

HANNAH NGUYEN

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EDUCATION

University of Southern California

B.S. in Computer Science

Los Angeles, CA

Expected Graduation: May 2025

PROJECTS

Thermostat

- Developed a thermostat using embedded system techniques in C, enabling real-time room temperature monitoring, an alert system to notify users of deviations from set regulations, allows for user-defined temperature adjustments, and activates heating or air conditioning features accordingly
- Implemented efficient code to communicate with an Arduino microcontroller, reading input from a DS18B20 temperature sensor, buttons for temperature setting, and a rotary encoder and sending output to a LCD shield, RGB LED, buzzer, and servo motor
- Designed an effective state machine and administered calls to multiple Timers and Interrupts to ensure real-time reactions and minimize delays within the system

Image Editor

- Implemented a C++ image processing project using casting techniques and layer manipulation to enhance and transform images.
- Developed an algorithm, based on Breadth First Search, to identify specific image elements, allowing for targeted modifications like color adjustments and blending.
- Incorporated error handling and memory management techniques, ensuring stability and reliability during intensive manipulation tasks.

Hike Reservation

- Collaborated with a group of peers to implement a user-friendly interface with menu-driven interactions, allowing users to view trail details, check availability, input personal information, and confirm reservations seamlessly to prevent high concentrations of visitors during the pandemic.
- Utilized data structures like linked lists or arrays to store trail information, reservation records, and availability status, ensuring accurate and up-to-date information for users and administrators.
- Integrated date and time handling functionalities to prevent conflicting reservations, enabling users to book hikes without overlaps and providing clear notifications for fully booked trails.

RSA Decryption and Encryption

- Implemented Modular Exponentiation and the extended Euclidean Algorithm to effectively encrypt and decrypt messages
- Developed seamless and error-free user interaction, even when user provide invalid data, through thorough error checking

SKILLS

- **Technical:** C/C++, Java, Python, Racket, HTML, CSS, Beginner Level Javascript, SQL, PHP
- **Tools:** Git, Docker, Django, Figma, Bootstrap, Arduino, LCD Display
- **Languages:** Native English speaker, Proficient Vietnamese, Elementary Spanish
- **Related Coursework:** Data Structures and Object Oriented Design, Discrete Methods in CS, Intro to Embedded Systems, Full-Stack Web Development, C++ Programming 1 + 2, Java Programming 1 + 2, Probability Theory

EXTRACURRICULARS

- **Clubs:** *Scope USC (Computer Science Club + Hackathon), Association for Computing Machinery (ACM), Chinese American Student Association (CASA)*
- **Interests:** *Tennis, Travel, Film Photography, Fitness, Music Festivals, Notion, Golf*