Muhammad Haekal Muhyidin Al-Araby

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github.com/muhhae

Research Interest

Interested in Operating Systems and Computer Architecture, with a focus on fast and efficient cache management and process scheduling to enhance performance and optimize energy efficiency in large-scale systems.

- Coursework: Operating System (A), Computer Architecture (A), Embedded System (A), Data Structure (A), Computer Network (AB), Database (AB)

Education

Sepuluh Nopember Institute Of Technology   Aug 2022 – 2026 (Expected)
B.Eng. in Computer Engineering

- GPA: 3.65/4.0
- Major GPA: 3.8/4.0

Research Experience

UChicago-Indonesia SYstem and AI Research Training   Jan 2025 – Present
Research Trainee

- Top 50 students from Indonesia selected for this program.
- Analyzed 20+ Paper from OSDI, SOSP, FAST conferences.
- Reproduced key experiments from top-tier publications.

Work Experience

Computer Engineering Department & Faculty of Medics, Sepuluh Nopember   Sept 2024 – Jan 2025
Institute of Technology
Backend Software Engineer

- Designed, implemented, and deployed a system for efficiently storing digital images of cancer cells.
- Contributed 900+ LOC.
- Tools: Go, PostgreSQL, AWS S3, Docker

Computer Engineering Department, Sepuluh Nopember Institute of Technology   July 2024 – Jan 2025
Backend Software Engineer

- Our app used by Directorate General of Digital Infrastructure under Indonesian Ministry of Communication and Digital Affair.
- Designed and implemented system for efficiently finding anomaly or wrong data in DGDI's database.
- Contributed 1000+ LOC.
- Tools: Go, PostgreSQL, Docker

Computer Engineering Department, Sepuluh Nopember Institute of Technology   Aug 2024 – Jan 2025
Teaching Assistant for Computer Security

- Graded Mid-Term and Final Exam of 2 classes for the total of 70+ students.

Computer Engineering Department, Sepuluh Nopember Institute of Technology   Aug 2024 – Dec 2024
Teaching Assistant for Basic Programming

- Oversaw 8 session of practicum consist of 25+ students each.
- Gave additional guidance for 6 groups consist of 5-6 students each.
- Graded the work of 30+ students.

Computer Engineering Department, Sepuluh Nopember Institute of Technology   Jan 2024 – Jun 2024
Teaching Assistant for Digital Circuit

- Oversaw 4 session of practicum consist of 30+ students each.
- Gave additional guidance for 9 groups consist of 3-4 students each.
- Graded the work of 27+ students.

Computer Engineering Department, Sepuluh Nopember Institute of Technology Aug 2023 – Dec 2023
Teaching Assistant for Basic Programming
- Graded the Final Exam of 70+ students.

Organization and Volunteer

Computer Engineering Student Organization Feb 2024 – Dec 2024
Staff of Research and Profession
- Organized workshop in Game Development for GEMASTIK Participant from ITS.

Projects

Interpreted Programming Language
github.com/muhhae/interpreted-lang-py
- Implemented core programming language feature such as variable, arithmetic, function, and class.
- Designed and implemented custom IDE with working syntax highlighting and interactive shell.
- Contributed 1600+ LOC.
- Tools Used: Python, CustomTKinter.

ESP32 PingPong Game
github.com/muhhae/esp32-pingpong
- PingPong Game written in C++ for ESP32 and dotmatrix display.
- Implemented how dotmatrix displays every frame in the game.
- Implemented music player using buzzer.
- Contributed 700+ LOC.
- Tools Used: C++, PlatformIO, ESP32.

Lorem Ipsum
github.com/muhhae/lorem-ipsum
- Web application for sharing random image.
- Contributed 2000+ LOC.
- Tools Used: Go, MongoDB, Echo, Templ, HTMX, TailwindCSS.

Technical Skill

Languages: C, Python, Javascript, C++, Go, C#, Shell, Lua

Framework: Tensorflow, Keras, React, Echo

Database: PostgreSQL, MongoDB

Tools: Linux, Neovim, Git, GitHub, Docker

Misc: AWS EC2, AWS S3, Arduino, Platformio, ESP32, Unity3D

References

Haryadi S. Gunawi *haryadi@cs.uchicago.edu*
Uchicago-Indonesia SYstem and AI Research Instructor
Associate Professor of Computer Science, University of Chicago

Surya Sumpeno *surya@its.ac.id*
Operating System and Computer Security Lecturer
Associate Professor of Computer Engineering, Sepuluh Nopember Institute of Technology