

Robert W. Harder

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SUMMARY OF QUALIFICATIONS: Years of experience developing software in multiple languages with multiple technologies. New languages, technologies, approaches are no problem! I have a background in software development, modeling and simulation, and cyber security. I am comfortable working alone or in a team. I have a current TS/SCI clearance (renewed Feb 2018).

SKILLS AND EXPERIENCE

- Top Secret Clearance
- Database Design
- Modeling & simulation
- Virtual reality
- Data analytics
- Dynamic Web Design
- Languages: Java, Python, C, Javascript, PHP, HTML, XML, SQL, Ruby, Objective-C
- Technologies: multithreading, async i/o, serialization, websockets, GUI, AJAX, RFID
- Amazon Web Services
- Artificial Intelligence
- Network Infrastructure
- Process Optimization
- Microcontrollers
- Operational Testing
- Metaheuristics
- Metrics Development
- Cyber offense/defense
- Citrix/XenServer
- Multicriterion Decisions
- Statistical design

SAMPLE SOFTWARE AND HARDWARE PROJECTS:

Automated Software Testing and Web Reporting Workflow Improvement Tool

United States Air Force Academy, Colorado Springs, CO

Sept 2014–June 2018

- Developed an automated testing tool for students to perform unit testing of their code. The tool included a SQL backend and a web reporting front end for instructors to track key metrics and detailed analysis of student work.
- Extended the tool to support automated grading of submitted programming assignments, saving hundreds of man-hours per year in labor.
- Technologies included Python, async i/o, SQL, HTML, JavaScript, JQuery, TCP.

Embedded Systems Development for Remote Office Status Updates

United States Air Force Academy, Colorado Springs, CO

Sept 2014–June 2018

- Designed and built hardware for “out of office” sign posted on office door and permitted remote updating of status to update students.
- Technologies included Texas Instruments MSP430, Arduino, I2C, LCD, breadboards, embedded programming, bluetooth, UART, C, Python, Java, and websockets.

Ground Control and Payload Support Software for Unmanned Aerial Vehicles

United States Air Force Academy, Colorado Springs, CO

Sept 2006–June 2008

- Developed new ground control software that integrated into an existing autopilot system and required reverse-engineering of network protocols and bitstreams. The tool included an advanced UI with realistic controls and gauges designed to reduce operator workload.

- Built payload support interface for two-way communication between onboard sensors and software on the ground. The tool included low-level interfacing to particular sensors and protocol development for tunneling proprietary formats.
- Technologies included Java2D, JNI, libusb, XML, TCP, UDP.

Collating of Git Repositories for Student Work

United States Air Force Academy, Colorado Springs, CO

Sept 2014–June 2018

- Designed new workflow and developed supporting software to incorporate Git repositories in the classroom and introduce students to version control systems. The tool automated the collection student repositories, collating and preparing assignments for instructor review.
- Technologies included Python, Git, GUI, HTML, JavaScript, shell scripting.

OTHER PROJECTS:

Data Analysis for Theater Security Cooperation in Latin America

Twelfth Air Force, Air Forces Southern, Tucson, AZ

Sept 2011–Sept 2014

- Developed assessment framework that captured the entire team’s contributions from 6 divisions in our 500-person headquarters resulting in more focused and cross-functional planning.
- The task was made more difficult by the variety of data to process. We tracked activities that we conducted with partner nations, like teaching Colombia air drop techniques, the progress of various nations’ military and civil capabilities, and open-source intel of partner militarys’ operations.
- The work succeeded by getting buy-in from all stakeholders and ensuring that everyone benefitted from the work.

3D Weapon Scoring Model and Test Analysis

Air Force Operational Test & Evaluation Center, Ft Walton Beach, FL June ‘03–Sept ‘06

- Built 3D weapon scoring model to reveal significance of aimpoint elevation errors when using miniature munitions. Visual tool and supporting analysis highlighted the miss distances that occur when aiming too far above or below a target and weapon is not arriving perpendicular to the earth.

EDUCATION AND TRAINING:

- PhD, Modeling, Virtual Environments, & Simulation, Naval Postgraduate School, 2011
- MS, Operations Research, Air Force Institute of Technology, 2000
- BS, Industrial Engineering, Oregon State University, 1998
- Test & Evaluation Level II Certification, Defense Acquisition University, 2006