Joshua Yeung

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Education

Cornell University — Ithaca, NY
B.S. in Computer Science and Statistics — *Aug 2023 – May 2027*

Experience

Software Engineer Intern – Hardware Test Automation — Jul 2024 – Present
ChargePoint — *Campbell, CA*

- Designed and shipped an end-to-end Python test-automation framework for Outgoing Quality Control of DC fast chargers (SSH/UART/RS232) that cut OQC cycle time by **97%**, gating shipment on pass/fail and catching pre-ship faults (charging-path, firmware, eSIM) manual testing missed; deployed and trained operators on-site with contract manufacturers in Thailand and Taiwan, publishing SOPs in active use **2+ years later**.

Undergraduate Research Assistant — Mar 2026 – Present
Carnegie Mellon University — *Pittsburgh, PA*

Project: Verifying Visual Chain-of-Thought | Supervisor: Michael Tarr, Deva Ramanan

- Curating dataset and developing interpretability methods to verify if VLM thoughts are grounded and contribute to final answer.

Project: Investigating Positional Embeddings in Vision Transformers | Supervisor: Michael Tarr, Deva Ramanan

- Built and validated a controlled ViT study showing RoPE can remain classification-robust while collapsing on dense prediction at high resolution, then causally localized the failure to out-of-range long-range rotary phases.
- Developed matched from-scratch ablations over positional channels, tokenization, and topology; identified a mechanism-clean hybrid that matches or beats APE on 3/4 dense tasks while preserving a no-uniform-method-win scientific framing.

Projects

Dobbify | *Next.js, React, TypeScript, Supabase, Postgres, SwiftUI* — Apr 2026 – Present

- Built and shipped a full-stack "buy now vs. wait" fashion app (Next.js 16, React 19, Supabase) to Vercel with a native SwiftUI iOS companion that consumes the same server scoring engine over a JSON API, guarded by a CI test that fails if the web and iOS schemas drift.
- Hardened Postgres with row-level security (15 policies) and a trigger that makes recorded verdicts immutable to users while the service role bypasses; verified with 51 pgTAP cross-user assertions.
- Built an idempotent daily price-ingestion cron (self-deduplicating unique index, fail-closed bearer-token gate, degraded/ok run states) over a pure scoring engine covered by 114 unit tests.

badminton-mocap | *Python, PyTorch, YOLO11, MediaPipe, OpenCV* — Jun 2026 – Present

- Built a config-driven badminton CV pipeline (10 swappable stages, **175 tests**) that turns match video into player pose, footwork, shuttle tracking, and biomechanics; wrote a custom PyTorch CNN to track the shuttlecock frame by frame and export recovered motion to BVH for standard 3D tools.
- Recovered elite-level racket-head speeds (**38–49 m/s**) from joint kinematics and re-identified players across clips via a mean-centered ResNet embedding plus average-linkage clustering (stable IDs on 839/840 frames).

quick-autofill | *JavaScript, Chrome Extension (MV3), Claude API* — May 2026 – Present

- Built a Manifest V3 Chrome extension that autofills job applications across Workday, Ashby, and react-select forms, defeating React's controlled-input tracking via the native value-setter and frame-accurate input/change event sequences.
- Designed a privacy-first two-tier fill engine: a local label-matching fast-path resolves common fields with zero API calls, falling back to the Claude API (forced tool use, prompt caching, low-confidence drops) only for unknown fields; **261 tests**.

Technical Skills

Languages: Python, TypeScript/JavaScript, Swift, Java, C/C++, SQL, R
Frameworks: Next.js (App Router), React, SwiftUI, Node.js/Express, FastAPI, Flask, PyTorch
Databases & Auth: Postgres (triggers, RLS), Supabase, SwiftData, SQLite, OAuth 2.0 (PKCE)
Systems & Tools: Linux/Unix, Docker, Vercel (Cron, Edge), AWS S3, Chrome MV3, OpenCV, scikit-learn, pytest, Git/CI