

PRAKHAR MODI

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EDUCATION

Virginia Tech, Blacksburg, VA

B.S. in Computer Science

GPA: 3.83, May 2026

Accelerated M.Eng in Computer Science Application

May 2027

- Dean's List (all semesters)
- Coursework: Computer Organization, Data Structures and Algorithms, Computer Systems

PROFESSIONAL EXPERIENCE

Undergraduate Research Assistant

Aug 2025 – Jan 2026

Virginia Tech – OpenDSA / Cliff Shaffer

- Implementing Parsons Problems inside **OpenDSA** using JavaScript, JSON specifications, and structured UI/interaction logic.
- Extending the **CodeWorkouts** grading engine to support **execution-based grading for Parsons**, enabling automated correctness and semantic validation of student code.
- Writing detailed specifications, test cases, and documentation; contributing PRs and reviews in Git/GitHub.

Assistant Project Manager (Software Intern)

Jul 2025 – Sep 2025

ABE Scott Enterprises (MyRideLink) – Remote

- Built backend services in **Express (Node.js)** + **PostgreSQL** to aggregate multi-modal route data using **OpenTripPlanner2** and compare Uber/Lyft fares.
- Developed REST APIs for integration with a React Native mobile app, improving routing accuracy and real-time pricing features.
- Conducted package/tooling research, redesigned backend architecture for performance and reliability, and aligned engineering decisions across cross-functional teams.

Tutor

Aug 2025 – Present

Student Success Center @ Virginia Tech

- Tutor students 1:1 and in small groups in **Calculus, Precalculus, Physics, Data Structures, and CS fundamentals**.
- Support conceptual understanding, problem-solving techniques, and exam preparation across math and CS domains.

PROJECTS & OUTSIDE EXPERIENCE

Jobby — Open-Source, Self-Hosted AI Job Board

Feb 2026

- Built an **open-source, self-hosted AI job board** that automatically fetches, deduplicates, scores, and ranks job listings against a user profile, eliminating manual job search.
- Designed a **full-stack system** using **Next.js 15 (React 19)**, **Express + TypeScript**, **PostgreSQL**, and **Prisma**, with **Docker Compose** enabling one-command local deployment.
- Engineered **automated ingestion pipelines** with cron-based scheduling and a **multi-stage deduplication cascade** (source ID, canonical URL, SHA-256 fingerprinting) to ensure high data quality.
- Integrated **AI-powered personalization**, including LLM-driven cover letter generation and profile building, supporting **VT ARC**, **Google Gemini**, and **OpenRouter** with configurable scoring and search weights.

Event Management System

Jun 2024 – Aug 2024

- Developed a full-stack ticketing and event platform using **Spring Boot**, **PostgreSQL**, and **JavaScript**, supporting event creation, ticket sales, attendance tracking, and secure check-in workflows.
- Integrated **Stripe Checkout** with signed webhook validation to automate payment confirmation, ticket issuance, and metadata processing without manual intervention.
- Built a **PDF ticket generation** pipeline with encrypted QR codes, stored in **Supabase**, enabling secure check-in and tamper-resistant ticket validation.
- Implemented an automated **email delivery system** using **Zoho SMTP**, generating dynamic templates and sending purchase confirmations with attached PDF tickets in real time.

AirBeats

Jan 2026

- Built a browser-based, controller-free music platform using **MediaPipe hand tracking** that helps kids practice **hand-eye coordination** and **color/sound association**.
- Implemented a **MIDI-driven Piano Tiles** engine using **@tonejs/midi** with real-time tile scheduling and **finger-count (1-4) to column mapping**, plus adjustable speed and auto-hit support.
- Developed multi-instrument modes (drums, tabla, piano grid, custom pads) with gesture recognition, collision detection, and **Canvas 2D overlays** for real-time visual feedback.
- Engineered low-latency audio via **Web Audio API** (samples) and **Tone.js** (synth), including note-length-aware playback and reusable React hooks for tracking/audio loops.

SKILLS

Python, TypeScript, Java, JavaScript, Node.js, Express, Spring Boot, PostgreSQL, SQL, Git, REST APIs, HTML/CSS, Bash