

Zahraa Sadeq

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EDUCATION

University of Arizona

Bachelor of Science

Electrical and Computer Engineering & Mathematics Minor	GPA 3.4	May 2020
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Master of Science

Electrical and Computer Engineering	GPA 3.8	May 2022
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SKILLS

Systems Engineering & Prototyping: Requirements engineering (DOORS), SIL/HIL/SMIL testing, system integration, prototyping novel embedded/software systems.

Programming & Data Analysis: Python, MATLAB, C/C++, Java, Bash; data acquisition, cleaning, and analysis.

Machine Learning & Algorithms: TensorFlow, OpenCV, NLP, image segmentation/classification, ML model prototyping.

Testing & Validation: Automated testing (gTest, GMock, LCOV/GCOV), static analysis (Coverity), simulation-based regression testing.

Tools & Platforms: Git, Azure DevOps, Linux, VxWorks, Agile/Scrum.

EMPLOYMENT

Raytheon Technologies

Fulltime – Software Engineer

August 2020 – March 2025

- Designed and executed system-level simulations and experiments (SIL/HIL/SMIL) to validate novel embedded software and hardware integration.
- Collaborated with system engineers and stakeholders to translate customer requirements into system-level specifications (DOORS) and ensure traceability through testing.
- Developed Python and MATLAB scripts for data acquisition, cleaning, and analysis of mission data, enabling root cause analysis of anomalies and performance issues.
- Prototyped and validated embedded C/C++ software components across PPC and DSP architectures, integrating with real-time operating systems (VxWorks).
- Led root cause analysis of complex system failures, presenting findings and technical recommendations to cross-functional teams and stakeholders.
- Automated test workflows and reporting pipelines, improving efficiency and reproducibility of system validation.

Internship – Software

June 2020 – August 2020

- Wrote Lua scripts for WireShark to filter out packets traveling between components
- Worked on code written in Lua script and tested it in WireShark to debug and fix software and hardware issues found in software
- Compiled a manual on how to run the mission computer software used in lab for testing

Internship – Integration and Verification

June 2019 – July 2019

- Provided technical help by debugging and fixing software and hardware in equipment
- Collaborated with the System IPT Lead on condensing and clarifying important data
- Took initiative by updating old procedures with feedback about incorrect practices involving effective communication

University of Arizona Electrical and Computer Engineering Department

Undergraduate Lab Assistant in Digital Logic

August 2018 – December 2018

- Taught students how to code in Verilog and use FPGA boards, debug, and troubleshoot hardware and software issues
- Maintain lab equipment, teach students how to follow lab procedures and guidelines
- Help students maintain their grades by providing them feedback about their progress in labs

*Undergraduate Lab Assistant
in Computer Programming for Engineering Applications I*

September 2016 – May 2018

- Graded students' exams and homework
- Helped students to enhance their abilities in problem solving in programming with C, debugging and code structure

PROJECTS

FractalEyes

Fall 2019 – Spring 2020

- Won the award for Best Implementation of Agile Methodology
- Designed and programmed an application that implements Natural Language Processing (NLP) for image processing using Python and OpenCV. The application purpose was to segment medical images to be used in future deep learning image classification systems to help classify diseases without the bias of medical profession
- Designed the application algorithm using Python and OpenCV to intake medical images and classify the images based on three different methods for feature extraction and comparison techniques: color frequency, luminosity, and granularity
- A GUI interface was then developed using Electron, HTML, JavaScript, and CSS to interact with the program

SunRunner Project

Fall 2019

- Created a website that is linked to a Photon device that tracks users' activities, UV light, location, workout routines, and notifies the user of other users around

- Designed and launched a HTTPS website from Apache server using Express, Node.js, HTML, CSS on AWS
- Programmed a Photon device to track users' activities, UV light, location, workout routines and other users using C++, JSON
- Created a MongoDB database to store usernames, passwords and user data