

ACADEMIC DETAILS

Education	Institute	Year	CPI/%
B.Tech.	IIT Gandhinagar	2022 - Present	8.73
Class XII	Bhashyam Junior College, Guntur	2021-2022	98.2%
Class X	Bhashyam Blooms, Guntur	2019-2020	10.0

PROJECTS

- NILM Energy Disaggregation, IIT Gandhinagar

[May 2024-Present]

(Advisor - Prof. Nipun Batra) | Project Link

- Disaggregated mains power by converting benchmark algorithms from Keras to PyTorch and integrating with attention mechanisms, and fine-tuning local LLMs with prompt engineering techniques.
 - Studied Non-Intrusive Load Monitoring (NILM), **attention mechanisms**, transformers, **Large Language Models (LLMs)**, finetuning models, and **prompt engineering** techniques.
 - Experimented with state-of-the-art models locally and online, applying zero-shot and few-shot techniques, and fine-tuning models for optimal performance.
 - Achieved significant improvements in model accuracy and efficiency for NILM tasks.
- CNNs on FPGA using SIMBA-like Architecture, IIT Gandhinagar

[Jan 2024-April 2024]

(Advisor - Prof. Joycee M. Mekie) | Project Link

- Designed and implemented a **convolutional neural network (CNN)** on FPGA using a **SIMBA-like architecture** for MNIST digit recognition.
 - Acquired hands-on experience with **FPGA programming**, hardware acceleration for neural networks, integration of pre-trained models, and the SIMBA architecture's hierarchical structure.
 - Developed a custom pipeline for loading convolution weights and biases onto FPGA, applied convolution operations, and integrated ReLU activation and max pooling layers.
 - Successfully deployed a CNN on FPGA, demonstrating proficiency in both hardware and software integration.
- Next Token Prediction, IIT Gandhinagar

[July 2024-Present]

(Advisor - Prof. Nipun Batra) | Project Link

- Implemented an **Recurrent Neural Network (RNN)** based character-level language model on Shakespearean texts for text generation and visualized embeddings using t-SNE.
 - Developed skills in **Natural Language Processing (NLP)**, deep learning, RNN architectures.
 - Developed and deployed a **Streamlit app** for interactive text generation, enabling users to input text and predict the next k characters and delivering a functional tool for real-time text generation.
- Super Resolution and Image Reconstruction, IIT Gandhinagar

[Jan 2024-April 2024]

(Advisor - Prof. Nipun Batra) | Project Link

- Implemented super resolution and image completion algorithms using **Random Fourier Features (RFF)** and linear regression to enhance image resolution and reconstruct data with missing information.
 - Applied **matrix factorization** and **Alternating least Squares** techniques for image completion.
 - Significantly enhanced algorithm performance, demonstrating capabilities in image processing and data reconstruction techniques, and achieved measurable improvements in reconstruction quality and accuracy.
- Strategic Games Algorithms, IIT Gandhinagar

[Aug 2023-Nov 2023]

(Advisor - Prof. Balagopal Komarath) | Project Link

- Developed single-player games like Sudoku, Up-It-Up, and 2x2 Rubik's Cube, providing optimal solutions, and double-player strategic games like 4x4 Tic-Tac-Toe, SIM, and Connect, with the computer as an opponent.
 - Implemented efficient algorithms for solving complex puzzles and strategic games, enhancing user experience with optimal solutions and intelligent computer opponents.
 - Created engaging and challenging games, demonstrating proficiency in **Data Structures and Algorithms (DSA)**.

TECHNICAL SKILLS

- **Languages:** Python, C, C++, Verilog, HTML, CSS

• **Tools:** Arduino UNO, VS Code, Watson Studio, MATLAB, Autodesk Inventor Professional, Autodesk Fusion 360

• **Skills:** Data Science, Machine Learning, Data Analysis and Visualization, CAD design

• **Digital Credentials:** Data Fundamentals, Explore Emerging Tech, Artificial Intelligence Fundamentals issued by IBM Skillsbuild, Finding the Leader in You (FLY) issued by Amazon Future Engineer - Fondation For Excellence (AFE-FFE)

ACHIEVEMENTS

- Dean's List Academic year 2022-2023, IIT Gandhinagar

• Ranked CRL 3277 in JEE Advanced 2022. Ranked #3 out of 500 students in class 10th in 2020

• Secured medals: gold in 400m relay, silver in 100m relay, and bronze in 200m at Varchas event, IIT Jodhpur 2023. Reached Semifinals in 200m and finals in 400m relay in Inter-IIT 2023 in athletics