# Michael Fadem

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#### EXPERIENCE

#### Sandia National Laboratories

Albuquerque, NM Jan 2022 – Present

• R&D Computer Scientist Software Systems Engineer

Oct 2019 - Jan 2022

- Tracktable: Engineering lead and maintainer for the Sandia open source project and 2020 R&D 100 award winner Tracktable, https://tracktable.sandia.gov/, providing trajectory analytics and rendering capabilities through a Python library which leverages a C++ backend for performance
  - \* Responsibilities: Feature design/implementation/review/maintenance, bug fixes, release planning, backlog grooming, documentation, package management and CI/CD management
- Modeling and Simulation: Primary software integration engineer for a critical national level modeling and simulation program, integrating four large scale Sandia software systems together and successfully producing simulation results in less than 3 months
- Satellite Ground System Enhancement: Developed C++ software and testing suites along with super resolution image processing algorithms leveraging OpenCV in an AWS environment for a major satellite ground system enhancement program
- Next Generation Ground System: Developed and deployed rapidly prototyped software for next generation ground systems that was concurrently developed by internal and external teams leveraging state-of-the-art algorithms and Python-based GPU processing
- Data Visualization: Developer for a generalized data visualization tool utilizing NASA's OpenMCT framework and web technologies such as Javascript, Webpack and Node.js
- Data Analytics: Performed large scale data analysis and visualization to reinforce and verify algorithm correctness while satisfying customer requirements and requests
- **Developer Workflow**: Developed internal bots and scripts to assist developer workflows and debug environments including a Git blame TODO bot which finds TODOs within a codebase and alerts the original author automatically in Mattermost
- Mentoring: Mentored multiple new software engineers and computer scientists on project technical details and Sandia culture to reduce project and Sandia spin up time

#### Honeywell Aerospace

Albuquerque, NM

 $Software\ Engineer$ 

Jun 2017 - Oct 2019

- V-22 Main Flight Display: Developed and deployed frontend and backend embedded software, written in C, for the V-22 Osprey's main flight display and keyboards
- $\circ$  Software Performance: Redesigned and optimized critical flight display graphics interface improving indexing runtime from O(n) to O(1) utilizing a lookup table
- Software Lab Upgrade: Software focal for the V-22 Osprey software integration lab upgrade successfully adding fully remote software testing, power control, and hardware loading capabilities
- Automation: Automated the software build process for the V-22 Osprey main flight display utilzing virtual machines and Python scripts reducing overall build time and complexity by over 50%
- Customer Interaction: Provided technical analysis and recommendations to external customer technical requests and software issues

## **EDUCATION**

#### Georgia Institute of Technology

Atlanta, GA

Master of Science in Computer Science; Specialization: Interactive Intelligence

Aug. 2021 - Dec. 2024

New Mexico State University

Las Cruces, NM

Bachelor of Science in Computer Science

Aug. 2013 - May. 2017

### TECHNOLOGIES & SKILLS

- **Programming Languages**: Python (5+ years exp.), C/C++ (3.5+ years exp.), Various Other Languages (<6 months exp.): Java, C#, JavaScript, etc.
- Domains: Backend, Dev Ops, Open Source Software, Geospatial/Trajectory Analytics, Graphics, Image Processing, Object Detection, Remote Sensing
- Technologies: APIs, AWS, Azure Dev Ops, Boost, CMake, CTest, Docker, Git, Github, Gitlab, Gitlab CI/CD, Jenkins, Kubernetes, Linux, MacOS, MongoDB(<6 months exp), Numpy, OpenCV, Pytest, Sphinx, Windows
- Software Development: Agile, Code Reviews, Continuous Integration/Continuous Development, Documentation, Full Software Development Life Cycle, Integration Testing, Kanban, SAFe, Scrum, Unit Testing,
- Software Packaging: Anaconda, PyPi