Richard Wu

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EDUCATION

University at Buffalo | Buffalo, NY   **August 2018 - May 2022**
- Bachelor of Science, Computer Science

EXPERIENCE

New Design High School   **July 2023 - Present**
Coding and Robotics Instructor/Technology Support Specialist
- Designed and taught a project-based coding curriculum for 12 students using Sphero BOLTs, introducing core programming concepts (variables, loops, conditionals) through hands-on robotics projects
- Facilitated classroom activities to reinforce problem-solving and debugging skills, mentoring students to build a foundation for iterative development - mirroring Agile prototyping cycles
- Implemented a script (Google Apps Script) to auto-populate staff absences into calendars, eliminating manual data entry (100% reduction) and ensuring real-time accuracy for administrative scheduling

PROJECTS

numBRR | React, TypeScript, Node.js, Render, Socket.IO, Sass **|** GitHub   **Dec 2024 - Present**
Browser-Based Multiplayer Auto-Battler Game
- Developed real-time client-server synchronization using Socket.IO's event-driven architecture, with React (TypeScript) for state management via custom hooks and Context API to reduce latency
- Architected scalable matchmaking on Node.js/Socket.IO (Render) using room partitioning and targeted event broadcasting to support 200+ concurrent users
- Formulated a template-driven item system using weighted randomness and parametric inheritance, reducing new feature prototyping time by 60% while driving a 30% improvement in user engagement via level-based drop rates
- Optimized UI with React hooks and prioritized visual hierarchy, cutting first-time user errors by 50%

Collaj | MongoDB, Express, React, Node.js, Render, JavaScript **|** GitHub   **Sep 2022 - Nov 2022**
MERN Dynamic Art Gallery (Hue-Sorted Entries)
- Deployed a RESTful API using Express/Node.js for seamless CRUD operations, leveraging MongoDB for efficient data storage and retrieval
- Automated artwork data collection using Puppeteer to scrape and parse dynamic web content (titles, artist names, URLs) via DOM traversal
- Secured user sessions via JWT/BCrypt authentication and encrypted data storage
- Validated API reliability with Mocha/Chai test suites for performance and edge-case handling

Food for Thought | Swagger, React, JavaScript **|** GitHub   **Feb 2021 - May 2021**
Recipe Sharing Platform (Tag-Based Recommendation)
- Led wireframe prototyping in Figma, streamlining production time by a week and accelerating feature delivery for a team of 4 engineers
- Delivered user-centric features (profile picture uploads, intuitive onboarding process, and streamlined navigation), enhancing usability based on user feedback
- Authored comprehensive user stories and acceptance tests, reducing sprint-end defect discovery
- Conducted usability tests and highlighted design decisions with accessibility principles in mind

SKILLS & INTERESTS

Programming Languages: Python, JavaScript, TypeScript, Scala, Dart, HTML, CSS, Sass, C, OCaml, SQL
Frameworks and Packages: Bootstrap, React, Express, Node.js, Mocha, Chai, Puppeteer, Flutter, Pandas, NumPy, Socket.IO
Tools and Platforms: Git/GitHub, VS Code, Postman, MongoDB, Figma, Google Apps Script, Android Studio