

Alfan Risqi Wahyudi

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RESEARCH INTEREST

Edge computing, wireless networks, network protocol, routing, internet measurement, and network scanning.

EDUCATION

Semarang State Polytechnic

Sep 2021 – Sep 2025

Bachelor in Telecommunication Engineering

- **Major GPA:** 3.85/4.00
- **Related Coursework:** Computer Network (A), Algorithm and Programming (A), Embedded System (A), Data Communication (A), Web and Database (A).

RESEARCH EXPERIENCE

Research Trainee

Remote, Chicago

System and AI Research Training Program (SYAIR), University of Chicago

Jan 2025 – June 2025

- Cover 20+ technical papers from SIGCOMM, NSDI, IMC, and MobiCom Conference
- Conducted in-depth analysis of cutting-edge research in network programmability, SDN, internet measurement and routing protocols particularly BGP for real-time network monitoring and optimization.
- Currently reproducing experiments about runtime network verification and network traffic to validate findings and explore potential improvements in network efficiency and scalability.
- This program selects only the best 50 student in computer science and related fields.

Research Assistant

Semarang, Indonesia

CV OmahIoT

Feb 2024 – July 2024

- Contributed to research and development activities under the guidance of Helmy S.T., M.Eng.
- Integrated green energy solutions to support sustainable IoT device operations.
- Enhanced system reliability by 20% by resolving frequent system hangs through robust error handling.
- Developed over 600+ LOC in Arduino and Python, ensuring efficient device communication and data processing.

CERTIFICATES

CCNA: Enterprise Networking, Security, and Automation

Nov 2024

Cisco

- Successfully designed and simulated complex enterprise networks involving multiple autonomous systems using BGP.
- Configured advanced NAT scenarios including dynamic NAT with overloading (PAT), Static NAT for server publishing, and policy-based NAT.
- Gained hands-on experience with configuration management tools and enabling automation network operations.
- 200+ hours of lab practice.

CCNAv7: Switching, Routing, and Wireless Essentials

Dec 2023

Cisco

- Designed and simulated enterprise network architectures incorporating VLANs, trunking, and inter-VLAN routing.
- Implemented redundancy solutions using STP variants and EtherChannel configurations.
- 150+ hours of hands-on labs practice.

Junior Network Administrator

Nov 2023

BNSP

- Successfully demonstrated practical networking competencies through hands-on assessment based on SKKNI (Indonesian National Standard of Work Competency).
- Developed systematic documentation for network topology and configuration changes.
- 150+ hours of hands-on lab practice.

PROJECTS

Machine Learning for Controlling Device in Agriculture

Sept 2024 – Present

Arduino

- Developed a Stacked ElasticNetCV for optimizing pH and nutrient level using arduino.
- Implemented edge computing solutions to process sensor data locally.
- Designed robust communication protocol using HTTP protocol and REST API architecture
- Project is compatible and available in Arduino IDE.

Monitoring and Controlling Devices for Hydroponics (MONIK)

Feb 2024 - Aug 2024

BRIN, LPDP

- Architect and development IoT monitoring system using arduino for real-time data transmission.
- Improved system reliability by 20% through implementation of redundant sensor readings, automated error detection and recovery, and local data buffering during network interruptions.
- Increased the accuracy of sensor readings by 30%.
- Optimized network architecture by implementing star topology with 13 nodes, reducing average latency from 2s to 1s.

TECHNICAL SKILLS

Networking Protocols: TCP/IP, HTTP, HTTPS, IPsec, SSH, TLS, UDP, FTP, SNMP, BGP

Programming: Python, Arduino, C++, SQL, Bash

Software: Nmap, Wireshark, TCP-DUMP, MRTG, OpenNMS, Cisco Packet Tracer, GNS3, MySQL, MariaDB

REFERENCES

Prof. Haryadi Gunawi

Professor at the Department of Computer Science, University of Chicago

Mentor

haryadi@cs.uchicago.edu

Ari Sriyanto Nugroho S.T., M.T., M.Sc.

Head of the Telecommunications Engineering study program, Semarang State Polytechnic

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Helmy S.T., M.Eng.

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