Melanie Thibodeau

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Summary:

Computer Scientist with 3.5+ years of experience supporting Navy and government programs through software development, system testing, integration, and requirements management. Recently completed a Master's in Computer Science with applied research in machine learning and computer vision, focused on optimizing medical image datasets for object detection using YOLOv7. Strong background in Python, automation, verification and validation, and translating technical requirements into reliable, production-ready systems.

Experience

- **Naval Undersea Warfare Center – Newport** **September 2022 – Current**
  Computer Scientist
  - Assisted in the development in a rule-based automation tool using JavaScript to recommend strategies for various military missions
  - Performed verification and validation testing for system updates, including patch and release testing
  - Supported system integration and deployment activities, including on-site installation and operational monitoring
  - Created training plans and technical presentations based on program reviews, translating new developments into clear, reusable materials relied upon by team leaders for project briefings
- **RegDOX Solutions** **May 2021 – September 2022**
  IT and Customer Support Intern
  - Verify daily the system's status and logs to check for security breaches.
  - Test system and application patches and report any problems. Write blogs covering topics on blockchain, metadata, and the zero-day vulnerability with log4j.
  - Help customers with login issues, security permission issues, and product questions.

Technical Skills

- **Programming Languages**: Python (TensorFlow, PyTorch, TorchVision, MatPlotLib, Numpy), Java, JavaScript (React.js), HTML, CSS, C/C++, C#, MATLAB, Assembly
- **Tools**: Jira, Eclipse, GCC, Makefile, Virtual Studio Code, Google Colab
- **Environments**: Anaconda, Git, Linux, Unity, Kali Linux, Windows OS

Education

- **University of Massachusetts Dartmouth, Dartmouth, MA 02747**
  MS in Computer Science – January 2026
  BS in Computer Science – May 2022

Projects

- **Thesis** **December 2023 – January 2026**
  Focused on optimizing medical image datasets through augmentation methods to improve Lyme disease detection. Leveraged a public crowdsourced dataset to enhance YOLOv7 object detection performance. Applied augmentation techniques including CLAHE, photometric transformations, elastic deformation, and MixUp, resulting in improved detection accuracy
- **Senior Design Project – Capstone** **September 2021 – April 2022**
  Team Lead on creating a GPS Verification and Validation Tool for satellites that the Naval Undersea Warfare Center. Designed a computer program that calculates and displays data from GPS Almanac files on a skyplot from a GUI. In charge of communication, coordination, and planning between client and team members. Responsible for designing the product's architecture, writing documentation, testing, and programming parts of the graphic user interface.