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https://github.com/roiceliu

ROICE LIU

Education

Wisconsin, WI **University of Wisconsin-Madison** **Sept 2016 - May2020**

- **Majors**: Computer Engineering, B.S.E & Computer Science, B.S (in major GPA: 3.55)
- **Programing Coursework**: Networks, Algorithms & Data Structure, Operating system, Intro.Machine learning
- **Engineering Coursework**: Digital System, Circuits, microprocessor systems, Computer Architecture

Employment

Partner & Software Developer **Birdwell Solutions** **Mar 2020 - Now**

Madison based software consulting startup which provides contracted software service (https://birdwellsolutions.com/)

- Determined the **architecture, design** and **features** of the company's official website and translated the UI wireframes into fully reusable and responsive **React web pages** with **CSS, Javascript, Typescript, ES6, Node.js and Git.**
- Identified **web-based users interactions** and created highly-responsive, reusable and clean react components and **templates** using **Javascript** and **Styled-components** via **React framework concepts**.
- Designed highly-satisfying **user interface wireframes and mockups** according to clients' requirement of website structure, functionality and aesthetic standards utilizing **Figma** prototyping software.
- Improved dev teams' **sprint efficiency by 20%** and enhanced communications with clients by planning overlapping sprints, excluding potential work conflicts and providing progress transparency through **Jira agile software**.
- Led and initiated company's **project management** expectations, standards and executing rules.

Projects

Portfolio Website(https://roiceliu.github.io/portfolio_website/)

- Fully designed and prototyped the one-page portfolio's **visual graphics & user interactions** using Figma software.
- Built the highly-responsive web page with **animated smooth scrolls**, flex-boxes and grids using **Javascript, Styled-components and React framework.**

Android Development

- Built a step counter app by utilizing the **smartphone's oscillator** to read in moving parameters, implemented the counting logic in **Java** following **Android activity lifecycle** and stored data locally and remotely using **JSON Object Packages.** Worked with **AR Core API** to enable users to pin and display text in the AR-space fetched by camera, developed in **Android studio** and compiled into **Android APK file.**

Computer System Project

- Designed and built a **16 bit ripple carry adder** by implementing **full adders** and **D flip-flops** from connecting basic **logic gates** (AND, ADD & NOT) using **Quartus Prime simulator**.
- Simulated **LC-3 Instruction set** processing by stepping through each instruction in computer programs using **PennSim LC-3 Simulator**.

Computer CPU Design

- Sketched out and designed computer **CPU architecture** based on the LC-3 ISA to handle and process **arithmetic operations, data movement & control instructions**. Planned out all **conditional controls** which handle **encoders** and **multiplexers** to control operations.
- Implemented **memory, control** and **processing units** by building up and connecting **register files, ALU, conditional control state machine** and other logics with **Verilog**.
- Tested the functionality of each CPU unit by **simulating signals' waveforms** in **ModelSim** and inspecting the behavior in regards to the expected logic.
- Optimized the **CPU operating speed** by checking and executing few upcoming instructions with **same opcodes** and **without register dependencies**.

Skills

Software: (*proficient)* Java, HTML/CSS, javascript, Node.js, ES6,react, UI/UX (familiar): C, Android, Verilog (knowledge in) SQL,python, JSON