

Arnav Sheth

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EDUCATION

University of Illinois Urbana-Champaign

Champaign, IL

B.S. Computer Science, B.S. Mathematics | GPA: 4.0/4.0

Aug. 2025 – May 2028

Coursework: Data Structures, Computer Architecture, Discrete Structures, Software Design Lab, Numerical Methods, Graph Theory, Combinatorics, Linear Algebra, Probability & Statistics, Differential Equations

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, TypeScript, HTML/CSS, SQL, PHP, Arduino (C++)

Frameworks & Libraries: Next.js, React, FastAPI, SQLAlchemy, NumPy, pandas, scikit-image, BeautifulSoup, Selenium

Tools & Infrastructure: Docker, Docker Compose, Git, GitHub Actions (CI/CD), WebSockets, PostgreSQL, Linux

EXPERIENCE

Course Assistant; CS 173: Discrete Structures

Aug. 2026 – Present

Professor Gonzales

Champaign, IL

- Supporting instruction in first-order logic, axiomatic deductive argumentation, and set theory for 100+ students.
- Grading assignments, projects, and exams with feedback focused on proof clarity and mathematical rigor.

Contract Software Engineer

Jun. 2026 – Aug. 2026

The Hill Mortgage Company

Naperville, Illinois

- Rebuilt a production loan origination platform's borrower portal as a Next.js 16 / React 19 SPA.
- Shipped 20+ JWT-authenticated REST endpoints against a legacy PHP/CodeIgniter & 165-table MySQL backend.
- Enabled signup/activation, draft autosave, document upload, & a 23-step loan application wizard.
- Built a transactional submit across ~10 normalized tables with rollback on partial failure.
- Cut release time from ~20 min to under 2 via GitHub Actions CI/CD deploying to cPanel/Apache.

PROJECTS

Recomify | *FastAPI, PostgreSQL, Docker, GitHub Actions, Spotify API, Last.fm API*

Jun. 2026

- Built a Spotify recommendation app: OAuth login, playlist-based taste profiling, and generated playlists.
- Designed a two-layer PostgreSQL schema splitting private user data from a shared artist similarity graph.
- Cached 10K+ artists & 23K similarity edges, cutting a 60+ min live API crawl to seconds of local queries.
- Built a two-stage windowed ranking algorithm pairing Last.fm similarity with popularity proximity.

Portfolio Website | *HTML, CSS, JavaScript, FastAPI, PostgreSQL, WebSockets*

Jul. 2026

- Built with no frameworks: CSS Grid/Flexbox layout, fade transitions, hash routing, & DOM rendering by hand.
- Built a FastAPI WebSocket server routing 8 message types to 3 audience scopes over a single connection.
- Scoped private threads to their sender & admins, avoiding leaks a naive broadcast would cause.
- Persisted message board posts in PostgreSQL; pushed live Spotify playback & visitor counts to all clients.

NIR-DOT CT Scanner | *Arduino, Python, NumPy, scikit-image*

Sep. 2025 – Apr. 2026

- Built a near-infrared tomography scanner with a team of 10, imaging 2D cross-sections of opaque objects.
- Created the entire embedded pipeline: stepper motor control & 16-channel analog acquisition over PySerial.
- Cut sensor noise via trimmed-mean filtering & ADC warm-up passes; drove mechanical & 3D-printed part design.
- Implemented filtered back projection with per-detector gain calibration & interpolation for dead channels.

NV Chess History | *Python, BeautifulSoup, Selenium, pandas*

Dec. 2025

- Scraped & reconciled 20+ years of IHSA Chess State records; automated USCF rating lookups via Selenium.
- Delivered reconciled records for 112 players to the team's coach as a structured Google Sheet.
- Built fault-tolerant data collection ensuring bad or missing records could not crash the pipeline mid-run.