

## Michael T. Richards – Software Engineer

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### Skills

C, C++, Python, SQL, HTML, CSS, Javascript, Java, JQuery, Node.js, MongoDB, React.js, Mongoose, Github/GitLab/Git, Trello, JSON, Unix/Linux, Android, Neo4j, Mac OS, API, Full CRUD, Arduino, MATLAB, Perl, Python TK library (GUI), AWS, Cybersecurity, Terraform, Docker, Kubernetes, Jenkins.

### Education

ZICT – AWS Practitioner Badge, October 2024; Completion of DevOps coursework (Badge forthcoming)

Front Range Community College – IBM Cyber Security badges, August 2024

General Assembly - Immersive Full-Stack Web Development Program Certificate, 2018

Udemy Online Courses – Certificates of Completions - Learned Website Penetration Testing and Website Hacking, 2018

University of Colorado at Denver - B.S. Computer Science, 2016

Community College of Denver - A.S. Computer Science, 2009

### Summary of Qualifications

- **Perl (scripting)** – Implemented program scripts for finding and parsing logs, finding similarities/differences in file/directory contents using a set-theory-based library, monitoring the ELK stack's processes and daemons on different domains, date-time conversion between epoch and standard string formats, pattern-matching strings/arrays using a pattern-matching library, and running quicksort and insertion-sort algorithms. Worked on fixes for programs/scripts for finding a user's credentials/certs and reading crons. Implemented object-oriented data-structures pointer constructs.
- **Perl Project** – Created a log-grepping tool and its documentation. Also implemented getOptions for its following arbitrary options on a command-line prompt: Date-time setup, case option, block-grepping options, debugger mode, file output/path destination, search pattern, secondary prompt, and help documentation.
- **Python Programming (scripting)** - Created and implemented byte, stack, and searching algorithm programs.
- **Python Project** – Created a Graphical User Interface (GUI) for a log-grabber python script with the following features: compilation construct using the **Waterfall** concept, multiprocessing/multithreading, a documentation page within the GUI, and a viewer for displaying the running states of threads/processes, their activity states, and the number of errors and what they are. Also created a means for the GUI to assemble together command strings based on the user's choice of options to be conveyed to the GUI's provided log-grabber script.
- **Android App Programming** - Created a number of functions utilizing troubleshooting and complex engineering and design concepts for a First Responder's Personal Electronic Device (FirstNET Engineering internship as student trainee).
- **C & C++ Programming** - Used inheritance, encapsulation, networking, stream I/O and random access file I/O. Implemented different sorting algorithms using C++. Developed Dijkstra's algorithm program in C++. Developed the Knuth-Morris-Pratt and finite-state-machine pattern-matching algorithms. Developed a C++ parsing program for use with a command prompt to create and add new user defined commands. Worked on fixes for FTP/SFTP (**Linux**). Also implemented a socket program for client/server command processing program for print jobs. Performed unit testing.
- **Java Programming (scripting)** - Used various packages provided by the Java platform, stream I/O, random access file I/O, and both extending (inheritance) and collection classes. Developed byte and matrix implementation programs. Developed an encryption program in C++ and a counterpart in Java. Developed application processes to manipulate a **Neo4J** graph database and output search results (unstructured querying of database contents).
- **MATLAB Programming** - Developed programs for calculating the QR factorization of matrix problems, Household Reflectors, mathematical root finding & interpolation and finding the Cholesky & LR factorizations of numerical matrices.
- **ELK Stack** – Implemented Kibana dashboards for monitoring the ELK stack on different domains and their log files over user-inputted timespans, transferred dashboard schemas over different domains, monitored the ELK stack, and worked on fixes for a JSON file for finding ELK logs depending on the user's current working domain. Also used a Java-based process-control tool for viewing the ELK stack's processes and daemons.
- **Database Development and Project Leadership** – Involved in database design/development using **SQL**. Performed as “first up” in rotating team lead of a team to create a database of records for helping handicapped people search for accommodating devices (medical durables, therapy apps, etc) with **SQL**; planned and coordinated the project utilizing **Waterfall** methodology and performed analysis and design, as well as the actual programming of a previously developed security program. My phase involved developing the initial design.
- **Operating Systems Experience** - Experience using Windows 7/Windows 10, **Unix/Linux**, and Android operating systems.
- **Github/GitLab/Git (Linux)** - Utilized during software development and software fixes with an understanding on baseline concepts. Performed cloning, branching, pulling, and pushing when working on discrepancy/incident reports, and code reviews. Also performed symbolic linking to repository resources within a local build area, created API keys/certs, and created different script-file commands for performing other general duties (.cshrc).

### Work Experience

Software Engineer Associate – Lockheed Martin – Aurora/ Littleton, CO – December 2020 to May 2024.

- Performed fixes on software programs/scripts used in the workplace; created software program/scripts and GUIs.
- Worked on discrepancy and incident reports as well as code reviews using Bugzilla and GitLab.
- Monitored the ELK stack and its current activities.
- Performed unit testing in C++.

Front End Developer/Web Penetration Tester (contractor) – ACED Intervention – Denver, CO – April 2018 to December 2020.

- Worked on front-end development of the FBA page's graphs and design for the app using Angular JS, HTML, and JavaScript.
- Practiced application of Udemy penetration testing techniques on external web/mobile applications using Kali **Linux**

Physics Lab Assistant, Metro State University, January 2014 to March 2016.

- Work included a project developing a hard/soft interface using an **Arduino** platform (microcontroller and computer) to scan RFID chips.

