Farhan Ahmed

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EXPERIENCE

CCC Intelligent Solutions **May 2025 – August 2025**
Workflow Software Engineer Intern

- Engineered a scalable configuration management system using Vue.JS, TypeScript, and Pinia, significantly reducing client onboarding time by enabling real-time customization and deployment.
- Partnered with cross-functional design teams to deliver a dynamic, configurable UI. Enabled non-technical stakeholders to manage app behavior independently, driving operational efficiency and reducing engineering support tickets.
- Increased mobile application accessibility score by 48% through implementation of WAI-ARIA guidelines, semantic markups, and keyboard navigation allowing for better compliance with ADA requirements creating a more inclusive user experience.

EDUCATION

University of Illinois at Urbana-Champaign **December 2025**
Grainger College of Engineering *GPA: 3.5/4.0*
Bachelor of Science in Computer Science

TECHNOLOGIES

Programming Languages: Python | JavaScript | C/C++ | SQL | HTML5 | CSS3 | Java
Frameworks: React.js | Next.js | FastAPI | Flask | Node.js | Material UI (MUI)
Data Science: NumPy | Pandas | Matplotlib | NLTK | Gensim (NLP) | Scikit-learn
Databases & Tools: MongoDB | PostgreSQL | Firebase | Neo4j | Apache Kafka | Git/GitHub | Vercel | Render

PROJECTS

CODE NAMES SPYMASTER (Open-Source) | GitHub

Full-stack application that generates optimal semantic clues for the board game Codenames using NLP vector modeling
Python | React | FastAPI | NumPy | GloVe (NLP) | Git | Vercel | Render

- Architected a semantic search engine using Python and GloVe word embeddings (300-dimensional vectors) to calculate cosine similarity and identify high-value word associations.
- Developed a RESTful API with FastAPI to serve real-time query results, engineering custom filtering logic to enforce complex game rules and zero tolerance constraints.
- Built a responsive frontend using React and Vite, featuring a 5x5 grid with real-time state management.
- Optimized deployment pipeline by implementing binary model serialization to reduce server startup time by 80%, successfully deploying to Render and Vercel.

F1 RACE STRATEGY OPTIMIZATION ENGINE | GitHub

A regression-driven simulation engine that leverages telemetry data to predict lap times and optimizes pit-stop strategies.
Python | Scikit-Learn | FastAPI | Next.js | Pandas | Tailwind | Statistics

- Developed a multivariate regression model to isolate tire degradation variables from fuel-load effects, achieving a predictive accuracy within 0.8s per lap compared to real-world race pace.
- Built a REST API using FastAPI and Pydantic for real-time inference, connected to an interactive Next.js dashboard for visualizing degradation curves and strategy comparisons.
- Constructed robust training pipelines for 23 Grand Prix tracks by ingesting and sanitizing large-scale telemetry data, effectively handling outliers and safety-car anomalies.

PANTRY-TRACKER | GitHub

A Website-based project that allows users to keep track of items in their pantry using user input and image recognition.
React | Firebase | OpenAI API | MUI | JavaScript

- Architected a real–time data layer using Firebase to maintain synchronized inventory states across user sessions.
- Integrated OpenAI API to connect GPT-4oMini model to implement computer vision capabilities, automating data entry through image recognition.
- Deployed website on Vercel and built a user-friendly React interface with MUI that enables seamless list editing