Izzuddin Ahmad Afif

Internet Engineering Technology Student

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About Me

Enthusiastic Internet Engineering Technology student with a strong passion for cybersecurity, AI, and blockchain. Known for a proactive learning approach, strong problem-solving abilities, and effective collaboration. Experienced in collaborating on security-focused projects, and developing innovative solutions using modern programming languages and tools..

Highlighted Skills

- Programming: Proficient in Go, Python, C and Bash Shell scripting
- Technologies: Hyperledger Fabric, Docker, Kubernetes, Linux
- Cybersecurity: Reverse Engineering, Forensics, Penetration Testing
- Soft Skills: Problem solving, critical and creative thinking, teamwork

Education

High School Diploma

MA YKUI Maskumambang — Jul 2016 - Aug 2019

Valedictorian with highest scores in national and final exams; awarded first place in Madrasah Science Competition in Chemistry and second place in Arabic.

Bachelor of Applied Science

Politeknik Elektronika Negeri Surabaya — Aug 2021 - Present

Chairman of the 2021 class cohort, active member of cybersecurity community. Actively participating in cybersecurity competitions (CTFs), seminars and conferences and mentoring fellow students.

Non-degree Student Exchange Program

Coventry University — Sep 2023 - Jan 2024

Participated in a fully-funded international student exchange program, International Student Mobility Awards (IISMA) under the Indonesian Ministry of Education, Culture, Research, and Technology. Focusing on Machine Learning and Network Security, gaining advanced knowledge through specialized courses, workshops and collaborative projects. Enhanced technical expertise and cross-cultural communication, enriching both academic and personal growth.

Experience

Project Intern

MALONE Group, Burton Office — Oct 2023 - Dec 2023

Helped researching latest technologies to find AI-driven solutions to solve existing problems, e.g. enhancing preventive maintenance in industrial machines using ML and automating meat defect detection using computer vision.

Security Engineer Intern

PT. Sinergi Dimensi Informatika — Jan 2024 - Jun 2024

Worked as a part of security team, collaborated with the development team to integrate security into the software development lifecycle through DevSecOps practices. Conducted Static and Dynamic Application Security Testing (SAST and DAST) using tools like SonarQube and nuclei to identify and mitigate vulnerabilities. Enhanced data security by implementing SSL/TLS protocols for data in transit and configuring database hardening techniques, including Access Control Lists (ACLs) for Redis. Contributed to securing data at rest through encryption practices to support robust system security.

Publication

Design of Corrugated Road Detection System using LoRa Communication

Sep 19, 2022

Institute of Electrical and Electronics Engineers (IEEE), IES Proceedings

Developed a system to detect corrugated road conditions and transmit data, including GPS coordinates and site images, through LoRa technology to a web-based Geolocation Information System (webGIS). This system allows road users to view the location of corrugated roads on a map, accessible from any device. The solution achieved an average data transmission delay of 0.67 ms with GPS location accuracy within 2.285 meters. Ideal detection speed was identified as 30-40 km/hour, supporting safer road navigation by alerting users to hazardous road conditions.

DOI: 10.1109/IES55876.2022.9888636

Projects

IoT Vulnerability Scanner
Nov 2024

Developed a scanner using Laravel for the web frontend, Go for the backend server, and Python with Nmap for network scanning, focusing on identifying vulnerabilities in IoT devices.
Technologies: Laravel PHP, Go, Python, IoT, Nmap, Bash Shell scripting
Link: github.com/izzuddinafif/iot-vuln-scanner

Codecrafters-HTTP-Server-Go & Codecrafters-HTTP-Server-Python
Jul 2024

Created a basic HTTP server in Go and Python as a part of Codecrafters challenge, handling HTTP requests and responses to serve static content. This project strengthened my kPresentledge of HTTP protocol internals and socket programming.
Technologies: Go, Python, HTTP protocol, networking
Links: github.com/izzuddinafif/codecrafters-http-server-go & github.com/izzuddinafif/codecrafters-http-server-python

