David Hoffman

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SUMMARY

Engineer exploring the frontier of quantum networking technologies, with a strong interest in contributing to cutting-edge research and development in emerging computing domains. Brings 15+ years of experience designing and automating secure, scalable systems across networking, cybersecurity, computer vision, and electronics R&D. Skilled at translating complex technical concepts into actionable solutions, collaborating with cross-functional teams, and applying proven problem-solving abilities to advance the capabilities and applications of quantum communication and networking.

EDUCATION

Certificate – **Quantum Science, Networking, and Communications** — University of Chicago – 2025

Masters of Science – **Software Engineering** — East Carolina University – 2017

Bachelors of Science – **Computer Engineering** — North Carolina State University – 2011

Bachelors of Science – **Electrical Engineering** — North Carolina State University – 2011

TECHNICAL SKILLS

Programming & Scripting: Python, C, Java, SQL, JavaScript, React, Bash, PowerShell

Frameworks & APIs: Qiskit, SeQUeNCe, Django, Flask, FastAPI, GraphQL, REST APIs, WebSockets

AI / Machine Learning: TensorFlow, PyTorch, OpenCV, Scikit-image, Scikit-learn, Pandas

Data & Databases: PostgreSQL, MySQL, MongoDB, Neo4J, Redis, Google Datastore/Firestore, Hadoop, Vault

Cloud & DevOps: AWS (Lambda, S3, EC2), GCP (Compute, Run, Kubernetes, Storage), Docker, GitLab CI/CD

Networking & Security: Nautobot, Ansible, Keycloak, Vault, CyberArk

QUANTUM COMPUTING & QUANTUM NETWORKING PROJECTS

- Designed and simulated quantum algorithms and communication protocols (Grover's, Simon's, superdense coding, teleportation, BB84 QKD) using Qiskit with Python/Jupyter, progressing from simple gates and EPR pairs to multi-step systems
- Simulated a star-topology quantum network in Python using SeQUeNCe, configuring hardware and protocol parameters to model entanglement requests between nodes, and analyzed performance metrics across varying network conditions

EXPERIENCE

Vice President, Software Engineer, Network Automation — Bank of America

June 2025 - present – Chicago, IL

- Design and develop network automation software that integrates with enterprise-scale systems
- Collaborate with security, infrastructure, and risk teams to ensure reliability and compliance across mission-critical systems and complex system orchestration
- Leverage Python, Nautobot, APIs, GraphQL, Websockets, MySQL, Ansible, Vault, CyberArk

Senior Software Engineer, Cybersecurity — Reveald Inc.

June 2022 - May 2025 – Remote (Chicago, IL)

- Lead backend developer for cybersecurity vulnerability, exposure, impact, and agent control
- Developed graph reduction algorithms using NetworkX and custom methods to simplify node-edge relationships, enabling efficient browser rendering and improved user visualization
- Created a cross-platform ticket management integration for JIRA and ServiceNow saving $150K in annual license fees
- Implemented a system health backend and dashboard for system troubleshooting and status
- Leveraged Python, Django, Flask, APIs, GraphQL, PostgresSQL, Redis, Kafka, Vault, Keycloak, Docker, AWS EC2

Senior Software Engineer, Document Management Systems — Deloitte (DivIHN Integration)

March 2021 - June 2022 – Remote (Chicago, IL)

- Architected a high-volume automated document management system generating $10M ARR
- Integrated document classification and text recognition (OCR) engines (DocumentAI, HyperScience, Parascript)

- Leveraged Python, OpenCV, Docker, Google Cloud (Cloud Run, Cloud Build, Datastore, Container Registry, Kubernetes)

Senior Software Engineer, Writer, & **Customer Support Engineer** — PyImageSearch

May 2017 - March 2021 – Remote (Durham, NC & Chicago, IL)

- Developed advanced computer vision pipelines for object detection, tracking, and classification
- Authored 170+ technical tutorials and a 3-vol book raising $370K on Kickstarter.com
- Provided technical support to 15,000+ global customers driving community engagement and education
- Grew email mailing list from 80,000 to 300,000 subscribers
- Utilized OpenCV, Python, TensorFlow, Keras, mxnet, Scikit-Image, Scikit-Learn, NumPy, Pandas

Software Engineer, Network Test Automation — Cisco Systems (GDH Consulting)

June 2017 - October 2017 – Raleigh/Durham, NC

- Implemented Python network automation test cases (BGP, Segment Routing) for Cisco customers
- Configured switches, routers, and traffic generators with Python and Bash automation

Graduate Research Assistant — East Carolina University – Computer Science Department

May 2016 - May 2017 – Greenville, NC

- Instructor for 60-student Undergraduate Discrete Mathematics course
- Awarded the 2016-2017 Outstanding Computer Science Graduate Assistant by the department
- Researched distributed computing utilizing Hadoop and MapReduce

Electrical Engineer, High Performance Cable Test Systems — Molex

May 2014 - May 2016 – Little Rock, AR

- Developed and maintained automated test systems for validating high-speed electrical connectors and interconnect technologies in a lab-based R&D environment and manufacturing sites (Little Rock, Guadalajara, Dongguan, Manila)
- Designed test and data collection scripts in Python, TCL, and C to interface with oscilloscopes, spectrum analyzers, time domain reflectometers, and vector network analyzers ensuring accuracy in high-frequency signals for datacenter cables
- Collaborated with lab members to analyze signal integrity of cables and connectors and create automated reporting tools to streamline data analysis and test result visualization for engineering and quality teams
- Stored lab and manufacturing data in global MySQL databases

RF Engineer, Cellular, Microwave, & Radar — Northrop Grumman

August 2011 - April 2014 – Cherry Point, NC & Virginia Beach, VA

- Designed, integrated, tested, and secured communication systems for Navy/Marine Corps tactical training ranges (classified and unclassified).
- Established and maintained secure wireless systems across microwave, radar, and cellular frequency bands.
- Performed RF signal analysis and troubleshooting with spectrum and network analyzers and other high-frequency test equipment.
- Conducted RF path analysis using MATLAB RF Toolbox and custom spreadsheet models.
- Installed antennas and lightning protection on east coast radio towers (rescue-climbing certified).
- Authored technical documentation and test protocols for secure, reliable communication and sensor systems.
- Procured and tracked hardware/software for DoD projects in asset inventory systems.
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- Designed, integrated, tested and secured unclassified and classified communication systems on the east coast tactical training ranges for the Navy/Marine Corps
- Established and maintained secure wireless communication systems operating across microwave, radar, and cellular frequency ranges
- Performed RF signal analysis and troubleshooting using spectrum analyzers, network analyzers, and other high-frequency test equipment
- Conducted RF path analysis using software such including MATLAB RF Toolbox and spreadsheets
- Installed antennas and lightning protection on east coast radio towers (rescue-climbing certified)

- Developed technical documentation and test protocols for complex communication and sensor systems emphasizing secure and reliable data transmission
- Procured hardware and software for DoD projects and entered them into asset inventory tracking systems