TOAN VO
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EDUCATION

University of California, Irvine October 2022 - June 2024
B.S. in Computer Science
GPA: 3.7/4.0

SKILLS

Coding: C, C++, Java, Kotlin, Python, Lisp, Prolog, MySQL, HTML, CSS, JavaScript, Java Servlets, XML, Ajax, React
Technology: AWS, JDBC, Tomcat, VIM, Unit Testing, Unix, Git, Debugging, HTTPS, RESTful APIs, jQuery, Apache, Git, Android app development, reCAPTCHA, VSCode, Intellij, Windows, Mac OS, Linux, MS Office, TCP/UDP, 5G/LTE/GSM
Relevant Courses: Data Structures, Principles in System Design, Operating System, Data Management, Artificial Intelligence, Computer Network, Web Development, Embedded Software, Internet of Things, Compilers and Interpreter, Software Engineer
Languages: English, Vietnamese

PROJECTS (Demonstrations: https://toanvo.dev)

Compiler April 2024 – June 2024
I built a compiler to translate programs constructed from a fairly small imperative programming language into executable x86 assembly using Java 11. I implemented five stages of development including parsing Crux language source code into ANTLR parse tree, generating Abstract Syntax Tree, Type checking, Intermediate representation, and assembly code.

Tone Player March 2024
I built an embedded system with Tiva Board TM4C123GH6PM to play sounds. I wrote a C program to connect the microcontroller with the components, configured register pins for LEDs/Keypad/Speaker and UART communication without using any library. A sound will be played at a frequency that human can hear when a keypad button is pressed.

Sudoku Game March 2024
I implemented Artificial Intelligence algorithms for the Sudoku game, which can solve expert level 25x25 Sudoku boards in ~9 seconds using the combination of Forward Checking, Norvig's Heuristic, Minimum Remaining Value Heuristic with Degree Heuristic as a Tie Breaker, and Least Constraining Value Heuristic.

Fabflix Movie Database Web App September 2023 – December 2023
I worked in a team of two people. We wrote 7706 lines of code to develop a movie website and an Android application for the website using Java**.** We fully built the architecture from scratch, setup AWS instance, Mysql, Tomcat, imported a large database of movie information, and created a new Github repository**.** We developed an ETL pipeline to parse large XML files to augment the already large database. We implemented a large frontend using javascript, jQuery and ajax while administering the same functionality in an Android app using the same backend API. The website comprised ~20 medium features, e.g., a fully functional website that displays a catalog of 1000s of movies, cart checkout backed by sessions, secure login using SHA256 hashing and sessions, full-text search and auto-complete backed by a cache, bot detection using reCAPTCHA, protection against SQL injection attacks via PreparedStatements. We improved our website performance 98% by implementing optimizations including: MySQL, connection pooling, MySQL replication, and Apache load balancing.

Web Scraping June 2023
I wrote a C++ program to scrape data from any website with Arduino microcontroller, HTTP requests and API extraction techniques. In real time, I displayed the data on an external LCD screen connected with the Arduino microcontroller.

Calculator, NIM Game September 2021 - December 2021
I developed a postfix calculator and a traditional NIM game in C++. The calculator can do algebraic operations on integer numbers of unlimited size, applied "Chain of responsibility" pattern in object-oriented programming and stack data structure to build a powerful calculator which can perform calculation on big integer numbers have infinite range, and the result can be an infinite integer number. The NIM game allows the users to take turns to take away a number of stones from the available piles and applied concepts of struct and vector data structure into game development.