Arjun Hariharan

cognitivetech52@gmail.com | portfolio | Based in the U.S.

Experience & Leadership

Chief Technology Officer **2025 – Present**

NoRegretsPrep

- Led architecture and full-stack development of a real-time multiplayer SAT preparation platform focused on gamified competitive learning.
- Built scalable web systems using Next.js, Supabase, WebSockets, and Stripe, including authentication, matchmaking, leaderboards, and session persistence.
- Owned deployment workflows, backend performance debugging, and data model optimization during rapid iteration and beta testing.

Software Engineering Intern **2025 – Present**

Jdable (Nonprofit)

- Developed cross-platform iOS and Android applications for custom assistive smart devices supporting users with disabilities.
- Implemented real-time device control, data visualization, and accessibility-focused UI components.
- Integrated on-device machine learning inference using CoreML (iOS) and TensorFlow Lite (Android) to optimize latency and resource usage.

Lead Programmer **2024 – Present**

VEX Robotics Team

- Sole programmer responsible for all robot firmware and control systems in C++, including drivetrain control, autonomous routines, and competition logic.
- Collaborated with mechanical design leads to align software behavior with hardware constraints and match strategy.
- Earned Judges Award and Design Award for software-driven system performance and integration.

Projects

Linkerra | Rust, Dart, Tauri, Next.js *2025 – Present*

- Designed and built a cross-platform desktop application for peer-to-peer file transfer, smart syncing, and local workflow automation.
- Implemented secure local networking, synchronization logic, and cross-platform build pipelines; application is publicly downloadable and maintained.

Echo | Next.js, React, TailwindCSS, Supabase *2025*

- Developed a full-stack realtime chat application with user authentication, private and group messaging, responsive UI, and presence indicators using Next.js, React, TailwindCSS, and Supabase.
- Designed secure database schema and server logic to support persistent message history, realtime updates, and role-aware UI state transitions.
- Implemented realtime messaging backend with Supabase Realtime subscriptions and frontend state management optimized for performance and responsiveness.

Tetris AI | Python *2024*

- Developed a genetic algorithm–based AI using heuristic evaluation functions such as aggregate height, bumpiness, and holes.
- Iteratively tuned fitness functions and mutation strategies to achieve near-unbounded gameplay performance.

Education

William P. Clements High School **Expected Graduation: 2027**

Relevant Coursework & Programs

- Harvard CS50x, CS50P, CS50 AI (edX)
- Princeton PACT Program; NeuroVista Research Program; Catalyst Fellowship
- Russian School of Mathematics — Completed curriculum through Calculus

Achievements

USACO Silver Division

1st Place — DAIS Code Canvas Hackathon (International)

3rd Place — HackVortex Hackathon

Best of Water — Kurius Hacks

Judges Award and Design Award — VEX Robotics

10+ Top-5 finishes — Science Olympiad

Technical Skills

Languages: Python, TypeScript, HTML/CSS, Dart, Swift, C++, SQL, Rust

Frameworks: Next.js, React, TailwindCSS, Flutter, FastAPI, Flask, Docker, Tauri

Tools: Git, GitHub, Xcode, Supabase, Firebase, Figma

Hardware: VEX, Arduino, Raspberry Pi