

Kaustav Kalra

Tempe, Arizona, USA | (602) 723-8016 | kaustav.kalra123@gmail.com | [LinkedIn](#) | [GitHub](#) | [Portfolio](#)

SUMMARY

New-grad **Computer Science graduate with a Software Engineering concentration** and experience building full-stack platforms, **AI developer tools**, and **iOS computer-vision applications**. Strong in **TypeScript, React, Node.js, Express, PostgreSQL, Prisma, Swift, and Python**, with project work across **REST APIs, RBAC, Redis caching, analytics dashboards, on-device ML, and automated validation pipelines**.

EDUCATION

Ira A. Fulton Schools of Engineering, Arizona State University, Tempe, AZ

Aug 2022 - May 2026

Bachelor of Science in Computer Science, Concentration in Software Engineering (GPA: 3.26)

- **Achievements:** New American University Scholarship (\$14,500/year), Dean's List Fall '22, Dean's List Fall '25
- **Coursework:** Data Structures and Algorithms, Operating Systems, Distributed Software Development, Software Integration, Software QA and Testing, Human-Computer Interaction, Mobile App Development, Foundations of Machine Learning, Assembly Language (MIPS/x86)

SKILLS

- **Languages:** TypeScript, JavaScript, C++, Python, Java, Swift, SQL, C#
- **Frontend:** React, Next.js, Vite, Tailwind CSS, SwiftUI, HTML5, CSS3, Recharts
- **Backend:** Node.js, Express, REST APIs, Prisma, ASP.NET, WCF/ASMX, SOAP, XML/XSD
- **Databases & Cloud:** PostgreSQL, MySQL, Redis, Supabase, Azure Blob Storage, Vercel, Vercel Blob
- **AI/ML:** MediaPipe, QuickPose, Keras, scikit-learn, Pandas, NumPy, Computer Vision, LLM APIs
- **Tools, Testing & Workflow:** Git, GitHub, VS Code, Vitest, Zod, JUnit, Clerk, Auth0, Agile/Scrum, SDLC

PROJECTS

PatientConnect360: Full-Stack Home-Healthcare Coordination Platform | [GitHub](#)

Sep 2025 - May 2026

Industry-Sponsored Capstone with Evolve HealthTech Solutions, LLC

- Built a **HIPAA-aligned** healthcare coordination platform using **React, Vite, Node.js, Express, Prisma, and PostgreSQL** for patients, caregivers, clinicians, and admins.
- Implemented **RBAC, OTP verification, authenticated sessions, caregiver/MPOA linking, privacy controls, and audit visibility across 4 healthcare user roles**.
- Developed scheduling, messaging, medication tracking, vitals, notifications, family feedback, and visit lifecycle workflows for home-health care coordination.
- Shipped **admin analytics dashboards** with React, Axios, Recharts, Express, and PostgreSQL audit data, including **KPI tracking, DAU monitoring, searchable logs, filters, and pagination**.
- Optimized large-dataset query time and network transfer by **95%** through pagination and backend query improvements.

HydraScan: On-Device ML Recovery Intelligence iOS App | [GitHub](#)

Apr 2026

Privacy-first biomechanical scan and recovery workflow for Hydrawav3

- Built a **privacy-first iOS recovery app** in Swift using **QuickPose, MediaPipe, and SIMD3** vector math to compute **50+ biomechanical metrics from 33-point pose data @ 120Hz**.
- Developed deterministic scoring for squat, hip hinge, posture, balance, ROM, and asymmetry using **NaN-safe joint-angle calculations and fallback logic for incomplete pose data**.
- Architected a **12K+ line SwiftUI/MVVM** client with **59 files**, a 7-step guided scan workflow, offline-first SwiftData persistence, and HealthKit sync.
- Designed a reusable **700+ line SwiftUI design system** powering **20+ views** aligned with Hydrawav3's premium visual identity.

BeliefGuard: Drift-Reducing AI Coder IDE Extension | [GitHub](#)

Apr 2026

Deterministic belief graph and confidence gate for safe AI-generated code changes

- Built a TypeScript VS Code extension that reduces unsafe **AI code edits** by extracting agent assumptions into a typed **Repo Belief Graph** before workspace mutation.
- Implemented a **Confidence-to-Action Gate** that routes AI-generated changes to **PROCEED, INSPECT_MORE, ASK_USER, or BLOCK** based on confidence, contradiction risk, and validation state.
- Integrated **LLM plan extraction, workspace scanning, evidence grounding, Zod validation, structured patch generation, and per-file diff review** into an **11-step governance pipeline**.
- Validated gate behavior with **Vitest, property-based tests**, and benchmark scenarios across real repositories, keeping benchmark claims scoped to policy validation.