Codecrafters-Grep-Go
Sep 2024

Implemented a grep-like tool in Go as a part of Codecrafters challenge, parsing and searching through text inputs based on user-defined patterns. This project enhanced my skills in string processing, efficient pattern matching, Recursive programming patterns, and command-line interface development.
Technologies: Go, CLI tools, Regular Expressions, pattern matching
Link: github.com/izzuddinafif/codecrafters-grep-go-final

Codecrafters-BitTorrent-Go
Oct 2024

Built a BitTorrent client in Go as a part of Codecrafters challenge that can download files using the BitTorrent protocol, covering functionalities like bencoding parsing, peer discovery, and piece downloading, etc. This project developed my understanding of file-sharing protocols and concurrency in network applications.
Technologies: Go, BitTorrent protocol, concurrency
Link: github.com/izzuddinafif/codecrafters-bittorrent-go

Codecrafters-Redis-Go
Nov 2024 - Present

Developed a Redis-compatible server in Go as a part of Codecrafters challenge, handling basic commands and understanding the Redis protocol. This project involved implementing a TCP server, managing key-value storage, and understanding data persistence techniques.
Technologies: Go, TCP server, Redis
Link: github.com/izzuddinafif/codecrafters-redis-go

MATLAB-GA-PSO
Mar 2023

Developed a hybrid optimization algorithm combining Genetic Algorithm (GA) and Particle Swarm Optimization (PSO) in MATLAB, designed to optimize parameters for complex systems.
Technologies: MATLAB, optimization algorithms, genetic algorithm, particle swarm optimization
Link: github.com/izzuddinafif/MATLAB-GA-PSO

PasarKu
May 2023

Developed a simple Android market application featuring pages for login, product categories (vegetables, fruits), and checkout. This project involved UI design in Android Studio and managing user interactions, providing an engaging user experience for navigating and purchasing products.
Technologies: Java, Android Studio
Link: github.com/izzuddinafif/PasarKu

Computer Architecture with x86 Assembly (Intel 8086)
Aug 2021 - Dec 2021

Completed a series of practical tasks on the Intel 8086 microprocessor, covering low-level programming and hardware interfacing. Key projects included integrating a heat sensor with ADC/DAC for temperature measurement, adding an LED display, and implementing RAM memory interfacing to manage data storage and retrieval. This work developed my skills in assembly language, peripheral hardware integration, and memory management.
Technologies: Computer Architecture, Assembly (x86), Intel 8086, hardware interfacing, memory management, microprocessor systems
Link: github.com/izzuddinafif/comp-arch-x86-asm

CTF Write-Ups and Solutions
Mar 2024

Documented write-ups and solutions for various Capture the Flag (CTF) challenges, focusing on cybersecurity skills like exploitation, reverse engineering, and network analysis. Platforms include OverTheWire and HackTheBox, where I solved challenges and created detailed notes for personal learning and sharing with the community.
Technologies: Python, Bash Shell scripting, cybersecurity tools
Links:

- OverTheWire Write-Ups : github.com/izzuddinafif/OverTheWire
- HackTheBox Write-Ups: github.com/izzuddinafif/HackTheBox

ProjectEuler Solutions

Nov 2022

Completed various ProjectEuler problems in C, showcasing problem-solving and algorithmic skills in a variety of mathematical and computational challenges.
Technologies: C
Link: github.com/izzuddinafif/ProjectEuler

Exercism Solutions

Aug 2024

Completed a variety of coding challenges on Exercism, covering multiple language tracks to improve problem-solving skills and deepen understanding of programming concepts. This project involved tackling exercises in languages such as Go and Python, showcasing versatility and a dedication to mastering new languages and techniques.
Technologies: Go, Python, various programming languages
Links: github.com/izzuddinafif/Exercism

Predictive Maintenance in Elevator Industry Using Machine Learning

Nov 2023

Developed a machine learning model to predict maintenance needs for elevators using sensor data (vibration, temperature, etc.). Implemented and compared models like Random Forest and Decision Trees to identify potential issues early, improving reliability and reducing downtime. Focused on data preprocessing, feature engineering, and model evaluation to enhance prediction accuracy.
Technologies: Python, Jupyter Notebook, Scikit-Learn, Machine Learning Algorithms
Link: github.com/izzuddinafif/predictive-maintenance-elevator-ml