

Brandon Cui

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EDUCATION

University of Southern California

Bachelor of Science in Computer Engineering and Computer Science

Los Angeles, CA

Expected May 2028

- **GPA:** 3.8/4.0
- **Relevant Coursework:** Data Structures and Algorithms, Object-Oriented Design, Discrete Math, Full-Stack Web Development, Embedded Systems, Distributed Systems, Internet of Things, Linear Algebra, Probability Theory

EXPERIENCE

Incoming Software Engineer Intern

Journal Technologies

June 2026

Los Angeles, CA

Undergraduate Research Assistant

University of Southern California, Viterbi School of Engineering

December 2025 – May 2026

Los Angeles, CA

- Designed 200+ visual reasoning questions across sequence completion, figure rotation, odd one out, 3D visualization, matrix prediction to benchmark VLM reasoning, contributing to dataset for upcoming publication.
- Evaluating GPT-4V, Gemini, and Claude on abstract and natural reasoning tasks, identifying weaknesses in spatial and sequential logic for fine-tuning.

Scouting Lead & Design/Build Member

Peninsula Robotics — FRC Team 6036

August 2021 – August 2023

Palo Alto, CA

- Led 5-person scouting team at regional and world championships, collecting and analyzing data on 80+ opponent teams to inform match strategy, contributing to multiple competition wins and team's peak rank of 8/3,300 teams.
- Assisted in developing Android app and Google Spreadsheet system that replaced manual note-taking, enabling faster and accurate opponent analysis during matches and strategy meetings.

PROJECTS

Volt — EV Trip Planner | *TypeScript, React, Node, AWS Lambda, DynamoDB, CDK*

May 2026 – present

- Engineered a state-augmented A* over a 2,711-node Supercharger graph minimizing trip time under battery, stop-count, and food constraints, with charging cost folded into edge weights for a finite state space.
- Cut cross-country plan time from 96s to 835ms (>100x speedup) via an ellipse-corridor prefilter, state-augmented A* keyed on (charger, stops-used), and a custom binary min-heap with an admissible haversine-time heuristic.
- Shipped authenticated persistence end-to-end: Clerk JWT-verified Lambda routes backing saved-trip and favorite CRUD on a single-table DynamoDB schema, deployed via AWS CDK and a React 19 SPA on Vercel.
- Cut Google Places API calls on brand-filtered Lambda requests from around 200 to 0 via a 3-tier cache: in-memory LRU, DynamoDB with 90-day TTL and request coalescing, then Places API fallback.

CS2 Skin Pricer | *Python, LightGBM, pandas, SQLite, Streamlit, Raspberry Pi*

June 2026 – present

- Trained LightGBM quantile-regression models (q10/q50/q90) on 2,714 live CSFloat knife listings to predict a fair-value price range per item and flag underpriced listings, with a time-based train/test split to prevent leakage.
- Built a self-labeling pipeline on a Raspberry Pi (cron every 3h/12h) that infers sales when listings disappear, tracking 2,800+ listings and 5,500+ price points in SQLite to grow a sold-price training set at \$0 cost.
- Wrote a rate-limit-aware API client with header-based throttling, exponential backoff, and cursor pagination — zero 429 lockouts — plus a Streamlit app that scores live listings against the model's predicted range.
- Engineered 13 domain features capturing non-linear pricing rules — Doppler phase decoded from paint seed, distance to exterior float cutoffs, within-skin float percentile — with phase ranking as the top feature by gain.

TECHNICAL SKILLS

Languages: C/C++, Python, Java, JavaScript, TypeScript, HTML/CSS, SQL

Technologies: React.js, Node.js, Express, Next.js, Flask, PyTorch, NumPy, Pandas, Linux, Docker, Kubernetes

Developer Tools: Git, Vercel, PostgreSQL, Amazon Web Services