Sahil Gulati

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SUMMARY

Computer Engineering student with experience building full-stack applications, AI systems, and scalable backend infrastructure. Strong foundation in algorithms, data structures, and system design using Python, C, and modern web frameworks. Focused on writing clean, performant code across autonomous software, production pipelines, and end-to-end product development.

EDUCATION

University of Massachusetts Amherst   **Sep 2023 - May 2027**

Bachelor of Science, Computer Engineering | Minor in Economics
- **GPA:** 3.943
- **Achievements:** Chancellor's Award, Dean's List
- **Coursework:** Object-Oriented Programming, Data Structures, Discrete Mathematics, Security Engineering, Systems Programming, Probability and Statistics, Introduction to Computation

EXPERIENCE

Cantos Inc   **Dec 2025 - Jan 2026**

Software Engineering Intern   *Manhattan, NY*
- Engineered a TypeScript POI filtering system for NavVis IVION that streamlined management of 500+ construction site markers through an intuitive sidebar interface
- Added real-time filters and CSV import workflows that eliminated manual developer intervention, cutting POI search time for field engineers
- Presented applied R&D work at the ACE Winter 2026 Conference, showcasing construction technology integration with the NavVis platform, which generated interest from industry partners and led to pilot project adoption.

UMass Amherst Wireless and Sensor Systems Laboratory   **Oct 2025 - Present**

Research Assistant - Autonomous UAV Systems   *Amherst*
- Developed a ROS2-PX4 offboard control pipeline for autonomous UAVs, implementing position and velocity controllers that enabled reliable command streaming and improved flight stability.
- Built modular ROS2 libraries in Python for mission logic, state monitoring, and control management, improving system stability and reducing failure points during autonomous flight.
- Designed and tested autonomous behaviors in Gazebo, including takeoff and landing, waypoint execution, and safety-fallback routines using PX4 SITL, which enabled continuous integration and faster debugging of flight software.

TruBridge Healthcare   **Aug 2025 - Sep 2025**

Data Analytics Extern   *Remote*
- Analyzed large public healthcare datasets using Python for cleaning, EDA, and statistical modeling to drive data-driven decisions.
- Utilized LLMs and prompt engineering to extract actionable insights from complex healthcare data, enhancing data accuracy and improving the decision-making processes of healthcare teams.
- Built interactive dashboards to visualize infection trends and healthcare outcomes, giving cross-functional teams real-time visibility that accelerated response planning.
- Delivered clear, data-backed insights through visualizations and presentations, strengthening research communication.

Outamation   **Jun 2025 - Aug 2025**

AI-Powered Workflow Automation Extern   *Remote*
- Built OCR-based AI pipelines to process 200+ page mortgage documents, reducing manual data entry and improving accuracy.
- Developed a document retrieval system with LlamaIndex and RAG, which improved document search accuracy and accessibility for research.
- Improved processing speed by 15 seconds through workflow optimization and benchmarking of OCR and retrieval models.

PROJECTS

Stock Analysis and Portfolio Management System | GitHub Code
- Built a real-time stock analysis platform integrating data from Polygon.io, Yahoo Finance, and Reddit; successfully processed 50+ technical indicators using robust error handling
- Developed a sentiment analysis engine using DistilBERT and custom NLP models to process 1K+ social media posts daily, boosting stock prediction accuracy by 25% through market sentiment integration.
- Implemented a scalable portfolio management system tracking 1K+ stock tickers with real-time updates, cutting analysis time from hours to minutes via automated data aggregation and visualization.

WildFire Detection System | GitHub Code
- Deployed an AI-powered wildfire detection system using YOLOv8 and Flask for real-time fire detection, with automated emergency alerts via Twilio.
- Designed a pattern-based detection algorithm analyzing frame sequences, reducing false positives by 40% through confidence tuning.
- Developed a scalable OpenCV video pipeline supporting MP4, MOV, and AVI formats for efficient frame analysis and bounding box merging.
- Built a responsive web dashboard for real-time video processing, user confirmation, and emergency alert management.

TECHNICAL SKILLS

- **Programming Languages**: Python, C/C++, SQL, HTML/CSS, Java, TypeScript
- **Developer Tools**: Git, AWS, MATLAB, n8n, Jupyter, PostgreSQL, Linux Command Line
- **Libraries And Frameworks**: pandas, NumPy, Matplotlib, TensorFlow, scikit-learn, OpenCV, MediaPipe, Flask, Django, Docker
- **AI / ML Tools**: Transformers, Hugging Face, Gemini, LlamaIndex, RAG, Tesseract OCR, PyMuPDF, spaCy, OpenAI

CERTIFICATIONS

- AWS Certified Cloud Practitioner
- Machine Learning Specialization: Deeplearning.ai
- Building AI: University of Helsinki