Nicholas Mears

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An imaginative software engineer with determination to deliver well thought out honest work that is modern and fast. Well rounded with experience, he is determined to provide insight to create simple and functional code to get the job done.

Work Experience

Software Systems Engineer

MITRE, 202 Burlington Rd, Bedford MA, October 2019 - Current
Worked as an intermediate level software engineer for the Emerging Systems Engineering Technologies department at MITRE. The primary responsibility of the job was to support sponsor projects in the role of connecting different digitial tools together to expand their use. A lot of the work focused on modeling and simulating software using SysML and UML modeling languages in tandem with simulation tools, real world api's and hardware.

Projects

uml-cpp

Personal project June 2020 - current
After being frustrated with antiquated apis and not being able to directly interact with those apis from embedded systems I decided to take on the responsibility of creating a modular api in c++ that follows the uml 2.5 specification in my free time. The project really helped me refine my modern c++ programming skills. It is not complete yet but you can find it at the following: `https://github.com/nemears/uml-cpp`

Physics Tool UML Integration

Major project at Mitre, November 2020 - October 2021
Lead developer behind a tool that linked the syntax of physics simulation engine to a UML diagramming tool, Magicdraw. The physics simulation tool had its own syntax and filetype that had not been parsed into and emit out from UML diagrams before. The task took the engines syntax and mapped it to visual diagrams within the UML tool and used those diagrams edited or not in the tool to export back out to functional code.

Simulation Tool for Aircraft System Testbed

Major project at Mitre, January 2021 - current
Lead developer for reusing an aircraft simulation tool as a pipeline to test software against the physical inputs from the overall system. The work involved taking the events from the simulation and sending them over a message bus as input to the systems to test. Also worked on porting windows c to Posix to have simulation engine containerized and easily deployable.

Publication on Non-Equilibrium Thermodynamics

Worcester Polytechnic Institute June 2018 - May 2019
While working on the WPI senior year MQP capstone I was able to work in a lab as part of it where some of my python convolutional video analysis algorithms were used. Because of the use of my code and help lended to the lab I was included as an author in a publication in Nature: `https://arxiv.org/pdf/1812.06002.pdf`

Education

Worcester Polytechnic Institute: Bachelors of Science in Physics with a minor in Computer Science
GPA: 3.75 Graduated May 2019 with High Distinction

Skills

C++, java, python, POSIX, bash, concurrent programming, socket programming, source control, jira, linear algebra, differential equations, graph theory, embedded systems, UML, modeling and simulation