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Technical Portfolio: Portfolio
GitHub Repository: My Repositories

PROFESSIONAL SUMMARY

I am a Computer Engineering undergraduate, passionate about cybersecurity and machine learning. Proven experience in developing intrusion detection systems, leading cybersecurity education initiatives, and contributing to open-source projects. Committed to design secure systems that ensure data safety and privacy.

EDUCATION

Ashesi University **Accra, Ghana**
BSc. Computer Engineering **Expected Date of Graduation: June 2025**
Networking, Data Science, Data Structures and Algorithms, IoT, Machine Learning, Operating Systems, Databases, Embedded Systems

CERTIFICATES/ AWARDS

- **Google Cybersecurity Certificate** **October 2024**
- **Microsoft Security, Compliance and Identity fundamentals Certificate** **June 2024**
- **Certified in Cybersecurity Candidate,** ISC^2 **June 2024**
- **UiPath RPA Developer Foundation Certificate** **July 2023**
- **Best First Year Engineering Project,** Ashesi Smart Project Exhibition **June 2022**

WORK EXPERIENCES

Advanced Penetration Testing Simulation with OWASP Juice Shop **May 2025**
Independent Security Lab Project

- Deployed and configured OWASP Juice Shop locally using Docker on Kali Linux for a full-stack pentest simulation.
- Identified critical vulnerabilities including SQL Injection (bypassing authentication), stored and reflected Cross-Site Scripting (XSS), insecure file upload handling, and directory traversal.
- Utilized tools such as Burp Suite, Nmap, and manual interception to craft payloads, manipulate requests, and escalate privileges to administrative access.
- Simulated real-world exploitation scenarios and documented each finding with detailed impact analysis and mitigation strategies.

Web Application Vulnerability Assessment, *Hack Secure Internship* ***April – May 2025***

- Conducted ethical hacking on a vulnerable web application (http://testphp.vulnweb.com), identifying critical flaws like SQL Injection, reflected XSS, and default credentials.
- Performed comprehensive reconnaissance using Nmap, Wireshark, and DirBuster to detect open ports, service versions, and hidden directories.
- Documented each vulnerability with technical descriptions, exploitation steps, screenshots, and proposed remediations.

Internal Network Penetration Testing, *XYZ Logistics (Simulated)* **February 2025**
Project Scope & Plan Documented

- Designed a realistic penetration testing engagement plan for a logistics firm with a focus on warehouse and SQL Server infrastructures.
- Defined rules of engagement, IP ranges, internal VLAN access, limited social engineering, and off-hour DoS windows.
- Aligned testing procedures with real-world ethical and operational standards including NDA compliance and communication protocols.

Penetration Testing Agreement, *EyeCon WebApp* **January 2025**
Conducted under Pentest.io | Focused on Privacy & AI-Enhanced Risk Reporting

- Authored a comprehensive penetration testing agreement between **EyeCon** (a health data platform) and **Pentest.io**, outlining scope, methodology (SQLi, XSS, CSRF, auth flaws), deliverables, legal terms, and timeline for a 30-day web and mobile app assessment.
- Defined pre-engagement, exploitation, and reporting phases, along with authorization and confidentiality clauses, aligned with Ghana Cybersecurity Authority standards.
- Simulated real-world consultancy protocols including structured payment terms, liability, and risk-sharing frameworks.

Senior Technical Writer & Security Researcher, *Educ8Africa* **January 2025 - Present**

- Lead security initiatives, including the *Grow with Educ8Africa* mentorship program for cybersecurity education and career development.
- Provide students with learning opportunities, including security certifications, technical writing, and research in cybersecurity.
- Oversee security blog, publishing research on cyber threats, cryptography, and secure software development.

Cybersecurity Governance Analyst, *Goldman Sachs Virtual Experience* **October - November 2023**

- Conducted security assessment using Hashcat to crack passwords, identifying critical hashing vulnerabilities
- Drafted comprehensive security improvement memo, recommending implementation of dedicated hashing algorithms and extended minimum password length, potentially reducing breach risks.
- Analyzed and documented technical requirements for hypothetical client product, enhancing communication between business and development teams

Project Lead, Smart house team, *Ashesi University* **May – June 2022**

- Led a team of 4 to design and prototype a smart house with advanced security features.

