

# Aayush Patel

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## EDUCATION

Georgia Institute of Technology, Atlanta, GA

May 2027

Bachelor of Science in Computer Science

GPA: 3.89

Relevant Coursework: Data Structures and Algorithms, Computer Organization and Programming, Objects and Design

Honors: Faculty Honors at Georgia Tech (Fall '24), Dean's List at Georgia Tech (Spring '25)

## TECHNICAL SKILLS

**Languages:** Java, Python, C, C++, JavaScript, HTML, SQL

**Frameworks/Tools:** Flask, WebSocket, Node.js, Express, Firebase (Auth + Firestore), PostgreSQL, scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, TensorFlow, PyTorch, deck.gl, D3.js, ShadCN + Tailwind (UI), React + Vite, Vertex AI

**ML and Data Science:** Logistic Regression, Decision Trees, Random Forest, ARIMA, LSTM, Regression Scoring, CNNs, YOLOv5, MiDaS (depth estimation), BLIP (image captioning), Multi-threaded processing, model compression (LoRA/QLoRA)

## EXPERIENCE

Mascot Forge Pvt Ltd, India — *Data Engineering Intern*

May 2025 – Aug 2025

- Built **PostgreSQL-backed analytics pipelines** to manage inventory data and analyze forging heating cycles for automobile parts manufacturing firm, **improving process efficiency by 15%** and reducing cycle time variability.
- Developed and deployed a dynamic company website with HTML, CSS, and JavaScript, integrating a **PostgreSQL-backed product catalog** that boosted accessibility and cut manual inquiries by 30%.

## RESEARCH

Automated Algorithm Design — *Undergraduate Research Assistant*

Aug 2025 – Present

- Researched automated algorithm generation** using tools like 'deap' by developing a framework to evolve hybrid algorithms from human-designed baselines, targeting performance beyond existing state-of-the-art methods.
- Applied genetic algorithms** for automated search and mutation of algorithm components, building benchmarking pipelines to evaluate runtime efficiency and convergence across test cases.

## PROJECTS AND CLUBS

TerraTrends, Big Data Big Impact @ Georgia Tech — *Project Lead*

April 2025 – Present

- Led a cross-functional team in developing an **AI-driven economic forecasting platform**, integrating multiple datasets with **time-series ML models (LSTM, ARIMA)** and logistic regression to predict county-level economic shifts.
- Designed and deployed an interactive **Google Maps-based visualization** dashboard, leveraging **Google Cloud APIs** and **deck.gl** for geospatial analysis to highlight high-growth regions, enabling actionable insights for small business expansion and property investment.

Flight Delay Prediction, Big Data Big Impact @ Georgia Tech — *ML Team Member*

Aug 2024 – April 2025

- Spearheaded development of a **6M+ row dataset** integrating flight and weather data APIs and built a **Random Forest multi-class classifier** and **binary classifier** achieving a benchmark **92% accuracy** in predicting flight delays.

Interview Platform — *Developer*

May 2025 – Present

- Engineered a scalable full-stack technical interview platform using **React (Vite + Tailwind)**, **Firestore database**, and **Firebase Auth (Google sign-in)** streamlining candidate-business workflows and improving assessment efficiency.
- Designed and integrated a robust coding environment leveraging **Judge0 API**, **React Monaco Editor**, and **RESTful endpoints** for real-time execution, multi-language support, and automated test evaluation.
- Built a secure proctoring infrastructure with **Node.js**, **WebSockets**, **Firestore**, and **CSV data pipelines**, implementing an **anti-cheat detection system**, browser event tracking, and session logging to drive real-time analytics dashboards.

EyeReplace — *Developer*

Sep 2024 – Oct 2024

- Pioneered a Google Chrome extension integrating an **eye-tracking algorithm** to dynamically replace on-screen words in real time with translations or simpler words, improving readability for non-native English and dyslexic users.
- Implemented a **Flask-based backend** with **Python**, **WebSocket-IO**, and **OpenAI API** for low-latency text processing, seamlessly integrated with a **JavaScript/HTML frontend** for cross-browser compatibility.