

# Atharv Singh

Full-Stack Developer — System Design Enthusiast

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## Projects

### Fastlane 📄 | Go (Cobra, Concurrency, Socket Programming)

- Constructed a modular, high-utility CLI for **network benchmarking** with commands like **ping**, **download**, **upload**, and **report**, tested across **20+** **networks**.
- Implemented concurrent TCP speed tests and layered latency analysis (DNS, TCP, TLS), achieving **median ping accuracy ±6ms** and throughput up to **100 Mbps**.
- Delivered a branded, minimal **Unicode CLI UI** with spinners, live ASCII graphs, and JSON exports, improving **usability by 50%** in user testing.

### AirWise | Ongoing 📄 | React, TailwindCSS, MongoDB, Node.js, Express, Redis

- Spearheaded a full-stack **AQI Trip Planner**, enabling users to find low-AQI destinations with **real-time air quality** data and travel recommendations.
- Implemented **geospatial queries** and real-time AQI integration using WAQI API, MongoDB's **2dsphere** index, and distance calculation algorithms to provide accurate location-based suggestions.
- Leveraged **TanStack (React Query)** for efficient **server state management** and engineered scalable backend services following **MVM architecture** for seamless user experiences.

### EveSpark 📄 | React.js, Bootstrap, Node.js, Express, MySQL, CORS

- Engineered **secure user and admin authentication**, significantly **reducing event registration queue time** and crafted responsive profile pages to enhance user experience.
- Architected robust backend services with Node.js and Express**, efficiently managing event data and user profiles with MySQL for reliable storage and **quick retrieval**.
- Utilized CORS to enable secure cross-origin requests**, ensuring seamless interaction between frontend and backend components, thus maintaining secure and efficient communication.

### TuneIT 📄 | Yt-dlp, FFmpeg, Google Drive API, Node.js

- Developed a **Node.js** CLI tool using **yt-dlp** and **ffmpeg** to download and convert YouTube/Google Drive media, tested with **40 videos (12 GB total)** across MP3 and MP4 formats.
- Implemented persistent queue management with 2 concurrent downloads and 3× retry logic**, successfully reducing batch completion time and ensuring reliable media processing.
- Integrated **Google Drive API** for automated post-download uploads; verified stability with **5+ GB** of media transferred in internal testing without failures.

## Skills

**Languages/Tools:** C/C++, Golang, JavaScript, Git, AWS (EC2, RDS, LAMBDA, S3), Docker, MongoDB/MySQL, Linux/Unix

**Frameworks:** React, Node.js, Express, Tailwind CSS

**Interests:** System Design, Performance Optimization, Distributed Systems, **SOLID** Principles

**Coursework:** OOP, DBMS, OS, Networking, SDLC

**Competitive Programming** Codeforces Round 934 (Div. 2) achieved AIR of **2338** and AIR **1627** in LeetCode Biweekly Contest 150 .

**Soft Skills:** Leadership, Adaptability, Writing, Problem-Solving, Time Management

## Certifications & Impact

### Google — The Bits and Bytes of Computer Networking 📄

Covered TCP/IP, DNS, HTTP, network security, and troubleshooting.

Grade 98%

### IIT KGP — NPTEL - Cloud Computing 📄

Studied cloud architecture, security, and distributed systems.

Elite Silver

### AWS — AWS Academy - Solutions Architect 📄

Studied cloud architecture, security, and distributed systems.

Grade 94%

## Education

Vellore Institute of Technology

2022 - 2026

Bachelor of Technology - Computer Science

India

Current CGPA: **8.44**