Kishan Ved
Second Year Undergraduate
Discipline of Computer Science and Engineering
Indian Institute of Technology, Gandhinagar

kishan.ved@iitgn.ac.in
+91 96193 19866
LinkedIn | Github | Website

ACADEMIC DETAILS

Degree	Specialization	Institute	Year	CPI/%
B.Tech.	*Computer Science and Engineering*	IIT Gandhinagar	2022-Present	9.75(/10)
Class XII	*Physics, Chemistry, Maths*	Prakash College, Mumbai	2020-2022	85
Class X		Thakur International School, Mumbai	2014-2020	97.8

OPEN SOURCE CONTRIBUTIONS (ON GITHUB)

- **LFortran**: **9+ merged PRs**. Implemented fortran intrinsic functions in the C++ backend with comprehensive compile time and runtime integration tests. Addressed bugs related to string slicing and warnings emitted.
- **PyDataStructs**: Implemented introsort function in the Python backend.
- **LPython**: Fixed bugs and closed issues with merged PRs.
- **scikit-learn**: Made required changes to the documentation and closed an issue with a merged PR.

PROJECTS

- **Facebook graph clustering based on density (Data Science Project)** [Jan '24]
  (Advisor - Professor Anirban Dasgupta, Professor- IIT Gandhinagar) | Project Link
  - Implemented a greedy algorithm to extract the densest subgraph from Facebook's graph (with pages being nodes and mutual links being edges). Peeled the 5 densest subgraphs (and hence, detected 5 closely knit communities in the graph) and analyzed their entropy.
  - Learned to employ data clustering techniques on large real-world datasets, involving logic and algorthmic optimization in terms of both space and time complexity. Made using Python and its relavant libraries like NumPy and Pandas.

- **Human Activity Recognizer (using Machine Learning)** [Jan '24]
  (Advisor - Professor Nipun Batra, Professor- IIT Gandhinagar) | Project Link
  - Made a machine learning model that uses only decision trees to recognise 6 different human activities by utilizing time series data of acceleration involved.
  - Learned to handle time series data by employing featurization and dimension reduction. Performed hyperparameter tuning select the best model based on bias-variance tradeoff. Deployed the model and tested the predictions on real acceleration data from collected from a smartphone.

- **Spacecraft Charge Distribution Modelling** [Sept '23 - Nov '23]
  (Advisor - Professor Soumyabrata Chakrabarty, Scientist- ISRO (SAC), Professor- IIT Gandhinagar) | Project Link
  - Employed numerical methods such as Gaussian elimination, Gauss-Jordan algorithm, and TDMA to solve the system of equations for a detailed and accurate charge distribution profile. Programming of all mathematical equations and visualizations are done (from scratch) using Python and it's libraries.

- **Child Safety Monitoring Application, IoT Powered bicycle safety system** [Sept '23 - Nov '23]
  (Advisor - Professor Nithin V. George, IIT Gandhinagar) | Project Link
  - Developed a comprehensive Android/iOS mobile application, transforming the phone into a smart IoT embedded system for monitoring child safety during cycling. Implemented advanced features, including real-time GPS, accelerometer, and gyroscope data monitoring, alongside boundary detection, fall detection, and over-speed alerts.
  - Integrated a custom-built mini Google Maps for the IITGN campus, allowing seamless real-time location sharing and communication between the parent and child devices. Utilized MATLAB for backend processing, Simulink for UI design, and TCP/IP protocols for efficient real-time data transfer and voice communication.

- **Intelligent Game Engine (DSA Project)** [Sept '23 - Nov '23]
  (Advisor - Professor Balagopal Komarath, IIT Gandhinagar) | Project Link
  - Developed a repository featuring intelligent game implementations, where the computer employs optimal strategies to make informed moves, showcasing proficiency in algorithmic decision-making, especially graphs and path finding algorithms.
  - Engineered a cubesolver capable of generating the most efficient solutions for any 2x2x2 Rubik's Cube, highlighting algorithmic optimization.

- **IITGN Technical Summit's Official Website** [Sept '23 - Nov '23]
  (Technical Team, Amalthea, IITGN Technical Summit) | Project Link
  - Played a pivotal role as a key contributor in the development team for the official website of Amalthea '23, the annual technical summit at IIT Gandhinagar.
  - Made significant contributions to the website's design, functionality, and overall development, ensuring a polished and user-friendly online platform for the summit. Worked collaboratively to implement innovative features and enhance the digital experience for participants and attendees.

- **Opensource Project: Student Resume Generator Website** [Dec '23 - Ongoing]
  (Also used by Technical Team, Career Development Services (CDS), IIT Gandhinagar) | *Project Link*
  - Developing an innovative website dedicated to the automatic generation of student resumes, adhering to the specific format mandated by the Placement Cell at IIT Gandhinagar.
  - Engineered an intuitive user interface enabling students to input their details, with the system autonomously generating professional resumes in LaTeX.

- **Machine Learning Blogs Website** [Aug '23 - Ongoing]
  (Advisor - Professor Nipun Batra, IIT Gandhinagar) | *Project Link*
  - Crafting technically in-depth blogs to unravel the mathematical foundations driving machine learning algorithms, enhancing comprehension of their operational mechanisms and predictive capabilities.
  - Visualising the mathematics behind machine learning algorithms and explaining their working.

- **Data Narratives** [Jan '23 - Apr '23]
  (Advisor - Professor Shanmughanathan Raman, IIT Gandhinagar) | *Project Link*
  - Analysed and organized the data of highly complex datasets using Numpy, Pandas, Matplotlib and Python.
  - Extracted quality information from the dataset and used it to predict trends by using machine learning techniques.

