Gabriella R. Vallar

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SUMMARY

Software Engineering student specializing in machine learning, cybersecurity, and autonomous systems. My research experience includes UAV-based disaster resilience, federated learning, and secure IoT systems with published work in IEEE Access. Strong background in Linux administration, data modeling, robotics, and system programming.

EDUCATION

Florida Gulf Coast University Fort Myers, FL

Bachelor of Science in Software Engineering Expected April 2027

- **Relevant Coursework***:* Data Structures & Algorithms, Operating Systems, System Administration & Programming, Software Engineering Fundamentals, Digital Systems & Architecture, Introduction to Robotics, Discrete Mathematics, Machine Learning, Introduction to Statistics, Programming I & II, Python Programming, Calculus I-III, Physics I-II

TECHNICAL SKILLS

- **Programming:** Python, C++, C, Bash
- **Systems & Tools:** Linux, Git/GitHub, Autodesk Inventor, AutoCAD
- **AI/ML:** Machine Learning, Predictive Modeling, Federated Learning, Reinforcement Learning, Feature Engineering, Data Cleaning
- **Cyber/Defense:** Linex Hardening, Network Security, Secure System Design, IoT Security, Cyber-Physical Systems, Firewalls, TCP/IP, Version Control, Virtualization
- **Other:** Research Methods, Teamwork, Excel, PowerPoint, Word, Sensors, Motors, Technical Writing

EXPERIENCE

FGCU Network, IoT, and Cybersecurity Research Lab| *Research Assistant* February 2025-Current

- Conduct research on intelligent, secure, and adaptive systems integrating machine learning, IoT, and quantum computing for cybersecurity and infrastructure resilience.
- Co-authored “HiFINS: A Hierarchical Federated Learning Based Interactive System for Smart Home Security” developing a scalable, privacy-preserving framework for smart home defense.
- Leading the Quantum Reinforcement for Real-Time UAV-Aided Post-Disaster Transportation Infrastructure Resilience, applying digital twins and quantum reinforcement learning for UAV coordination and infrastructure recovery.

Publications

HiFINS: A Hierarchical Federated Learning Based Interactive System for Smart Home Security

- Gabriella Vallar et al., *IEEE Access*

Quantum Reinforcement Learning for Real-Time UAV-Aided Post-Disaster Transportation Infrastructure Resilience (Ongoing)

Projects

WNBA First Round Pick Prediction Model (Ongoing)

- Built a predictive pipeline using Random Forest and XGBoost to rank projected first-round draft prospects.
- Feature engineered NCAA statistics and historical draft data to generate top 12 prospect outputs.
  Tech: Python, scikit-learn, pandas, NumPy

Linux DNS/WEB Server

- Collaborating on configuration of a Linux-based HTTP server with secure port management and firewall rules.

- Implementing networking, IP testing, logging, and system troubleshooting.
  Tech: Linux, Bash, Apache, dnsmasq, systemd

Library Inventory System (C++)

- Developed file-handled library management system with a menu drive UI and command recall.
- Utilized OOP, conditional logic, and program control for organized data processing.
  Tech: C++

WORK EXPERIENCE

Chick-fil-A| *Team Member* August 2021 – July 2022

- Worked in a high-volume team environment, supporting operations, cash handling, and customer experience while maintaining accuracy and efficiency.

YMCA | *Group Leader* May 2023-May 2025

- Led and coordinated activities for large groups while maintaining safety and organization.
- Managed required documentation and communication with staff and families.

Renaissance MyON | *Team Member* June 2025-August 2025

- Delivered onsite technology presentations across multiple elementary schools, supporting MyON program engagement.
- Coordinated with a team to organize schedules, transport materials, and deliver consistent program messaging.