Kenneth Carroll

Software Engineer

I am an experienced engineer fluent in C and C++ with the bulk of my experience being testing on and developing with embedded systems. I have worked on both classified and unclassified military software systems, assisted with commercial software testing, along with previous experience with NASA Marshall Space Flight Center as a T&V team member for the Space Launch System, served as lead software engineer on a continuation of Honeywell's Dependable Multiprocessing project, and as a flight software engineer for a Lunar Satellite launching on EM-1.

Authorized to work in the US for any employer.
Active Security Clearance
Actively Enrolled in Eastern Kentucky University's Online Master's of Computer Science Program

Work Experience

Controls Engineer

Belcan – Cincinnati, OH - May 2019 to April 2020

GE Aviation (Military):
Created and maintained a new Synergy database for the development of a classified military project. Documented new and existing software, and generated documentation for working on the project's software. Worked to translate NPSS (C++ syntax) control software over to SCADE through a mix of new development and reusing software from an existing engine. Modification of communication buses and system timing code in C++ to reflect design changes. Developed a bash script for use in Synergy for reclassifying files for easier querying.

GE Aviation (Commercial):
Assisted with the Model Coverage Analysis of the GE9X control software in SCADE. Investigated gaps in logic coverage of both Open Loop Test Vectors and Close Loop Test Vectors. Created justifications for missing logic coverage in multiple software packages.

UTC Aerospace:
Provided Low Level Requirement testing in compliance with DO-178B using LDRA for P8-A's Dry Bay Fire Protection System. Organized and ran the peer review of C and LDRA tests for the Low Level Requirement Team through the development process using Agile principles. Updated requirement documentation in IBM Rational DOORS, served as resolver for all Low Level Requirements in IBM Rational Change, created and maintained a Synergy repository for all Low Level Tests for the current software revision. Developed a C code injection process for testing volatile functions that previously crashed/froze development boards. Performed manual inspections of Assembly files for coverage analysis and justification. Create documentation for training new LDRA users for branch coverage analysis of C code. Present the low level testing procedure and demonstrate DO-178B compliance to Boeing shareholders during Technical Readiness Review (TRR).

Controls Co-op

Belcan – Cincinnati, OH - October 2018 to May 2019

Trained on IBM Rational DOORS, Synergy, and Change. Received training with SCADE, along with a heavy introduction into internal combustion engines. Provide basic testing using NPSS along with custom applications in one of our customers tool suites. Create basic utilities using Perl and Batch scripting.

Software Engineering Lead

Dependable Multiprocessing - Morehead State University – May 2018 to November 2018

Integrate OpenClovis into existing Dependable Multiprocessor software and hardware received from Honeywell, delegate tasks for reactivation of ISS flight computer from DM-7, plan and execute the activation of an ARM based branch of Dependable Multiprocessing software. Assist with necessary modifications to C code and Perl scripts.

Flight Software Testing and Verification Intern

NASA MSFC - Huntsville, AL May 2018 to August 2018

Update, modify, and document Design Level Requirement tests in C++ along with corresponding documentation, create new Design Level Requirement Tests as software becomes updated, create regression tests via Event Based Testing. Interact and modify Python based testing harness. Presented testing process and modifications to project burn down rate based off of performance to NASA engineers.

Software Engineer

Morehead State University - Lunar IceCube CubeSat - Morehead, KY August 2017 to August 2018

Develop testable code in NASA's core flight systems (cFS) framework for the C language, for usage within the flight computer of the Lunar IceCube satellite launching on EM-1.

Software Engineer

Dependable Multiprocessing - Morehead State University - Morehead, KY November 2017 to May 2018

Compile custom Linux images for Raspberry Pi devices for commercial Dependable Multiprocessor concept demonstration. Develop tools in C++ and bash to assist with building process and other tasks. Documents usage and create instructions for further uses of the Yocto Project

Volunteer Developer

Twiggs Space Lab - Morehead, KY November 2017 to February 2018

Assist in finding alternatives to XinaBox chips for ThinSat school education program. Program demonstrations to show Arduino based alternatives for ThinSat. Developed C++ code to run configurations of Arduino based alternatives to the functionality found in the XinaBox chips.

Education

B.S. in Space Science

Morehead State University

Technical Skills

C++ (3 years), Embedded Systems (2 years), Python (3 years), JavaScript (2 years), C (2 years), MVC (1 year), Embedded, Agile (2 year), Software Development (3 years), Linux (4 years), DOORS (1 year), SIMICS (1 year), NPSS (1 Year), Synergy (1 year), Change (1 year), LDRA (1 year)

Links

https://www.linkedin.com/in/kenneth-james-carroll

Additional Information

6 upper level courses in Electrical Engineering, 2 upper level courses in RF Engineering and Communication Systems, Digital Signal Processing using Python, Senior Thesis in Machine Learning, and embedded systems development on 3 different forms of micro- controllers through volunteer work and 4 related courses, 80 hours full stack and iOS application development through Udemy along with personal projects.