Gulshan Kumar

Software Engineer & Data Science Enthusiast

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Education

Bachelor of Technology [Expected Graduation: 2026]
Indian Institute of Technology Bombay

- Pursuing a minor in **Artificial Intelligence and Data Science** from CMINDS, IIT Bombay
- Relevant Coursework: Data Structures & Algorithms, Machine Learning, Game Theory

Technical Skills

- **Programming Languages:** Python, C++, Java, JavaScript, TypeScript, HTML, CSS, SQL, R
- **ML & AI:** Transformers, LangChain, Hugging Face, GANs, YOLO, Computer Vision, NLP, Deep Learning
- **Web:** React, React Native, Next.js, Django, Flask, Node.js, Express.js, REST APIs, Socket.IO, WebRTC
- **Cloud & DevOps:** AWS, Google Cloud Platform (GCP), Vertex AI, Docker, Linux, Nginx, Apache, CI/CD
- **Databases & Tools:** PostgreSQL, MySQL, MongoDB, Redis, Git, GitHub, Postman, Jupyter, VS Code

Experience

Efkon India — Software Development Intern [May 2025 - Present]

- Built an end-to-end ambulance placement pipeline with user data upload, automated preprocessing, clustering, and spatial optimization using a Double Standard Model to minimize emergency response times.
- Built a real-time fire and smoke detection system using YOLOv8 deep learning model, achieving 94% mAP through advanced CV techniques to automatically identify fire and smoke patterns for rapid emergency response
- Implemented CV pipeline (YOLOv8+ESRGAN+OCR) for EV license plate detection & character recognition

Olivegaea — Machine Learning Intern [Feb 2025 – Apr 2025]

- Benchmarked multiple LLMs (e.g., `DeepSeek`, `phi-4`) to evaluate performance on GRI-focused text generation
- Fine-tuned selected LLM on sustainability datasets using **PEFT (LoRA)** with 4-bit quantization on **Vertex AI (GCP)**, optimizing memory via `BitsAndBytesConfig` and gradient checkpointing.
- Built a modular pipeline for dataset preprocessing, tokenization, model training (Hugging Face `Trainer`), inference, and cloud integration with **Google Cloud Storage** for end-to-end deployment.

ScaleUp — Chief Technical Officer [Dec 2024 - Jan 2025]

- Developed full-stack social features including post uploads, WhatsApp-style chat, group chats, and communities using React Native, Node.js, and Redis, enhancing user engagement while building backend APIs in Express.js.
- Engineered real-time functionalities such as live quizzes using Socket.IO and voice/video calling with WebRTC
- Integrated Razorpay payment gateway for premium content and paid quizzes; handled secure payment flows

DraftAI — Software Development Intern [Summer 2024]

- Developed document editing web application similar to MS Word using React and Syncfusion Document Editor
- Implemented real-time content synchronization between multiple editor instances
- Automated HTML to PDF conversion using Python, Pyppeteer, and Nest Asyncio

LogicRoots — Machine Learning Intern [Summer 2024]

- Engineered Flask application converting Figma designs to responsive HTML/CSS using GPT-4
- Integrated Figma API for design data extraction and implemented RESTful endpoints
- Applied NLP techniques and vector similarity search for intelligent code generation

Key Projects

Mumbai Flood App [Sept 2023 - Present]
Department of Climate Studies, IITB | Prof. Subimal Ghosh

- Designed and deployed a web platform hosted on **Hostinger**, and developed the complete interface using **React** for the website and **React Native** for the **Mobile App** on **Google Play Store**.
- Engineered backend with **Django** and integrated machine learning models, based on merging of **GFS** data with Station-level historic data for **Daily** and **Hourly Rainfall prediciton** for Mumbai
- Leveraged **Tweepy** from **Twitter**, performing sentiment analysis and geolocation extraction using **geopy** and mapped railway stations to nearest monitoring stations using **spatial algorithms**

GAN-Powered Anime Face Generator with PyTorch | *Self Project* [Nov - Dec 2023]

