Leon Wang

Dedicated software engineer with enterprise IT experience and a passion in computer graphics & audio

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Experience

State Farm Insurance | *TypeScript, Python*   **June 2024 – Present**
Software Engineer   *Bloomington, IL*
- Working with the **actuarial tooling team** on a web application in **React** that modernizes our insurance rating, modeling and simulation process.
- Designing a middleware layer in **FastAPI** that rapidly executes comparisons between insurance rating datasets.
- Wrote a service in **Typescript** that uses **GraphQL** to execute user formulas in our **Python DSL** and receive results.
- Maintaining a clean and secure codebase by writing quality unit and e2e tests in **Jest**, **Cypress**, and **PyTest**.

United Airlines | *TypeScript, Java*   **May 2023 – June 2024**
Software Engineer   *Chicago, IL*
- Worked on the **travel receipts team** to maintain and scale our **Spring Boot microservices** with **ActiveMQ** and **SNS/SQS** queues as message-oriented middleware.
- Wrote an **ETL microservice** in **Java** that compares message data between physical servers and cloud queues, merging their data into a **DynamoDB** table.
- Created a message diagnostic tool in **AWS** built on **Kinesis**, **Lambda**, **S3**, and **API Gateway**.

The Daily Illini | *TypeScript*   **Aug 2022 – May 2023**
Web Developer   *Champaign, IL*
- Developed the **Salary Guide**, an **Angular** web app that compiles UIUC's annual faculty salary data.
- Prototyped **data visualizations** for the Salary Guide using **D3** and **Typescript**.

University of Illinois - Department of Linguistics | *JavaScript, Python*   **May 2022 – Sept 2022**
Research Application Developer   *Champaign, IL*
- Wrote an **online exam service** in **Flask** with **MySQL** tables of exam & user data queried through **SQLAlchemy**.
- Designed the exam's audio playback frontend in **JavaScript** using **Howler.js** for audio retrieval and processing.

Projects

Concurrent Stippling Art Renderer | *JavaScript*
- Stipples images by running the Voronoi algorithm on **parallel worker threads** that **cut processing time in half**.
- Wrote a **physics engine** from scratch in a **WebGL2** canvas that lets users interact with the stippling, using **shared buffers** for increased performance.

Ray Tracer | *C/C++*
- Wrote a ray tracer from scratch with features including **global illumination**, **secondary rays**, and **anti-aliasing**.
- Goes through the entire **rendering pipeline** from parsing the primitives to calculating shadows and reflections.

Rasterizer | *C/C++*
- Built from scratch a **partial implementation of WebGL** with features like **depth**, **shaders**, and **texture maps**.
- Uses **DDA line generation** and **scanline rendering** to render vector data into a raster image.

PNG to MIDI | *C/C++*
- Wrote an experimental program that **converts images into graphs** and converts each node (pixel) into MIDI data.
- Runs **graph algorithms** like Prim's and A* on the MIDI graphs in an effort to produce musical sequences of notes.

Steam Game Store Clone | *Java*
- Led four team members to design a mock Steam game store using **Spring Boot** with a **Svelte** frontend.
- Designed and optimized a database in **MySQL** and **Amazon RDS**.

Education

University of Illinois at Urbana-Champaign   **Aug 2020 – May 2024**
Bachelor of Science in Statistics and Computer Science   *Champaign, IL*