

# Vatsal Shah

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## EDUCATION

### University of Michigan

Ann Arbor, MI

*B.S. Computer Science Honors*

*Dec 2027*

**Relevant Coursework:** Object-Oriented Programming, Control Flow, Discrete Mathematics, Statistics & Probability, App Development, Differential Equations, Vectors & Geometry

**Organizations:** LSA Honors, Michigan Data Science Team, Michigan Aeronautical Science Association

## EXPERIENCE

### TwinMind AI

May 2024 – present

*Founding Member | Product Lead*

*California, USA*

- Developed UI/UX for ThirdEar AI's website using Figma and React, implementing a privacy toggle, voice-to-text transcription, and multilingual queries with Groq API integration.
- Led backend integration of Retrieval-Augmented Generation (RAG) using Postgres, Vercel Worker Functions, and custom API endpoints to optimize querying across vector databases.
- Led the Chrome extension launch on Product Hunt, implementing a parser to integrate tab and document data with LLMs, achieving **#2 Product of the Day** and **1,000+** users within 48 hours.

### Geoomnii

June 2022 – July 2023

*Full Stack Engineer*

*Dubai, UAE*

- Developed and launched a feature-rich e-commerce app using Dart and Flutter for the front end, showcasing over **500 diverse products**, driving over **12k** sales within the first quarter and exceeding initial projections by **20%**.
- Engineered a backend inventory system using SQL databases and integrating with SAP Warehouse Management, enabling real-time inventory tracking and reducing inventory costs by **40%**.
- Implemented an efficient inventory management system using forecasting and data analytics to optimize stock levels, enhancing operational efficiency and resulting in a **30%** improvement in resource allocation.

## PROJECTS

### Systems Engineer | MASA - Rocketry Project Team

August 2024 – present

- Developing an image processing algorithm in Python using OpenCV and NumPy to analyze high-speed shadow imagery of propellant droplets, enabling precise characterization of injector performance and contributing to the optimization of our team's rocket propulsion system efficiency.

### Founder | Fitness Freak Platform

October 2020 – June 2024

- Developed a web app using React and API calls to create a workout repository with 100+ poses, utilizing HTML and JavaScript for website structuring, and collaborated with Prime Medical Center and Access Life Foundation in India to provide advice to 10,000+ followers. [Link to GitHub](#)

### Research Assistant | University of Cambridge, Computer Science Department

March 2023 – October 2023

- Led a project investigating biases in object detection using OpenCV for image masking and YOLOv8 segmentation, developing three datasets of **500+** images with varying modifications to create a versatile testing platform for algorithm robustness. [Published paper in NHSJS](#)

### Undergraduate Researcher | Wolfram Summer School

June 2023 – July 2023

- Youngest participant accepted among **50** undergraduates, PhD students, and professors. Researched under Dr. Daniel George (PhD, UIUC; ex-Google X, ex-JPMorgan AI Lead) to develop a predictive model.
- Used LLM embeddings and Wolfram Language to forecast future stock price movements based on news articles with significant statistical accuracy. My project was chosen for publication in the Wolfram Proceedings due to its unique contributions. [Link to publication](#)

## TECHNICAL SKILLS

**Languages:** Python, JavaScript, TypeScript C++, SQL, PHP, Wolfram Language, Ruby,

**Frameworks:** React, Node.js, Flask, Material-UI, RapidAPI, MongoDB, pandas, NumPy, Matplotlib, HTML, CSS

**Developer Tools:** Git, Docker, Google Colab, VS Code, PyTorch, Android Studio, LaTeX, MySQL