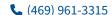
• Evanston, IL

☑ erniewang2025@u.northwestern.edu



@ erniewang.com/erniewebpublic



Education

Northwestern University, Computer Science and Jazz Studies

Evanston, IL

Sept 2021 - June 2025

• GPA: 3.61/4.0

Relevant Coursework: Data Structures & Algorithms, Computer Architecture, Databases, Security, Information Systems, Machine Learning/AI, Operating Systems, Scalable Software Architecture, Distributed

Technical Skills

Languages: Python, JavaScript, TypeScript, C++, Racket, Java, Go

Frameworks/Tools: Git, Linux, XML, Flask, FastAPI, BeautifulSoup, NumPy, Pydantic, Pandas, Supabase, React, AWS, Node, MySQL, SQLite, NextJS, Tailwind, Electron, Puppeteer

Other: Finale, Logic Pro X, Adobe Photoshop, Final Cut Pro X, Musescore

Work and Projects

Northwestern University - Computer Vision Developer, *Python*, *p5.js*, *PoseNet*, *Flask*, *Node.js*

Mar 2025 - June 2025

- Designed and implemented a web application that captures poses using PoseNet (p5.js) and a machine generation model (VampNet) to continuously generate music in response to video capture.
- Engineered real-time tempo detection using FFT on joint velocity time-series, leveraging JavaScript math libraries for precision.
- Developed adaptive frontend controls to modulate model inputs in near real time utilizing most recent pose data and music theory heuristics.

Harmonizer, Python, JavaScript, HTML, CSS, XML, FastAPI, JSON

Nov 2024 – present

- Developed a web application utilizing FastAPI, enabling musicians to upload melodies in MusicXML/MXL format and download modified XML files with melodies harmonized programmatically to the existing and custom harmonic rules.
- Provided a heuristics modifier supporting thousands of note-chord combinations and common harmonization options
- Stored user-defined presets in browser local storage, with future plans to server side storage
- Conducted extensive test cases to handle edge cases, enabling a cyclical development process as new chords were added and encountered.
- Implemented RESTful APIs to manage XML file exchange and streamline client-server communication.

Resume Tuner, Python, JSON, HTTP, docx, Next.js, Tailwind CSS

Mar 2025 - present

- Building a web application and browser extension that leverages the Gemini API to intelligently optimize resume sections and keywords based on job descriptions
- Developed a Next is backend using the App Router, with event handlers for resume updates, deployments, and LLM API integrations
- Implemented a single-page application for resume editing using the docx library, along with a browser extension for seamless job description input

MuseCatalog, Node.js, SQL, AWS-RDS, AWS-EC2, Spotify-API, ChatGPT-API

Mar 2023 – May 2023

- Developed a music recommendation platform integrating OpenAl's GPT API with the Spotify's Web API, enabling dynamic playlist generation from natural language queries.
- Împlemented relational data persistence using Amazon RDS (MySQL), storing user accounts, playlists, and historical queries to enhance personalization
- Deployed backend services on Amazon EC2, handling user authentication and API communication
- Designed and documented a RESTful API with endpoints for song discovery, listing favorites, history, catalog reset, and recommendation refinement.

Other Experience

G2i, Engineer for AI Training Data

June 2024 – July 2024

- Evaluated and ranked outputs from Scale AI's LLM, offering detailed feedback on ethical considerations, language clarity, and visual coherence.
- Ensured responses met factual accuracy standards to improve AI model performance and reliability.
- Skills: AI Training, Evaluation, Data Annotation

Self-Employed, Musician

Sept 2020 - present

- Performed with Northwestern University Jazz Orchestra (2020–2024) and in a variety of university bands, featuring both live and virtual
- Utilized AI music generation tools (Musicfy, Udio) alongside custom scripts to explore digital composition and arrangement.
- Conducted private lessons, teaching saxophone/clarinet fundamentals and improvisational listening skills to a broad range of students.
- Skills: Performance, Jazz Improvisation, AI Music Tools, Teaching