

TONY HSU TAI

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EDUCATION

Northeastern University

Master of Science in Computer Science – GPA: 4.00/4.00

Boston, MA

Sep 2024 – May 2027

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

Northeastern University

Master of Science in Engineering Management – GPA: 3.88/4.00

Boston, MA

Jul 2019 – May 2021

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, Java, C/C++, Go, SQL, HTML/CSS

Frameworks: React, FastAPI, Express.js, Socket.IO

Libraries & Tools: Docker, Git, Postman, PyTest, JUnit, Tailwind CSS

Databases: MySQL, PostgreSQL, MongoDB

PROJECTS

⌚ Microgreen Order Management System | Python, TypeScript, MySQL, React, FastAPI

- Designed and implemented a full-stack operations platform using React and FastAPI aimed at replacing spreadsheet-based workflows with a centralized **MySQL data model**, improving planning reliability and operational traceability.
- Modeled core business entities including orders, crops, and harvest cycles using **relational constraints and scheduling logic** to enforce data integrity and prevent invalid system states.
- Implemented **JWT-based authentication** and structured request validation with Pydantic to define clear API contracts and reduce backend edge-case failures.
- Built a multi-page React frontend with entity-focused views that present relevant data through tables or cards, supporting **full CRUD operations for core domain entities**.

⌚ PokeDuel: A Pokémon Battle Game | TypeScript, React, Socket.IO, Express.js, Node.js

- Built a real-time multiplayer system using Socket.IO with a defined **client-server event protocol** for matchmaking, turn submission, and synchronized battle state updates.
- Implemented a battle simulation engine that handles Pokémon type effectiveness, move priority, and damage variations, keeping game logic separate from Socket.IO event handling to **Maintain consistent game state across clients**.
- Integrated **Motion animations** for Pokémon spawns, attacks and health changes to create game-like visual feedback during battle sequences.

⌚ Spotify Usage Dashboard | TypeScript, React, Express.js, Node.js, OAuth 2.0

- Integrated Spotify **OAuth authorization** by handling tokens on the backend and using **HTTP-only cookies** to prevent client-side exposure of access and refresh tokens.
- Implemented a transformation layer that **maps Spotify Web API JSON responses into tailored DTOs** used by the frontend to generate visualizations and UI components.
- Built a **backend integration layer** so the frontend consumes Spotify data through server endpoints instead of calling the Spotify API directly, improving security and simplifying UI logic.

WORK EXPERIENCE

Operations Manager

Boston Microgreens, LLC

Sep 2021 – Jun 2024

Boston, MA

- Built and maintained an internal scheduling and tracking system to **automate seeding/germination/harvest planning for 50+ weekly orders**, improving reliability of daily operations over 2+ years.
- Designed a rules-based germination tracking workflow that eliminated manual checks and **reduced task time by 63%**.
- Developed KPI and profitability reporting that **identified unprofitable product lines** and drove operational changes in product testing towards those crops.
- Authored **46 SOPs/technical docs** to standardize workflows and reduce on-boarding time.