

Sahil Gulati

413-275-3480 | sahilgulati241@gmail.com | [Linkedin.com/SahilGulati](https://www.linkedin.com/in/SahilGulati) | [Github.com/SahilGulati](https://github.com/SahilGulati)

SUMMARY

Computer Engineering student with hands-on expertise in scalable backend systems, AI-driven applications, efficient software solutions, and data analysis using Python and algorithmic problem-solving. Skilled in optimizing workflows with tools like RAG, TensorFlow, and statistical modeling for real-world projects. Eager to contribute to innovative tech projects in dynamic environments.

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

EXPERIENCE

UMass Amherst CICS Lab

Oct 2025 - Present

Research Assistant - Autonomous UAV Systems

Amherst

- Developed an autonomous drone control system using PX4 Autopilot and MAVLink for high-speed defense applications with sub-10 ms latency.
- Built Python-based control libraries for real-time MAVLink communication, NED position control, and velocity-driven maneuvering.
- Engineered autonomous flight features including takeoff/landing, waypoint navigation, evasive maneuvers, and live telemetry monitoring.

Outamation

Jun 2025 - Aug 2025

AI-Powered Workflow Automation Extern

remote

- Developed modular AI pipelines to process 200+ page mortgage documents using OCR (Tesseract, PaddleOCR), PDF parsing (PyMuPDF), and RAG for automated data extraction.
- Built a document retrieval system with LlamaIndex and RAG, optimizing chunk tuning, metadata filtering, and integrating open-source LLMs (Mistral, Phi-2) for scalable research.
- Improved processing speed by 15 seconds through workflow optimization and benchmarking of OCR and retrieval models.

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.
- Applied LLMs and prompt engineering to extract actionable insights from complex healthcare data.
- Built interactive dashboards to visualize infection trends and healthcare outcomes for cross-functional teams.
- Delivered clear, data-backed insights through visualizations and presentations, strengthening research communication.

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; processed 50+ technical indicators with 95% accuracy using advanced 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](#)

- Built an AI-powered wildfire detection system using YOLOv8, Flask for real-time fire identification, with automatic emergency alerts via Twilio API.
- Designed a pattern-based detection algorithm analyzing frame sequences and detection ratios, cutting false positives by 40% through confidence threshold tuning.
- Developed a scalable OpenCV video pipeline supporting MP4, MOV, and AVI formats, enabling efficient frame analysis and bounding box merging.
- Built a responsive web dashboard for real-time video processing, user confirmation, and emergency alert management, handling 100MB+ videos

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, SQL, HTML/CSS
- **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, Kubernetes
- **AI / ML Tools:** Transformers, Hugging Face, Gemini, LlamaIndex, RAG, Tesseract OCR, PyMuPDF, spaCy, openAI

Certification

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