- Engineered a robust **Anime Face Generator** using **Generative Adversarial Networks (GANs)** in **PyTorch**, **optimizing** training efficiency with **GPU acceleration** on Google Colab

- Demonstrated proficiency in **deep learning**, model architecture design, and **GPU utilization**
- Utilized **PyTorch** and **Matplotlib** to visually the evolution of anime face generation across epochs, integrating technical expertise and creative media production into a compelling **video**

Learners' Space | *Career Cell, Undergraduate Academic Council* [June 2024]
- Developed a **Full stack application** with a **PHP** backend and HTML, CSS, JavaScript for frontend
- Implemented **OTP-based authentication** for secure user access and registration.
- Hosted the website on **Hostinger**, achieving **7600+** registrations by **2000+** students and facilitating a **30%** year-on-year growth in participation, demonstrating the website's effectiveness and appeal.

WiDS | *Analytics Club, UGAC* [December 2023]
- Designed and implemented an interactive,dynamic and user-friendly website for the **Analytics Club's WiDS** (Winter in Data Science) using **HTML**, **CSS**, **JavaScript**, and **PHP**
- Successfully implemented a streamlined data pipeline by **developing Python scripts** to **directly import project details from a CSV file into a MySQL database** for the WiDS website
- This **optimized** data management by eliminating the need for separate web pages for each project, enhancing **performance**, reducing manual effort and redundancy

Other Projects

Auction Portal | *Self Project* | [June 2023]
- Developed a **dynamic** and **user-friendly** auction portal using **Django**, enabling users to easily list items for auction, place bids, and manage their auctions, enhancing the overall user experience.
- Implemented robust **authentication** and **authorization** mechanisms, ensuring secure access to user accounts and auction-related actions while maintaining **data integrity** and **privacy**.

MoviesFlix | *Self Project* | [April 2024]
- Created a dynamic movie search application using ReactJS, leveraging public Movie Database API to fetch and deployed the application on Netlify, ensuring seamless user experience and accessibility.
- Enhanced user interaction by incorporating pagination/infinite scrolling, genre filtering, sorting options, and features such as movie search, detailed movie information display and responsive layouts.

WhatsApp Chat Analyzer | *Self Project* | [October 2023]
- Built a **Streamlit** application, enabling users to upload and analyze their **WhatsApp** chat data.
- Designed **monthly** and **daily timelines**, activity maps, and bar charts to showcase message patterns, busy days and months, enhancing the user's understanding of communication within the selected user's chat. Used **Matplotlib** and **Seaborn** to create dynamic and visually compelling **charts**.

PriceTracker | *Self Project* | [Jul 2023]
- Created a robust and automated PriceTracker application using **Python**, leveraging libraries like **requests, bs4, and smtplib** to monitor product prices from various online sources.
- Implemented **web scraping** techniques to extract real-time price data from e-commerce websites, enabling users to make informed purchasing decisions and potentially save money by capitalizing on price drops, showcasing proficiency in **data extraction** and **manipulation**.

Positions of Responsibility

Web Head | **Undergraduate Academic Council, IIT Bombay** [June 2024 - Present]
- **Spearheading** a 6-member web team which handles and actively maintains **4+** websites, **10+** portals, a wiki, and a blog, resulting in a significant increase in user engagement with **25,000+** hits
- Deployed Python-based applications on **Linux** servers using **Nginx** and **Apache**, leveraging a **reverse proxy** infrastructure to ensure optimal performance in a production environment

Web Convener | **Undergraduate Academic Council, IIT Bombay** [May 2023 - July 2024]
- Part of a **4-member team** responsible for developing and maintaining the UGAC's web space.
- Selected among 4 out of 60+ applicants by successfully completing all the given assignments and excelling in the interview that was conducted by a team of two members of the Academic Council.

Extracurricular Activities

- Got selected and underwent training in **Cricket** in the **Inter IIT Preparatory Camp** 2023.
- **Runner Up** in **Volleyball GC** and represented H9 in **Weightlifting GC** (under **77kg** category).
- Captained and secured **1st** position among the four houses in the inter-house **Basketball** competition.
- Secured **1st** position among the four houses in the Inter-House **Volleyball** Competition.