- Programmed Arduino-based automation for doors, cooling systems, and alarm, improving system security.

PROJECTS AND RESEARCH

Python TCP Port Scanner **April 2025**

- Developed a lightweight Python-based TCP port scanner to identify open ports within a user-specified range on a target IP address or domain.
- Implemented socket programming with the socket and datetime modules to perform domain resolution, establish TCP connections, and measure scan duration.
- Enhanced technical skills in Python scripting, port scanning, and ethical cybersecurity practices.

PasswordPro, *Smart Password Tool* **April 2025**

- Developed a user-friendly Python desktop application using Tkinter to help users generate strong passwords and evaluate their password strength in real time.
- Integrated a dynamic password generation engine using uppercase, lowercase, digits, and symbols, ensuring the creation of secure, random passwords that meet modern security standards.
- Built a real-time password strength checker providing user feedback and tailored suggestions based on industry-accepted criteria.

EmailPicker, *Email Reconnaissance tool* **February 2025**

- Developed an advanced email reconnaissance tool for ethical security research and OSINT investigations.
- Integrated multiple data sources, including search engines and social media, to maximize email discovery.
- Achieved high efficiency with multi-threading and proxy rotation, increasing the speed of email harvesting.

SensePay, *ML-Powered Relay Attack Prevention in Contactless Payments* **September 2024-Present**

- Designed and implemented ***SensePay,*** an embedded security system that integrates IMU sensors and machine learning (One-Class SVM) to detect and prevent relay attacks on NFC-based payment terminals.
- Developed a lightweight, real-time fraud detection framework using a 6-axis IMU and ESP32 microcontroller, enabling behavioral authentication through device orientation and motion.
- Achieved 96.7% accuracy in anomaly detection and maintained <300 ms latency, ensuring secure transactions without compromising user experience.
- Simulated and successfully mitigated both delay-based and orientation-based relay attacks, demonstrating the effectiveness of embedded ML in strengthening payment security.

Machine Learning-based Fraud Detection System **October 2024**

- Developed an AI-driven fraud detection system for banking transactions.
- Applied advanced sampling techniques such as ADASYN to improve model accuracy.
- Deployed a real-time monitoring framework to flag suspicious transactions, achieving a 95.75% success rate.

CO-CURRICULAR ACTIVITIES

Co-Head, *PicoCTF Campus Organizing Team* **October 2024 - Present**

- Co-organised Ashesi University's first-ever Capture the Flag (CTF) cybersecurity competition info-session in partnership with Carnegie Mellon University.
- Designed and implemented real-world security challenges for students.
- Organized training sessions and mentored participants in ethical hacking and penetration testing.

Member, *Google Developer Students' Club* **September 2022 - Present**

- Participated in weekly coding workshops, focusing on secure coding practices
- Contributed to development of secure online shop management system, implementing encryption and secure authentication methods.
- Contributed to the local developer's community by assisting other developers learn difficult concepts in python.

Robotic Process Automation Course*, UiPath* **June 2023**

- Completed intensive 40-hour training in Robotic Process Automation, focusing on process analysis, bot development, and workflow optimization
- Developed and deployed 3 fully functional RPA bots using UiPath StudioX, automating key business processes including data entry, report generation, and invoice processing

TECHNICAL SKILLS

- **Security Tools**: OSINT Framework, Wireshark, nMap, Hashcat, SQL, Burp Suit, Dirbuster
- **Networking:** Cisco Packet Tracer, TCP/IP, Network Analysis
- **Programming**: Python, Java, C, MATLAB, MIPS, Arduino, VHDL
- **Operating Systems:** Linux, Windows
- **Other:** Git, OWASP, Excel, Word, PowerPoint, Figma, Canva, Wix