ISAAC GYAMFI

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EDUCATION

Princeton University   Princeton, NJ
BSE. Electrical and Computer Engineering, Minor in Computer Science   *Sep. 2022 – May 2026*
- **Relevant Coursework:** DSA, Computer Architecture, Programming Systems, Intro to Machine Learning

EXPERIENCE

Undergraduate Robotics Research Assistant   June 2024 – Present
Princeton University   *Princeton, NJ*
- Led the transition of the codebase from ROS1 to ROS2, enhancing system performance and compatibility with modern robotics standards.
- Designed and documented node and topic architecture for autonomous vehicle systems, ensuring robust communication and data flow.
- Investigated and implemented advanced path-planning algorithms like, **A* and Dijkstra**, to optimize autonomous navigation and obstacle avoidance.

Assistant Developer   May 2023 – August 2023
CKODON Foundation   *Remote*
- Assisted in the development and maintenance of software applications to support the non-profit organization's mission and operations.
- Developed the organization's first careers website with Python Flask, HTML and CSS.
- Provided technical support and troubleshooting for internal and external users, ensuring smooth operation of software tools.
- Participated in project planning and execution, contributing to timelines, deliverables, and project milestones.

Information Technology Support Specialist   July 2021 – Aug. 2021
Vodafone Ghana   *Accra, Ghana*
- Contributed to the automation of enterprise business processes under the technology department
- Conducted network performance monitoring and provided recommendations for improvements, leading to a 15% increase in network efficiency
- Assisted in the maintenance and troubleshooting of telecommunications systems, ensuring efficient operation.
- Supported the IT team in configuring, installing, and upgrading hardware and software components.

PROJECTS

Ckodon Career's Website | *Python, Flask, HTML, CSS, MySQL*   June 2023 – August 2023
- Developed a full-stack web application using with Flask serving a REST API with HTML/CSS as the frontend
- Utilized Bootstrap framework to style the website
- Managed the database of all job applicants with MySQL
- Hosted the website on Render

Buffer Overrun Attack | *C, Assembly, Git*   April 2024 – May 2024
- Explored ARMv8 machine language, stack frame structure, and buffer overrun vulnerabilities.
- Analyzed ARMv8 assembly code and memory layout using GDB and mapped text, data, BSS, and stack sections of a C program that assigns a **grade D** to every name provided except a particular name, which gets a **B**
- Developed exploits to manipulate program behavior via buffer overruns by:
    i. Crafting input to alter program's grade output to **grade B**.
    ii. Using a custom mini-assembler to achieve a **grade A**
    iii. Creating an advanced payload to trick the program into displaying **grade A+**.

TECHNICAL SKILLS

Languages: Java, Assembly, Python, C/C++, SQL (MySQL), JavaScript, HTML/CSS, R, MATLAB, Verilog, ROS2
Frameworks: React, Flask, Tensorflow
Developer Tools: Git/Github, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse, GDB, MemInfo, Valgrind
Libraries: pandas, NumPy, Matplotlib
Operating Systems: Windows, Linux (Ubuntu distribution)

CERTIFICATIONS

1. **Intro to Machine Learning** — Kaggle
2. **Intro to Deep Learning** — Kaggle
3. **ROS Programming** — Udemy
4. **PCB Design** — Udemy