

Blair Qiao

(737)-420-7270 | yanzhe.qiao.1@gmail.com | blairqiao.com | linkedin.com/in/yanzhe-qiao | github.com/Blairqiao

EDUCATION

The University of Texas at Austin

Austin, TX

Bachelor of Science in Computer Science (Honors Coursework)

Aug. 2026 – May 2030

- **Relevant Coursework:** Data Structures & Algorithms Honors, Discrete Math Honors, Probability & Statistics; Computer Architecture Honors, Linear Algebra (Spring 2027)
- **Competitive Programming:** LeetCode Knight (Peak Rating: 2011, Top 2.5%), USACO Silver Division

Westwood High School

Austin, TX

High School Diploma (Rank: 8/653, GPA: 5.94/6.00 Weighted, SAT: 1540)

Aug. 2022 – May 2026

- **Honors & Awards:** National Merit Commended Scholar, AP Scholar with Distinction

TECHNICAL SKILLS

Languages: Python, Java, TypeScript, JavaScript, HTML/CSS, PostgreSQL

Frameworks & Libraries: OpenCV, MediaPipe, Scikit-learn, YOLO26, CoreML, UMAP, Sentence-Transformers, PySide6, PyQt6, Three.js, FastAPI, React, Node.js, Next.js

Developer Tools & Platforms: Git, Vercel, Firebase, Cloudflare, Neon, Vite, Tailwind CSS, Roboflow, Linux CLI, VS Code, Cursor/Antigravity

PROJECTS

Spotify Listening Index | *Next.js, PostgreSQL (Neon), TypeScript, Tailwind CSS, Spotify API* Sep 2026 – Present

- Architected an automated ETL pipeline ingesting live Spotify streams via cron triggers, enforcing zero duplication through 30s temporal debouncing and batch ID pre-filtering.
- Engineered a two-stage enrichment pipeline for historical imports, using an album propagation algorithm to cut Spotify API calls by up to 85% and stay within strict daily rate limits.
- Designed analytical SQL queries to compute track ranking trends across rolling time windows, paired with an in-memory cache to eliminate duplicate queries and serve dashboard metrics in < 100ms.

Hand Gesture Assistant | *MediaPipe, OpenCV, Scikit-learn, PySide6, Python, AppleScript* Aug. 2026 – Present

- Developed a real-time, cross-platform background utility on macOS and Windows translating webcam hand gestures into system volume and media playback controls.
- Extracted 21 3D hand landmarks via MediaPipe Tasks API, normalizing coordinates for translation and scale invariance, and trained a Scikit-learn Random Forest to classify gestures.
- Engineered a customizable temporal deque buffer to eliminate gesture jitter (< 0.15 false positives/min), routing background media events natively through macOS AppleScript/Quartz and Windows keyboard APIs.

Trace – 3D Google History Visualizer | *FastAPI, Three.js, Sentence-Transformers, UMAP, Python, Vite* June 2026 – Aug. 2026

- Engineered a full-stack exploration tool converting Google Takeout Chrome history into an interactive 3D semantic galaxy visualizer supporting 50,000+ nodes, deployed via a self-hosted FastAPI service behind Cloudflare tunnels.
- Generated dense text embeddings via Sentence-Transformers and applied UMAP dimensionality reduction to project high-dimensional semantic vectors to 3D coordinate space with a > 90% trustworthiness score.
- Developed a responsive Three.js rendering engine featuring custom orbital camera controls, node raycasting, bloom shaders, and dynamic cluster parameter tuning.

Mahjong Vision Assistant | *PyQt6, YOLO26, Apple CoreML, Apple Quartz, Roboflow, Python* May 2026

- Built a real-time computer vision dashboard tracking live Riichi Mahjong gameplay to calculate *Shanten* and *Ukeire* (tile efficiency).
- Trained and iteratively optimized a YOLO26 object detection model on a custom dataset annotated through Roboflow, increasing mAP50-95 from 0.767 to 0.841 by scaling input resolution and augmenting training data.

Mechanical Keyboard Community Hub (aeykbds.com) | *React, Firebase, EmailJS, Tailwind CSS* July 2025 – Dec. 2025

- Built and shipped a React/Firebase community hub for mechanical keyboard builds, reaching 350k+ impressions across platforms.
- Designed custom audio players and interactive comparison tables for switch sound profiles, with EmailJS-driven build requests.