PROFILE

As a versatile software engineer, I possess a strong foundation in computer science and electrical engineering. Through hands-on involvement in projects such as MiniAmazon, MiniMeetup, and MiniSlack, I've refined my expertise in React, Flask, SQLALchemy, Sequelize, Express, and other technologies. My commitment to excellence and collaborative approach make me a valuable asset in dynamic environments, where I excel in contributing to innovative projects.

EDUCATION

App Academy Bootcamp

- Full-stack Software Development
- Python | Javascript
- Flask | Express | React | Redux
- Sequelize | SQLAlchemy | Docker

University of Washington - Seattle

- *B.S. in* Electrical Engineering
- Embedded Systems concentration
- Annual Dean's List Awards
- Major GPA: 3.84

CONTACT

Phone

+1 (206) 960 - 3660

Email

tuonghao2001@gmail.com

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SKILLS

Flask	Express	React	Redux
Sequelize	SQLAlchemy	System Design	Javascript
C/C++	Java	Python	Ruby
Data Structure & Algorithms		Digital Design (HDL)	
Assembly (RISC-V, x86-64)		Embedded Programming - IoT	

EXPERIENCES

MiniAmazon — Mar 2024

- Developed a scaled-down online shopping platform, inspired by Amazon, with a focus on user experience and specific market needs.
- Implemented core features such as Shopping (Orders & Checkout), Bookmark, Reviews, Searchbox, Chatbot (customer service), Product Magnifying & Download (for details view), and Simultaneous checkouts (Websocket).
- Designed a single-page application to simplify navigation and enhance user experience.
- Ensured real-time updates of product quantities upon checkout to maintain data integrity.

MiniSlack — Feb 2024

- Inspired by Slack's success in revolutionizing team communication and collaboration, MiniSlack comes into live with the goal of minimalist designs, focusing on creating a real-time messaging app using websocket.
- Similar to Slack, Minislack provides channels for organized discussions, direct messaging for one-on-one conversations. However, it distinguishes itself by emphasizing simplicity and efficiency. The interface is minimalist, focusing on essential functions to ensure a seamless user experience without unnecessary clutter.
- Members can create workspaces. The workspace owners can invite other members into their workspaces via emails. Within a workspace, any member can create channels, and start chatting with each other. MiniSlack also supports direct messages. Even when a member leaves the workspace, the chat history is being preserved.

HOBBIES

- Exercising
- Hiking
- Billiards
- Reading
- Playing cards

LANGUAGES

- [x] Fluent in English
- [x] Fluent in Vietnamese
- [x] Conversational Mandarin

EXPERIENCES (continued)

MiniMeetup

Jan - Feb 2024

- Inspired by the success of Meetup, MiniMeetup aims to replicate its community-building capabilities while emphasizing on providing a simple interface that prioritizes user experience and accessibility.
- MiniMeetup ensures that the users can easily navigate the platform, discover events, and connect with others in their local communities without encountering unnecessary complexities.
- Users can join groups to engage in events of interest with like-minded individuals. There are specific roles for users in each group and each event. For example, only the group owner and co-hosts can accept a stranger's request to join a group, and only the group owner can delete a group's image.
- Venues of in-person events are easily viewed via a Google Map interface.
- Members can post pictures within the groups that they joined or events that they attended. On the other hand, members within MiniMeetup can message each other, or advertise their events in the general real-time live chat.

Battleship

Dec 2023

- Developed a front-end application for the classic game of Battleship, demonstrating proficiency in Javascript and DOM manipulations.
- Designed and implemented an intuitive user interface that enhances smooth gaming experience.
- Integrated draggable functionality to allow players to easily organize and hide their own ships.

Catsagram

Nov 2023

- A cat-themed Instagram-like platform allowing users to generate random cat images, pin favorites, add comments, and organize images through drag-and-drop.
- It offers hands-on practice in JavaScript, frontend development, DOM manipulation, and implementing draggable functionality.

TicTacToe

Oct 2023

- Developed a Tic Tac Toe game frontend using JavaScript and advanced DOM manipulation techniques.
- Focused on implementing the game's frontend interface, emphasizing learning different DOM methods and enhancing proficiency in frontend development.

EXPERIENCES (continued)

Birthday Tracker

Sept 2023

- Developed a frontend birthday countdown timer project to practice JavaScript, CSS, and interacting with the JavaScript DateTime object.
- Designed an interactive user interface to display the countdown, demonstrating frontend development skills and enhancing proficiency in manipulating the datetime object in JavaScript.

Yelp Clone

Aug 2023

- Created the frontend of a Yelp clone project, emphasizing HTML and CSS to replicate the appearance of Yelp's homepage.
- Employed wireframing techniques and CSS styling to mimic the visual design of Yelp's homepage, focusing solely on aesthetics and not functionality.

Pig Game

July 2023

- A frontend application utilizing JavaScript's Math.random function for dice rolling.
- Implemented gameplay mechanics where two players take turns rolling a dice. If a player rolls a 1, they lose their turn and no score is saved; otherwise, the rolled number is added to their total score.
- Designed an intuitive user interface enabling players to accumulate scores and make strategic decisions. Players can choose to hold and save their current cumulative score or continue rolling, risking losing all points if they roll a 1. The first player to reach 100 points wins the game.

Mapty

June 2023

- A workout location tracking app, integrating Leaflet for Google Maps API, with a focus on learning JavaScript Object-Oriented Programming (OOP) principles.
- Utilized third-party packages to enhance functionality, demonstrating proficiency in integrating external libraries into JavaScript projects.