RallyPoint: Swipeable Civics | [Live Demo](#)

Mar 2026 - Apr 2026

Gen-Z civic discovery and action platform

- Co-developed a **deployed civic engagement platform** that helps users discover, understand, and act on local policy issues through **personalized feeds** and swipe-based interactions.
- Built feed, saved, profile, discussion, and issue-tracking workflows backed by low-latency APIs and **Redis-backed state consistency**.
- Implemented a personalized **ranking engine** using user interests, district matching, geographic proximity, and **7-day engagement velocity** to improve feed relevance.
- Integrated **Clerk authentication, Prisma data models, PostgreSQL persistence, Redis caching, and Claude-powered summarization** for dense civic issue content.

RESEARCH & PUBLICATIONS

Play Music to Tune Up Your Mood | [Published Paper](#)

Aug 2021 - Nov 2021

iJournals: International Journal of Software & Hardware Research in Engineering, Vol. 9, Issue 11, 2021

- Developed a **Keras neural network** using **Spotify API** data to classify songs by emotional tone, achieving **76% accuracy** with **K-Fold Cross Validation**. Published findings on acousticness, valence, tempo, and emotion classification in iJournals on 11th November, 2021

PROFESSIONAL EXPERIENCE

iDTech Camps | *On-Campus Instructor*

Jun 2025 - Jul 2025

- Conducted **5 STEM courses** on subjects including 3D Printing & Character Modeling, Video Production, and **Java Programming**, which improved students' technical skills and creativity through practical projects
- Instructed students on **end-to-end 3D-printing workflows** with Blender and advanced printers, troubleshooting print issues and optimizing models, enabling students to complete their print projects successfully
- Facilitated video production and editing using DSLR cameras and Adobe software, teaching cinematic storytelling, audio-visual editing and ethical AI usage
- Led technical and logistical classroom activities and coached students in **object-oriented Java programming** to build games, simulations, and interactive applications, guiding **iterative development** and helping students deliver **functional projects**
- Created **personalized performance evaluations** and end-of-course diplomas for each student, summarizing technical progress and providing constructive feedback.
- Received **six commendations from campus leadership** for enhancing inclusion, resolving technical issues, writing effectively, maintaining discipline, applying background knowledge, and boosting team morale

Indian Raga | *Social Media Marketing Intern*

Jul 2021 - Aug 2021

- Analyzed weekly reports in **Google Analytics and AdSense** to demonstrate the success of social media efforts in increasing traffic with the marketing team and handled promotion over social media via Instagram and Facebook stories with **100k+ followers** over a month-long internship
- Oversaw the YouTube channel with **500k+ subscribers**, ensuring videos were optimized for search engines with detailed descriptions and accurate keywords, which enhanced understanding of social media algorithms and content marketing strategies, **boosting website traffic by 16%**
- Developed **day-to-day postings**, community management for client profiles, and audience engagement, **boosting social media traffic by 23%**

On My Own Technology Pvt Ltd | *Researcher*

Aug 2021 - Nov 2021

- Collaborated with OMOTEC, a research lab that promotes STEAM (Science, Technology, Engineering, Arts, Mathematics) for students of all ages.
- Researched the connection between frequencies, pitch, genres, and human emotions, enhancing understanding of music's emotional impact, which contributed to the development of more emotionally resonant music experiences
- Analyzed music recommender systems and developed a machine-learning model using the **Keras** Library and **Spotify Web API** toolkit to assess moods and emotions in playlists, leading to more accurate music recommendations. Compiled results and developed a **Confusion Matrix** and **76% accuracy** score using the **Seaborn and Sklearn** libraries

VOLUNTEER WORK

Home for the Aged & Sneha Sadan Orphanage | *Contributor*

Mar 2017 - Jul 2022

- Coordinated recurring donations and supply drives for elder-care and orphanage organizations in Mumbai, including hygiene essentials, food, clothing, books, toys, and animal care support.