Tony Hsu Tai

917-689-9670 | tchiahsu.portfolio | hsutai.c@northeastern.edu | tchiahsu | tchiahsu

Education

Northeastern University *Boston, MA*

Master of Science in Computer Science – **GPA: 4.00/4.00** *Sep 2024 - May 2027*

- Selected Coursework: Data Structures and Algorithms, Object-Oriented Design, Database Management Systems, Foundations of Artificial Intelligence, Computer Systems, Scalable Distributed Systems

Northeastern University *Boston, MA*

Master of Science in Engineering Management – **GPA: 3.88/4.00** *Jul 2019 – May 2021*

Technical Skills

Programming Languages: Python, TypeScript, Java, C/C++, SQL, HTML, CSS
Frameworks & Tools: React, FastAPI, Node.js, Express.js, Socket.IO, Tailwind CSS
Database Management: MySQL, PostgreSQL

Projects

Microgreen Order Management System | *Python, TypeScript, MySQL, React, FastAPI, REST APIs, JWT*

- Built a full-stack operations system that models a microgreens business, coordinating crop growth cycles, customers orders, packaging, and delivery workflows from planting to fulfillment.
- Designed a **MySQL schema** with stored procedures and views to encode crop life-cycle and order dependencies, automating planting schedules and reducing manual coordination errors.
- Implemented backend logic using **FastAPI** to validate orders, enforce grow constraints, and coordinate state transitions across crops and orders to ensure consistency for concurrent operations.
- Built an **React and TypeScript user interface** with data-driven views to visualize real-time crop and order data, improving day-to-day decision-making and workflow visibility.

PokeDuel: *A Pokémon Battle Game* | *TypeScript, React, Socket.IO, Node.js, Express.js, REST APIs, WebSockets*

- Engineered a full-stack multiplayer Pokémon battle simulator enabling real-time, turn-based 1v1 gameplay, using **WebSocket communication** to synchronize game state between clients and the server.
- Designed and implemented a backend battle engine in **Express.js** to handle player turns, damage calculations, and faint/switch logic, ensuring deterministic outcomes.
- Built an interactive **React** frontend with **Framer Motion** animations to visualize battle events such as sprite actions, HP transitions, and Pokémon spawns, improving player clarity and engagement during combat.

Spotify Usage Dashboard | *TypeScript, React, Spotify Web API, OAuth 2.0, REST API*

- Developed a web application that analyzes a user's Spotify usage history to surface trends across short-, medium-, and long-term time ranges for tracks, artists, and playlists.
- Integrated the **Spotify Web API** using **OAuth 2.0**, implementing secure authentication and token refresh logic to enable persistent, authorized access to user listening data.
- Applied backend data normalization and a **React and TypeScript frontend** to transform raw API responses into consistent, visualization structures, simplifying client-side logic and improving UI responsiveness.

Work Experience

Operations Manager *Sep 2021 – Jun 2024*

Boston Microgreens, LLC *Boston, MA*

- Streamlined harvest operations using data-driven analysis and procedural redesign, **reducing harvest time by 22%** and resulting in the **development of 46 detailed SOPs** to improve efficiency and scalability.
- Designed an automated germination tracking system that eliminated manual checks and **decreased germination task time by 63%**, leveraging rule-based logic and scheduling workflows.
- Developed a scheduling and tracking system that automated seeding, germination, and harvest planning for **50+ weekly orders**. The tool has been running smoothly for **2+ years without failure.**
- Implemented a comprehensive financial dashboard to track and monitor financial health. It revealed that **11% of varieties were not generating profit**, leading to strategic adjustments to improve profitability.