TONY HSU TAI

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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 & Libraries: 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 an **end-to-end order and operations management system** for a real-world microgreens business, replacing spreadsheet-based workflows with a centralized, scalable platform.
- Designed a **production-grade MySQL relational schema** with normalized tables, foreign-key constraints, and indexes to model orders, crops, deliveries, and inventory life-cycles.
- Implemented **30+ stored procedures and a view** to encapsulate business logic at the database layer, ensuring data integrity and deterministic workflows.
- Developed a **FastAPI REST backend** executing only stored procedures and a **React + TypeScript frontend** with **JWT authentication** enabling full CRUD operations for authenticated users.

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

- Developed a **real-time multiplayer Pokémon battle game** supporting live 1v1 matches, synchronized turns, and shared game state across concurrent players.
- Implemented a **Socket.IO–based WebSocket architecture** to manage real-time communication, handle concurrent connections, and maintain server-controlled game state.
- Built a **React + TypeScript frontend** styled with **Tailwind CSS**, integrating a **third-party Pokémon REST API** and enhancing UX with state-driven **motion animations**.

🔗 **Spotify Profile: Listening Analytics Dashboard** | *TypeScript, React, Spotify Web API, OAuth 2.0, REST API*

- Built an **interactive analytics dashboard** that visualizes a user's Spotify listening behavior across short-, medium-, and long-term time ranges using the Spotify Web API.
- Implemented **OAuth 2.0 authorization flow** witch access and refresh tokens, enabling secure, user-scoped API access without exposing credentials in the client.
- Designed a **React + TypeScript frontend** with dynamic filters and conditional rendering, integrating a **REST API data pipeline** to fetch, normalize, and transform music data into user-friendly insights.

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.