

Yen Lin (Darren) Chao

Contact

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Education

Master of Arts in Design Engineering 2025-Present
Brown University and Rhode Island School of Design (RISD)

Bachelor of Science in Electrical Engineering and Computer Science (EECS) 2021-2024

University of California, Berkeley

Skills

Design & Fabrication

Autodesk Fusion 360, Adobe Illustrator, Laser Cutting, 3D Printing/Extrusion, Rapid Prototyping, Rhino, Arduino, ESP32, Sheet Metal Working, Ceramic Firing, Embroidery

Languages

Python, Java, C, C++, Go, SQL, RISC-V, HTML, CSS, Javascript

Cloud & DevOps

Azure IoT Hub, Jenkins, Maven, Git, Jira, Particle Cloud

Work Experience

Co-Founder and PLA Sustainability Researcher

Re/Plastic: Brown Design Workshop August 2025 - Present

- Optimized a closed-loop **recycling workflow**, managing the **transition of PLA waste from pelletizing and grinding to industrial extrusion and heat-pressing**.
- Architected an end-to-end **IoT monitoring system** using Particle microcontrollers and sensors to **track critical environmental variables** (humidity/temperature) during PLA processing.
- Engineered **data pipelines** by routing real-time sensor data to **Azure IoT Hub**, automating the flow into a **custom SQL database for centralized storage**.
- Conducted rigorous **material testing**, including the calibration of laser cutter settings and heat-press parameters, ensuring structural integrity of products.
- Led **physical product design initiatives**, transforming recycled PLA waste into retail-ready consumer goods sold at the Brown University Bookstore.
- Facilitated **stakeholder meetings** with retail partners and logistics teams to align fabrication capabilities with market demand and pricing strategies.

Pottery Studio Instructor

Brown Design Workshop January 2026 - Present

- Led weekly small **group ceramics classes** with hands on instruction and individualized guidance, fostering a **supportive and collaborative learning space**.
- Managed **studio operations** including organizing kiln firings, transporting work to off site facilities, maintaining equipment and materials, and coordinating with instructors to ensure smooth studio workflow

Software Engineer Intern

Development Bank of Singapore - Taipei Summer 2024

- Collaborated within an **Agile team**, following **Scrum methodologies** with weekly **stand-up meetings and sprints**.
- Designed and implemented **RESTful APIs** for the "GiftBox" campaign on the CARD+ app and **manipulated XML for form structures and data**, directly interacting with the database and processing form inputs.
- Enhanced **unit test coverage for legacy APIs to 100%**, utilizing mocking and spy frameworks, and Cucumber.
- Deployed and tested APIs using **Jenkins**, monitored logs for debugging and validation, and managed code using **Maven, Git, and Jira**.



Coding Projects (see darrenchao.com for design portfolio)

Idle Earth

Multi-User AI Digital Identity Simulation Platform February 2026

- Built a **multi-user web application** where users create persistent **AI-driven "digital selves"** on a 3D earth, leaving **evolving digital artifacts** that accumulate over time.
- Developed with **Three.js** for real-time 3D globe rendering, **Google Firebase** for scalable user data storage, and **Gemini API** to simulate daily activities and generate life logs.

PACMAN

Modeling Multi-agent Game with ML February 2024

- Utilized **Value Function, Q learning**, and **Deep Q Network algorithms** to enhance PACMAN's gameplay.
- Implemented **alpha-beta tree pruning algorithm** to efficiently search for and select the **optimal path** for PACMAN.

REGULUS

Secure File Sharing System November 2023

- Crafted a **multifaceted security infrastructure** for the file sharing system, integrating robust **user verification** mechanisms to authenticate users and **stringent file modification protocols** to ensure data integrity.
- Employed cryptographic tools including **RSA** for public-key encryption, **HMACs** for message authentication, and **symmetric key encryption** for secure data transmission.
- Established secure communication channels utilizing protocols like **TLS/SSL** to protect data in transit and mitigate risks associated with interception or eavesdropping.

Build Your Own World

Generating Random Explorable and Interactive Worlds March 2023

- Architected an algorithm for generating **pseudo-random worlds** with customizable seeds in **Java**.
- Implemented a **modified Kruskal's algorithm** to connect **randomly generated rooms with hallways efficiently**.