<Michele Barrantes>

Software Engineering & Security

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Summary

Hard-working and determined senior Computer Science student at Indiana University Luddy School. specializing in software engineering. Experienced in full-stack development, cloud technologies, and cybersecurity principles through academic projects and personal initiatives. Eager to contribute technical expertise, collaborate in team environments, and gain hands-on experience in challenging secure software roles.

Projects

- **Network Security Firewall Configuration:** **Fall 2024**
  - **Configured** host-based **firewalls** on **Ubuntu** VMs using **iptables** to enforce traffic restrictions, creating custom firewall rules for test and production servers.
  - Managed VM environments, ensuring secure **communication** and connection rules between servers using **SSH** and **Apache2**.
  - Developed and tested rules that successfully blocked **unauthorized access** while maintaining functionality for SSH and web traffic.
- **Ocean Well (Full-Stack Wellness tracking system):** **Spring 2024**
  - Collaborated in a 5-member **Agile** team to develop a wellness management system using **React** and **Spring Boot** for **full-stack** development.
  - Led the **security** and **backend** development efforts for the system, focusing on system **reliability** through **AES** encryption, **Bcrypt**, and **MFA** with **Duo Mobile**
  - Served as **Scrum Master**, responsible for security backend development, **testing**, and **managing** team workflows, **backlog** via **Jira optimizing** team performance**.**
- **Intrusion Detection System with Snort:** **Fall 2024**
  - Deployed and configured **Snort** on a Linux test server to function as an Intrusion Detection System (**IDS**).
  - **Wrote** custom Snort **rules** to **detect** malicious traffic, including **port** scans and **unauthorized** SSH **connections**, logging results for **real-time** monitoring.
  - Tuned Snort configurations to **reduce** false positives and **improved** rule sets for **detecting various** attack vectors.
- **Disneyland Sentiment Analysis (NLP & Data Visualization):** **Fall 2024**
  - Conducted an **NLP analysis** on **42,000** Disneyland reviews to evaluate sentiment across different locations (California, Paris, Hong Kong).
  - Utilized **NLTK**, **SpaCy**, and **WordCloud** to preprocess text data, extract keywords, and visualize prominent themes in user reviews.
  - Applied **machine learning** algorithms from **Scikit-learn**, such as **Naive-Bayes** for sentiment classification, achieving high accuracy in predicting review sentiments through **data-driven** analysis.
- **DDOS Attack (Network Security):** **Fall 2024**
  - Executed **SYN spoofing** and **Slowloris** attacks on a test server, analyzing vulnerability and resource exhaustion.
  - **Configured** Snort IDS and iptables rules for **detecting** malicious activity and **preventing** network attacks.

Education

COMPUTER SCIENCE B.S 2021-2025(Expected)

- Specialization in **Software Engineering**
- Minors: **Security Informatics, Data Science**

Indiana University, Bloomington, IN, U.S
Dean's List: Fall 2024

LinkedIN: Michele Barrantes
GitHub: m1chele11

Skills

Programming Languges: Python, Java, C, Kotlin, Javascript

Security Technologies: Snort (IDS), iptables (firewall configuration), OpenSSH, AES, RSA, Bcrypt, MFA, VPNs, Virtualization (Vagrant, VMware)

Libraries & Technologies: Numpy, Pandas, Pytorch, REACT, Node.js, Spring Boot, Docker, Kubernetes

CI/CD & DevOps: Git, Docker, CI/CD pipelines, Agile Methodologies

Certifications: AWS Cloud Practitioner

Tools: Rapid API, Github, REST APIs, Firebase, Postman, JIRA, pgAdmin, VirtualBox, vagrant, Wireshark, tcpdump

Databases: PostgreSQL, MongoDB

Work Experience

SOFTWARE ENGINEER **Summer 2024**

Intern

LTC Language Solutions | Indianapolis, Indiana

- Enhanced the **reliability and performance** of the financial analysis system by adding core functionalities using **Python** and **Java**, leading to a 15% improvement in forecasting accuracy.
- **Automated ETL** reducing data processing time by 20%, and streamlining data flow for improved efficiency.
- Participated in daily **stand-ups**, **sprint** planning, and retrospectives as part of an **Agile team**, contributing to the timely delivery of project milestones.
- Prepared detailed reports and presentations on project progress and financial **data analysis** for senior management.

STEM PROGRAM LEADER **Summer 2024**

Intern
DNOVA | Indianapolis, Indiana

- Led technical workshops in **web development** and **security** for underpriveleged high school students, fostering an understanding of **secure software practices**.

ASSISTANT SUPERVISOR **Fall 2022 - present**

IU REC SPORTS | Bloomington, Indiana

- **Managed** and resolved operational incidents involving over **6,000** participants, **improving** event **reliability** and **communication** during critical situations, ensuring participant satisfaction