# Bhavik Vijay Patel

Junior Undergraduate
Computer Science and Engineering
Indian Institute of Technology Gandhinagar

bhavik.patel@iitgn.ac.in
+91 8668412932
LinkedIn | Github

## ACADEMIC DETAILS

| Degree | Specialization | Institute | Year | CPI/% |
|--------|----------------|-----------|------|-------|
| B.Tech. | *Computer Science and Engineering* | IIT Gandhinagar | 2022-Present | 8.61 |
| Class XII | *Physics, Chemistry, Maths* | St. Paul School, Nagpur | 2021-2022 | 90.5 |
| Class X | | Priyadarshini School, Nagpur | 2019-2020 | 96.8 |

## PROJECTS

- **Local Hosting Quiz App** [May '24 - Present]
  *(Prof. Balagopal Komarath, IIT Gandhinagar)* | *Project Link*
  - Developed a Flask-based quiz app for institute professors, featuring real-time question control and minimizing cheating through local hosting and random number verification.
  - Implemented attendance verification using random number generation, ensuring quiz access only for students present in lecture hall.
  - Designed and managed robust database to support seamless functionality and data integrity of the web app.

- **Text Generator based on next character prediction using MLP** [Feb '24 - Mar '24]
  *(Prof. Nipun Batra, IIT Gandhinagar)* | *Project Link* | *App Link*
  - Developed and deployed a character prediction pipeline using context from preceding characters for text generation.
  - Trained models on diverse corpora including Shakespeare's writings and LaTeX code, with extensive hyperparameter tuning to evaluate and compare model performance.
  - Deployed a Streamlit application for interactive selection of hyperparameters such as block size and embedding size, providing real-time output visualization of the trained models.

- **Human Activity Recognizer Analysis** [Jan '24 - Feb '24]
  *(Prof. Nipun Batra, IIT Gandhinagar)* | *Project Link*
  - Analyzed and processed the UCI-HAR dataset, featuring time-series accelerometer data from thirty subjects engaged in six activities: walking, sitting, standing, running up, running straight, and running down.
  - Leveraged TSFEL library to extract out features from the time-series, performed Principal Component Analysis (PCA) for dimensionality reduction.
  - Trained a Decision Tree model on featurized data and achieved a 76% accuracy on activity classification using data collected from the Physics Toolbox Suite app for testing.

- **Algorithmic Solutions of various Games using data structures** [Sept '23 - Nov '23]
  *(Prof. Balagopal Komarath, IIT Gandhinagar)* | *Project Link*
  - Implemented functions for optimal move selection in two-player games such as Connect4, Game of Sim, and Tic-Tac-Toe using graph traversal algorithms.
  - Developed solutions for games like Up-it-Up, puzzle8, and 2x2x2 Rubik's Cube Solver, employing efficient numeric encoding strategies to minimize computational complexity in storing moves and board positions.

- **Analysis of Datasets using Probability and Statistic** [Jan '23 - Mar '23]
  *(Prof. Shanmuganathan Raman, IIT Gandhinagar)* | *Project Link*
  - Performed in-depth statistical and probabilistic analysis on datasets, including US Higher Education and Grand Slam Tennis, to extract key structural insights and information.
  - Discovered key insights using visualization techniques with Python libraries like NumPy, Seaborn, Matplotlib and Pandas.

## TECHNICAL SKILLS

- **Programming Languages:** Python, C++, Verilog, HTML, CSS, SQL, Javascript.
- **Tools:** : Xilinx Vivado, LATEX, Git, Arduino UNO, Autodesk Inventor.
- **Libraries:** : Numpy, SciPy, Pandas, Matplotlib, Seaborn, TensorFlow, Tensorboard, Scikit-Learn, Stramlit, Flask.

## ACHIEVEMENTS

- Felicitated with **Dean's List Award** IITGN for **Semester I, II** for excellent academic performance.
- Secured **5th Rank** in Competitive Programming Section of HackRush, IITGN's Annual Hackathon
- Secured an All India Rank of **7001** in the Joint Entrance Exam (Advanced).

## RELEVANT COURSES

- **Institute Courses:** Machine Learning, Data Structures and Algorithms-I, Data Centric Computing, Probability Statistics and Data Visualisation, Calculus of Single Variable and Algebra, Calculus of Several Variables, Discrete Mathematics.

## POSITIONS OF RESPONSIBILITY

- **Team Member** | Blithcrone | Annual Cultural Fest | IIT Gandhinagar [Jan '23 - April '23]
- **Team Member** | Odyssey | Astronomy Club | IIT Gandhinagar [Aug '23 - Nov '23]