

Brandon Cui

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EDUCATION

University of Southern California

Los Angeles, CA

Bachelor of Science in Computer Engineering and Computer Science

Expected May 2028

- **GPA:** 3.8/4.0
- **Relevant Coursework:** Machine Learning, Data Structures and Algorithms, Software Development, Object Oriented Design, Discrete Math, Embedded Systems, Distributed Systems, Linear Algebra, Probability Theory

EXPERIENCE

Software Engineer Intern

June 2026 – present

Journal Technologies

Los Angeles, CA

- Shipped a full-stack template authoring feature in React, Office.js, Java, and Spring for a Microsoft Word add-in used by 500+ courts across 42 states and 3 countries, cutting template setup time by 40%.
- Built 5 new REST API endpoints in Java and Spring that create template data sources on demand, replacing a manual multi-screen admin workflow, with idempotent writes and a fallback for fault tolerance.
- Extended a Java document generation engine with a formatting library mirrored in JavaScript for live in-editor previews, cutting a multi-minute regenerate cycle to sub-second previews; validated with 423 JUnit and Jest tests.

Undergraduate Research Assistant

December 2025 – May 2026

University of Southern California, Viterbi School of Engineering

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.
- Evaluated models on visual reasoning tasks, identifying weaknesses in spatial and sequential logic for fine-tuning.

Scouting Lead & Design/Build Member

August 2021 – August 2023

Peninsula Robotics — FRC Team 6036

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 data collection system that replaced manual note-taking, enabling faster and more 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* search over 2.7k+ US Tesla Superchargers, optimizing trip times under vehicle range and amenity constraints by tracking multi-dimensional graph states including battery and total stop counts.
- Reduced cross-country route planning latency by 115x (96s to 835ms) utilizing an ellipse-corridor pre-filter to aggressively prune off-route nodes, a custom binary min-heap, and an admissible Haversine-based time heuristic.
- Built full-stack authentication and persistence via React 19, Clerk JWTs, AWS Lambda, and DynamoDB.
- Cut redundant Google Places API calls by 90% on brand-filtered requests via a 3-tier cache layer using an in-memory LRU cache, DynamoDB with 90-day TTL, and concurrent request coalescing.

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

June 2026 – present

- Trained LightGBM quantile-regression models (q10/q50/q90) on 2.7M+ live CS2 skin history logs to predict daily price distributions per item, utilizing a time-based train/test split to prevent lookahead leakage.
- Built a self-labeling pipeline on a Raspberry Pi (cron every 3h/12h) that tracks item sales when listings disappear, capturing 2.8k+ listings and 5.5k+ price points in SQLite to grow a local training dataset by 80%.
- Wrote a rate-limited API client with token-bucket throttling and cursor pagination, eliminating 429 lockouts.
- Engineered 13 domain features capturing non-linear pricing rules—including Doppler phase decoded from paint seed and float cutoffs—ranking items by phase to surface the top market anomalies.

TECHNICAL SKILLS

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

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

Tools & Platforms: Git, Vercel, PostgreSQL, Amazon Web Services