

# SATVIK PRASAD

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## EDUCATION

### Georgia Institute of Technology

Atlanta, GA

*B.S. in Computer Engineering, Minor in Mathematics*

Aug. 2025 – May 2028

- John Martinson Honors Program, GT Venture Capital Club, 'Terra Trends' Data Visualisation Team Lead, *Big Data Big Impacts@GT*

### Normanhurst Boys High School

Sydney, NSW, Aus

*Valedictorian, Highest Graduating Rank in Australia*

Feb. 2019 – Oct. 2024

## EXPERIENCE

### Synopsis Education

May 2025 – Present

*Director + CTO*

*Sydney, Aus (Remote)*

- Engineered front-to-back tech stack for student-portal, landing website, and CRM + CI/CD automations.
- Developed full-stack web application in Typescript, React, PostgreSQL + Supabase, Docker, Express.js & Redis with REST web services and AWS S3.
- Wrote custom model context protocol in Python + FastMCP for quick powerpoint ideation.

### Cognito Tuition

Feb 2025 - Aug 2025

*Maths Ext. 1 & 2 Tutor and Educational Operations*

*Sydney, Aus*

- Taught 4-6 person classes, specialised in divide-and-conquer mathematical problem solving, designed cutting-edge homework and exam resources in LaTeX.

### Virtusa Polaris

Aug 2022

*Software Engineering Intern*

*Sydney, Aus*

- Designed internal communications platform in Vue.js, GraphQL and PostgreSQL + Docker, applied SCRUM techniques.

## PROJECTS

### LizaLang | *Interpreted, Dynamically-Typed Language written in OCaml*

Nov 2025 - Current

- Designing a dynamically-typed, high-performance scripting language with recursive descent parsing and semantic validation in OCaml.

### I-IMO | *AI-Powered Conversational Agent — Winner @ Calhacks 12.0*

Sep 2025

- Trained a custom yolov8 model for consistent face detection and thumbnail generation with 93% face-repition accuracy.
- Used inference hosted on Groq for chunk-based text to speech streaming, synced with visual inference, vectorised transcriptions in ChromaDB for high-speed semantic searches & RAG.

### Promptly | *World's 1st Prompt-Based Agent with System-Wide Control — Ergo Challenge @ HackGT25*

Sep 2025

- Used Omni-Parser pre-trained weights and RICO dataset to train a lightweight, local YOLO11n object detection model with 110x faster inference times.
- Utilised OpenCV for 50ms zero-shot text detection + pyautogui for system-wide control, designed a feedback-driven LLM event loop for automatic task correction.
- Speech-to-text inference using PortAudio and gpt-4o-transcribe with ~2ms inference times, outperforms Gemini 2.5 Computer Use Model by 10.5x (based on inference times).

### Peggiator | *Web-based, High Performance & Extensible Music Visualiser*

Jan 2025 – May 2025

- Used a self-derived WASM implementation of the Fast-Fourier Transform & Web Workers to decompose input audio, 4x faster than V6 implementation.
- Captured system audio using a helper-binary written in Swift and ScreenCaptureKit, injected audio data into a Vite + React sidebar component for the DOM.
- Used Zig and WebGL for 3D rendering of manipulated audio waveforms, wrote custom affine transformations and GLSL shaders.

## AWARDS

- Winner, Calhacks 12.0 @ UC Berkeley (2000+ competitors) + Top 0.05% (T50) graduating rank in Australia (ATAR 99.95)
- State Rank, 10th in New South Wales for Mathematics Extension 2, High Distinction in Australian Physics & Chemistry Olympiads, Silver Medal in AIO
- Awarded Scientia Scholar and Best Mathematics Student in NSW by the University of New South Wales

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, SQL (Postgres), Typescript, HTML/CSS/LaTeX, R, Golang, Zig, Rust, WebAssembly, OCaml

**Frameworks:** React, Node.js, Express.js, Next.js, FastMCP

**Developer Tools:** JIRA, Gradle, Git, Docker, NeoVim, AWS

**Libraries:** pandas, NumPy, Matplotlib, Raylib, OpenGL, WebGL, torch, TensorFlow, transformers, Flask