute	Year	CPI/%
B.Tech.	Computer Science and Engineering	IIT Gandhinagar	2022-Present	9.45
Class XII	Physics, Chemistry, Maths	Dr. Kitchlu Public School, Moga (CBSE Board)	2020-2022	99.4
Class X		Sacred Heart School, Moga (ICSE Board)	2006-2022	98.6

INTERSHIPS

- Summer Research Intern, CVIG Lab, IIT Gandhinagar

[May '24 - July '24]

(Advisor - Prof. Shanmuganathan Raman, IIT Gandhinagar) | Project Link

◦ Researched Variational Autoencoders, Vector-Quantized VAEs, GANs, and Diffusion Probabilistic Methods.

◦ Implemented unconditional Latent Diffusion Model on CelebAHQ-Mask dataset and performed Image Inpainting tasks using the trained LDM and implemented Deep Convolutional GAN on MNIST and CelebA datasets.

◦ Investigated GAN inversion for image compression and editing using StyleGAN architecture.

PROJECTS

- Sparsifying Networks while Preserving Communities

[April '24]

(Advisor - Prof. Anirban Dasgupta, IIT Gandhinagar) | Project Link

◦ Leveraged NetworkX and CDLib to extract community structures from sparsified graphs and compared them with baseline sampling techniques like random edge sampling and edge betweenness based sampling.

◦ Implemented graph sparsifying techniques by edge sampling (clustering coefficients, effective resistance) especially Local Jaccard Similarity based (L-Spar) to achieve an average Normalised Mutual Information (NMI) score of 80%.
- Text Generator Streamlit Application

[March '24]

(Advisor - Prof. Nipun Batra, IIT Gandhinagar) | Interface Link | Project Link

◦ Engineered a pipeline model for next character prediction based on previous k characters.

◦ Fine-tuned models on various corpora, including Gulliver's Travels, English Wikipedia 8, Atomic Habits, Tolstoy's Essays, and Alice in Wonderland, with different embedding sizes.

◦ Deployed a Streamlit application to enable users to graphically select various hyperparameters for the trained models like varying the token embedding dimensions from 15, 25, till 50.
- Human Activity Recognition (HAR) Analysis

[Jan '24 - Feb '24]

(Advisor - Prof. Nipun Batra, IIT Gandhinagar) | Project Link

◦ Analyzed the UCI-HAR dataset with time-series data of thirty subjects performing six activities.

◦ Harnessed the TSFEL library for feature extraction and Principal Component Analysis for dimensionality reduction.

◦ Trained a Decision Tree model on the featurized data and tested it using the activity data collected with the Physics Toolbox Suite app to achieve 70% precision and 67% accuracy.
- Child Safety Monitoring Application

[Aug '23 - Nov '23]

(Advisor - Prof. Nithin V. George, IIT Gandhinagar) | Project Link

◦ Designed an Android application for a smart bicycle with embedded sensors from a device to ensure child safety.

◦ Integrated MATLAB's Simulink Support Package for Android Devices and configured TCP/IP models for efficient data transmission between the child's and parent's devices.

TECHNICAL SKILLS

- Programming Languages: Python, C, C++, Verilog, HTML, CSS, Javascript.

• Tools: Xilinx Vivado, L^AT_EX, Quarto, Git, Adobe Illustrator, Arduino IDE, Autodesk Inventor.

• Libraries: PyTorch, Tensorboard, NumPy, Pandas, Plotly, Seaborn, Scikit-Learn, Streamlit, NetworkX, TSFEL, SFML.

ACHIEVEMENTS

- Awarded for Academic Excellence for highest CPI in AY 2022-23.

• Felicitated with Dean's List Award IITGN for Semester I, II, IV for excellent academic performance.

• Secured 2nd Position in the Machine Learning challenge at IITGN's Annual Hackathon - HackRush 2023.

• Secured an All India Rank of 1297 in the JEE (Advanced) and All India Rank of 598 in the JEE (Main).

POSITIONS OF RESPONSIBILITY

- Core Committee Member, Amalthea '23 (Annual Technical Summit of IIT Gandhinagar)

[April '23 - Feb '24]

◦ Directed the Finance Department, meticulously preparing the budget, monitoring expenditures, and ensuring the financial health of the summit, thereby achieving a balanced and transparent financial record.

◦ Led the Design Team, of 25 members, coordinating with multiple vendors, to create innovative branding materials and visual assets, enhancing the summit's aesthetic appeal and attendee engagement.

◦ Fostered seamless collaboration between diverse teams comprising of over 150+ undergraduate students, ensuring the seamless planning, execution, and delivery of all event activities.
- General Member, Technical Council, IIT Gandhinagar

[May '23 - April '24]

◦ Contributed to IIT Gandhinagar's own centralized hub and interactive platform for students - metaiitgn.