- **Text Chat Web Application, Metis IIT Gandhinagar** [May '23]
  (Advisor - Metis, Web and App Development Club, IIT Gandhinagar) | *Project Link*
  - Deployed a web application that allows users to communicate in real-time.
  - Learned the use of NodeJS and SocketIO and creating a large codebase of organised codes.

TECHNICAL SKILLS

- **Programming Languages:** C++, C, Python, Java, HTML, CSS, JavaScript(basic), NodeJS, SocketIO, Flutter, Dart.
- **Tools:** Linux, Ubuntu, Git, Github, Tensorflow, Numpy, Pandas, sklearn, Figma, Bootstrap, Matplotlib, MATLAB, Simulink, Autodesk Inventor, Jupyter Notebook, MKDocs, Latex.

RELEVANT COURSES

- Machine Learning (Ongoing), Data Science (Ongoing), Signals, Systems and Random Processes **(A+ or 11/10)**, Numerical Methods **(A+ or 11/10)**, Data Centric Computing **(A or 10/10)**, Data Structures and Algorithms 1 **(90.75/100, A- or 9/10)**, Probability, Statistics and Data Visualization **(A or 10/10)**, Discrete Mathematics**(A- or 9/10)**, Linear Algebra and Single Variable Calculus **(A or 10/10)**, Ordinary Differential Equations **(A or 10/10)**, Partial Differential Equations **(A or 10/10)**.

  (A+ or 11/10 grade is awarded for outstanding performance and ranking #1 in the batch.)

ACADEMIC ACHIEVEMENTS AND AWARDS

- Recognized as a **Reliance Foundation Undergraduate Scholar** and recipient of the Reliance Foundation Undergraduate Scholarship, showcasing academic excellence and exemplary potential.
- Received grade **A+ or 11/10** in **Signals, Systems and Random processes (SSRP)** and **Numerical Methods** course for exhibiting outstanding performance and ranking #1 in the batch.
- Recognised as a **KVPY (Kishore Vaigyanik Protsahan Yojana) Scholar** with All India Rank **639**.
- Secured an All India Rank of **1348** in JEE (Advanced) and **2538** in JEE (Main).
- Secured the **third place in the Forcasting Stock Prices using Machine Learning** in Hackrush, IIT Gandhinagar's annual hackathon.
- Selected in the **Dean's List of Semester-1, Semester-2 and Semester-3** for exhibiting exemplary academic performance.
- Secured **A grade** in both Elementary and Intermediate drawing examinations.

POSITIONS OF RESPONSIBILITY

- **Member, Technical Team, Amalthea** (Annual Technical Summit, IIT Gandhinagar) [Aug '23 - Nov '23]
  - Designed and developed a user-centric and interactive UI for the official website of Amalthea, the prestigious annual technical summit of IITGN, enhancing user engagement and ensuring a seamless browsing experience. *Website Link*
  - Collaborated in a team to manage a substantial codebase and played a pivotal role in crafting the website for Amalthea, contributing to its overall success.

- **Member, CDS Technical Team** (Career Development Services (CDS), IIT Gandhinagar) [Aug '22 - Ongoing]
  - Working in a team to design the first resume generator website to generate resumes for students at IITGN according to the format specified by CDS, IITGN. A premitive/current version of the resume generator can be found here. *Website Link*
  - Handled other technical requirements of CDS, IITGN, including revamping the website and testing.

- **Class Representative, Computer Science Engineering** [Nov '23 - Ongoing]
  - Elected as the representative for the Computer Science Engineering department, demonstrating leadership qualities and effective communication skills in representing the interests of a diverse batch of 70 students.

- **Member, Technical Council IITGN** [Jun '23 - Ongoing]
  - Contributed expertise and strategic guidance as a valued member of the Technical Council at IITGN, driving innovation and shaping technological advancements to meet organizational objectives.
  - Collaborating with the community to devise and implement cutting-edge initiatives that fostered technical excellence and facilitated interdisciplinary collaboration within the IITGN community.

- **Sponsorship Executive, Amalthea** (Annual Technical Summit - IITGN)   [Nov '22 - Jan '23]
  - Contacted and maintained relations with numerous companies for sponsorship.
  - Raised sponsorship opportunities with industries and contributed to the success of Amalthea '22.

- **Head Boy, Thakur International School**   [Sep '18 - Sep '19]
  - Elected as Head Boy in a school of 1500+ students, demonstrated strong leadership, organizational skills, and a commitment to fostering a positive academic environment.
  - Effectively represented the student body as the Head Boy, implemented initiatives that promoted student welfare, encouraged student engagement and enhanced the overall educational experience for all students.

EXTRA-CURRICULAR ACTIVITIES

- Open Source Contributor and enthusiastic about helping build software and solutions for the benefit of the society.
- Competetive Programming (CP) enthusiast. Regular codeforces contest participator. **Codeforces rating 1241 (Pupil)**. *Profile Link*
- **100+ problems** solved on **Leetcode** with **45+ solutions** posted that recieved **350+ views** combined. *Profile Link*
- Member of GRASP, Group for Algorithms and Sport Programming, the CP club of IIT Gandhinagar.
- Member of the Machine Learning Scoiety, IIT Gandhinagar.
- Member of Metis Club: Web and Application Development Club of IIT Gandhinagar, in AY 2022-23. Successfully completed a project- Text Chat Web Application. *Project Link*
- Basketball enthusiast exemplifying teamwork, dedication and fostering competitiveness and promoting physical fitness.
- Passionate about reading and painting, finding joy and inspiration in the realms of literature and art.