

# Mohamad Imam Firdaus

## Work Address

University Center of Excellence on Microelectronics  
Bandung Institute of Technology  
Bandung, Indonesia 40132  
imam\_firdaus17@students.itb.ac.id

## Home Address

Bandung, Indonesia 40135  
(+62) 821-1598-5362  
imam@imamfirdaus.info  
github.com/Imam-f

## EDUCATION

*Bachelor of Engineering, Electrical Engineering*  
Bandung Institut of Technology, Bandung, Jawa Barat October 2022  
Final Year Project: Smart Navigation Based on Reinforcement Learning

*Senior High School, Science*  
SMAN 2 Kuningan, Kuningan, Jawa Barat July 2018

## EXPERIENCES

*Microelectronics Center, ITB*  
Research Assistant March 2022 – Now

- Assist to develop an accelerator for YoloV3Tiny Accelerator in an FPGA. The tasks including unit testing the module, interface the module to Embedded CPU, and add additional module.
- The design is run on ZCU104 using PYNQ Framework.

*Xirka Silicon Technology* August – December 2021  
Engineering Division

- Developed a Hardware Accelerator for Q-Learning - an Reinforcement Learning method - on FPGA as an SoC. The Q-Learning is directed to solve shortest path problem.
- The system is tested on Pynq-Z1 and ZYBO development board.
- The system is integrated with mobile robot as a testing and visualization mechanism.

## PROJECTS

IEEE Symposium in Low-Power and High-Speed Chips April 2023

- Present a paper related to design an accelerator for modified Q-Learning method for maze coverage area problem

International Symposium on Electronics and Smart Devices November 2022

- Present a paper related to design the system to test a mobile robot to show Q-Learning method capability

The International Conference on Wireless and Telematics July 2022

- Present a paper related to design the communication protocol and sensor to connect a discrete hardware accelerator to mobile robot.

Gemastik - Smart Device Competition October 2021

- Designed and smart ticketing system using embedded system and cloud infrastructure to help reduce human contact in COVID situation

- Design a robot to navigate in a room and rescue a human. The Room has obstacles such as inclined floor, lighter to be extinguished, and mirror.
- Worked with team of 14 divided in 3 division. The team is composed with student in different department in various experience level.

## SKILLS

### Programming Languages/HDL

- C
- C++
- Python
- Matlab
- Javascript
- Verilog
- VHDL
- C/C++ HLS

### Engineering Tools

- Altium Designer
- KiCAD
- FreeCAD
- LTSpice
- Altera Quartus
- Matlab & Simulink
- Xilinx Vitis
- Xilinx Vivado
- Petalinux
- PYNQ Framework

### Embedded System Utilities

- Arduino IDE
- ESP-IDF
- MBED-OS
- Platform IO

### Web Technology

- ReactJS
- NodeJS
- ExpressJS
- HUGO
- Firebase
- Cloudflare
- Docker
- Github Actions

### Other

- Linux
- Virtual Box
- Microsoft Office
- L<sup>A</sup>T<sub>E</sub>X
- Adobe Photoshop
- Adobe Illustrator
- Adobe Premiere

## PUBLICATIONS

- “Design of Testing Environment for Line-Follower Robot with Obstacles,” 2022 International Symposium on Electronics and Smart Devices (ISESD), doi: 10.1109/ISESD56103.2022.9980709
- “Control System for Mobile Robot using FPGA-Based Q-Learning Accelerator,” 2022 8th International Conference on Wireless and Telematics (ICWT), doi: 10.1109/ICWT55831.2022.9935386
- “MazeCov-Q: An Efficient Maze-Based Reinforcement Learning Accelerator for Coverage,” 2023 IEEE Symposium in Low-Power and High-Speed Chips (COOL CHIPS), doi: 10.1109/COOLCHIPS57690.2023.10122120

## ADDITIONAL INTERESTS

FPS Games, J-Pop, Playing Guitar, Ricing Linux, PC Building

## LANGUAGE

English, Indonesian, Japanese