EXPERIENCES (continued)

Patterns Design

May 2023

- An application that allows users to create and delete files, enabling the continuous subdivision of squares into smaller parts, and color customization for each square.
- Users can navigate through the interface to split squares recursively, assigning various colors to distinct components. Additionally, the application supports merging squares back to their original form and provides functionality to save the created patterns.
- Leveraging TypeScript's features, including inductive types and recursion, the project ensures efficient code organization. TypeScript's type annotations and compiler are utilized to maintain code clarity and identify errors promptly during development, ensuring a robust and manageable codebase.

Boom Online

Apr 2023

- Adapted the rules and mechanics of the classic "Boom Online" (or "Crazy Arcade") game to create a customized version using Ruby and the Gosu gem.
- Implemented character movement, interactive gameplay elements, and graphical user interface enhancements while adhering to the original game's rule set.
- Gained hands-on experience in game development techniques and Ruby programming while ensuring the faithful recreation of the game's core mechanics.
- Demonstrated proficiency in adapting existing game concepts and leveraging programming tools to create engaging and rule-compliant gaming experiences.

RISC-V Core on FPGA

Mar 2023

- Developed RV32 Base Instruction Set in Verilog and executed it on an FPGA board.
- Increased throughput with added pipelining stages.
- Successfully displayed C printf() output on FPGA 7-segment displays.
- Demonstrated the ability to run compiled RV32 executable code.

EXPERIENCES (continued)

Password Door Locked

Feb 2023

- Utilized OpenCV for real-time face recognition in Python, enhancing security measures.
- Implemented a system to send instant notifications upon detecting intruders, ensuring timely response.
- Enhanced security with Python's capabilities, enabling real-time photo capture, email notification, and password generation upon unauthorized access attempts.

Search Engine

Jan 2023

- Develop a File System Crawler to read file content, parse it into words, and build a linked list of (word, position) information.
- Implement an Indexer to convert these linked lists into an in-memory inverted index.
- Create a Search Engine that utilizes the inverted index to build a query processor with a console-based interface.
- Enhance system performance by migrating the in-memory inverted index to an on-disk index for improved scalability and efficiency.
- Develop a multithreaded web server front-end for the query processor to enable web-based access to the search engine.

8-bit breadboard CPU

Sept 2022

- Constructed a CPU from scratch on a breadboard, drawing inspiration from the Ben Eater YouTube Channel to deepen understanding of computing fundamentals.
- Discovered the remarkable efficiency of Turing complete machines, realizing that only one conditional jump is necessary for Turing completeness.
- Transformed abstract concepts of microprocessors into tangible knowledge through hands-on construction, comprehending their sophisticated yet fundamental principles.

6502 Computer

Aug 2022

- Expanded knowledge of computer peripherals by programming instructions for the 6502 microprocessor using EEPROM and interfacing with components like LCD screens.
- Explored CPU interrupt handling, including PS/2 keyboards, to deepen understanding of computer architecture.

EXPERIENCES (continued)

The Worst Video Card

July 2022

- Created a rudimentary video card from scratch for a VGA monitor, mastering the generation of Vsync and Hsync signals using counter circuits.
- Demonstrated practical electronics skills by generating four distinct voltage levels for each RGB signal using only two digital signals.
- Engineered four distinct voltage levels (ranging from 0 to 0.7V) for each RGB signal using only two digital signals, demonstrating practical electronics expertise.

Memory Management

Apr 2022

- Developed a memory management package akin to "malloc" and "free", offering a simplified understanding of memory management in C.
- Implemented two primary methods, freemem() and getmem(), to allocate and merge memory blocks as needed, mirroring the functionality of C's memory management.
- Acquired proficiency in writing a makefile to streamline the compilation process and manage project dependencies efficiently.

100 Best Websites

Mar 2022

- Employed Linux commands like wget, grep, and sed to fetch and extract required website content, ensuring accessibility verification.
- Developed shell scripts to output results to standard output and visualize data using gnuplot, facilitating efficient analysis.

Husky Map

Jan 2022

- Implemented data structures including autocomplete, priority queues, and shortest path algorithms.
- Collaborated in a group setting to deepen understanding of data structures and algorithms.
- Conducted tests and analyzed runtimes across various approaches, along with assessing space utilization.

EXPERIENCES (continued)

Turbo Chat

Nov 2021

- Developed a real-time chat application with features like video calls, infinite scroll bars, group and private chat, user online statuses, and message previews to deepen understanding of Rails.
- Leveraged gems like Devise for user authentication, Pagy for pagination and infinite scroll bars, and OpenTok for implementing video calls.
- Utilized Hotwire and Turbo Streams for real-time chat functionality without page refreshes, and Stimulus for frontend user status tracking.
- Implemented SQL queries to ensure correct message retrieval for private and public chat rooms.
- Gained experience in deploying applications using Heroku.

Talker

Aug - Sept 2021

- Developed my first website, highlighting the critical lesson that a website can only recover passwords if they were not hashed initially.
- Created a social networking platform, implementing features like sign-in, sign-up processes, user modules, and identity protection.
- Undertook the project without relying on existing frameworks, aiming to deepen understanding of underlying concepts.
- Gained insights into web security basics, MVC model, and utilized Bootstrap, JavaScript for frontend design, and PHP for server-side rendering.

Board Games

Apr - Dec 2020

- Embarked on self-study of the App Academy curriculum (App Academy Open) in my freshman year, driven by the impact of software.
- Completed all exercises and projects from the Welcome to Coding to SQL and Data Structure and Algorithm sections.
- Developed a solid grasp of classes and object-oriented programming by constructing various board games, including the most challenging Chess project.
- Attained a thorough understanding of the advantages, disadvantages, space, and time efficiency of different data structures.