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In my current role as a Computer Scientist in the Reliability and Maintainability division at NAWCWD, I support U.S. Navy systems through a combination of statistical reliability analysis and model-based systems engineering. I’ve conducted Weibull modeling, fault tree analysis (FTA), and failure modes and effects analysis (FMEA) to assess and improve system reliability and readiness. To streamline analysis and support predictive maintenance, I’ve developed Python and MATLAB scripts that automate data processing, test planning, and modeling workflows. These tools have been instrumental in identifying failure trends and optimizing maintenance strategies. Additionally, I’ve worked with SysML and other MBSE tools to document simulation workflows and ensure traceability between system architecture, reliability assessments, and operational requirements—bridging the gap between analytical models and system-level design.

In support of Navy missile systems, I developed Python and MATLAB scripts to analyze flight test and diagnostic data for reliability and predictive maintenance. Using libraries like NumPy, Pandas, and MATLAB’s Predictive Maintenance Toolbox, I implemented Weibull modeling, survival analysis, and RUL estimation to assess component health and forecast failures. These tools enabled condition-based monitoring of critical missile subsystems, helping to reduce unplanned downtime and improve test planning and system readiness.

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