MATTHEW MERIOLES

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EDUCATION

University of California, San Diego — **Sept 2025 - Present**
M.S. Electrical Engineering: Communication Theory & Systems
Coursework: Modern Communication Networks, Information Theory, Big Network Data

University of California, San Diego — **Sept 2020 - Jun 2024**
B.S. Electrical Engineering: Machine Learning & Controls
Coursework: Data Networks I/II, Deep Learning, Intelligent Systems, Software Foundations A/B

EXPERIENCE

Northrop Grumman · Electrical Engineer II — **Nov 2025 - Present**
- Build automation-first workflows in Python/Ansible + Jinja2 for distributed configuration generation, deployment, and sustainment (standardization, validation, and drift reduction).
- Troubleshoot data center issues across EVPN/VXLAN fabric, Palo Alto firewalls, and VMware NSX environments.
- Identify operation and build bottlenecks and prototype automated alternatives to improve reliability and deployment speed.

Northrop Grumman · Associate Electrical Engineer — **Sept 2024 - Nov 2025**
- Supported the design and integration of core network infrastructure for data center builds, including underlay/overlay considerations, redundancy/failure-domain awareness, and L2/L3 boundary impacts.
- Implemented network monitoring/observability using the TIG stack, LibreNMS + SuzieQ, and custom polling scripts.
- Produced system build and operations documentation using reStructuredText + Sphinx/Jinja2, enabling consistent deployments and cross-team handoff.

Northrop Grumman · Electronics & Payloads Intern — **Jun 2023 - Aug 2023**
- Developed a scalable Python application to remotely connect to network devices and perform configuration analysis/compliance checks, reducing hour-long validation processes to minutes.
- Partnered with network engineers to implement and deploy network infrastructure; translated operational requirements into automation opportunities and test plans.

Northrop Grumman · Electronics & Payloads Intern — **Jun 2022 - Aug 2022**
- Used Cisco Modeling Labs to emulate and validate network topologies for integration planning and training purposes.
- Built small Python and VBA scripts to automate redundant team workflows and improve repeatability of lab/test activities.
- Facilitated weekly build process meetings, coordinated cross-team validation, and maintained shared documentation resources to improve execution clarity.

Boeing · Electrical Engineering Intern — **Jun 2019 - Aug 2019**
- Utilized LabVIEW to evaluate electronic components for performance, reliability, and quality in extreme environments.
- Recorded and submitted component test data to support product development and engineering decisions.

UC San Diego JSA · Web Developer & Staff — **Mar 2023 - Jun 2024**
- Designed and deployed flexible web features (e.g., user logins, dynamic galleries) using Firebase, HTML/CSS/JS, improving usability for hundreds of students and club members.
- Supported club event planning; volunteered at a local Japanese preschool; led language table activities hosting 60+ participants weekly.

PROJECTS

802.11 OFDM PHY Implementation
- Implemented a Python-based IEEE 802.11 OFDM baseband chain (STF/LTF preambles, IFFT/FFT, cyclic prefix, QPSK mapping) and simulated channel impairments including attenuation, phase rotation, carrier-frequency offset, and AWGN.
- Designed self-/cross-correlation algorithms for packet detection and timing synchronization, then used LTF-based per-subcarrier channel estimation and equalization to recover 4k+ transmitted bits with zero BER.

BitTorrent Simulation
- Developed a Python-based BitTorrent simulator modeling tit-for-tat piece exchange, optimistic unchoking, and peer churn across hundreds of nodes - visualized with NetworkX/Matplotlib libraries

SKILLS

Languages: C/C++ · Python · Bash · MATLAB · SQL · Jinja2 · ReST · LabVIEW
DevOps/Observability: Ansible · Git · CI/CD · Docker · Grafana · InfluxDB · Telegraf · LibreNMS · SuzieQ
Certifications: Security+ · Active TS/SCI Security Clearance
Spoken: English (Native) · Japanese (Professional Working Fluency) · Spanish (Basic)