

# Miftahul Anwar

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Miftahul Anwar is a skilled Software Engineer with experience in diverse sectors such as EdTech, IoT, and robotics. He demonstrates adaptability and strong problem-solving abilities. His eagerness to learn and collaborate has led to notable accomplishments in both his academic and professional endeavors.

## PROFESSIONAL EXPERIENCE

### **Zenius Education**, Jakarta

December 2021 – present

Indonesian EdTech company offering online learning solutions for primary to high school students since 2004

#### *Software Engineer*

January 2023 – present

- Contributed to the development of ZenProX, an online certification and Prakerja training platform, by translating Figma designs into front-end implementations. Utilizing Next.js
- Collaborated with a cross-functional team to develop a some reusable Next.js components, enhancing code reusability and accelerating the development process
- Implemented Next-i18n to enable app translation between English and Indonesia, using Next.js
- Streamlined OpenAI fine-tuned model management with a web-based panel and reporting system, simplifying tutor assets conversion. Employed Next.js, NestJS, Tailwind CSS, Firebase, and OpenAI API.
- Worked with the team to gather and refine tutor-provided subject problem assets, creating a fine-tuned AI model to assist in problem generation based on those assets. Utilized Python and OpenAI API
- Contributed to the development of a web-based AI Assistant for generating subject problems based on tutor assets, utilizing Next.js, NestJS, Tailwind CSS, Firebase, and the OpenAI API

#### *Problem Generator Developer (Clojure Developer)*

December 2021 – December 2022

- Created various school subject problems for ZenPractice using tutor-provided templates, generating JSON files for consumption by the Zenius App. This work contributed to 11.894 weekly active users and an average of 1.028.000 questions answered per week by students. Developed using Clojure
- Contributed to the development of a Problem Generator engine to support Problem Generator Developers in creating school subject problems, using Clojure and ClojureScript for implementation
- Worked with the team to create an app that streamlined problem generation for tutors, eliminating the need for programmer assistance. Additionally, helps tutors to easily generate SVG based graphs and infographics to enhance student learning experience. Developed using Clojure.

### **Blue Bird Group**, Jakarta

August 2021 – November 2021

Leading transportation company in Indonesia, offering taxi and ride-hailing services, car rentals, and logistics

#### *IoT Engineer Intern*

- Collaborated on a project to reverse engineer an embedded device on a taxi and redevelop it. Utilize C and Zephyr RTOS to develop and Ghidra to reverse engineer
- Developed a neural network model to identify GPS Jammer signals, distinguishing between malicious jamming or common signal loss, using TensorFlow, Keras, and Python
- Created an Android app to run the GPS Jammer neural network model, sending real-time notifications to differentiate between malicious jamming or common signal loss, using Kotlin and MQTT

## EDUCATION

**Politeknik Elektronika Negeri Surabaya**, Surabaya

July 2017 – August 2021

*B. Eng in Computer Engineering*, GPA: 3.57

Thesis: An Indoor Localization using Single Camera for Humanoid Robot EROS

Developed a localization system that enabled the robot to understand its position and orientation on the field, leading to better teamwork and improved attack and defense strategies. Implemented using the Particle Filter algorithm, assisted by landmark detection through MobileNet v2 that run over OpenCV DNN Module.

## ACADEMIC RESEARCH EXPERIENCE

**Politeknik Elektronika Negeri Surabaya**, Surabaya

February 2018 – November 2020

*Robotic Researcher at EEPIS Robot Soccer Team (EROS)*

- Developed a Graphical User Interface (GUI) to wirelessly monitor and analyze humanoid robot soccer player behavior, leading to improved gameplay, better analysis, and optimization of performance. Utilized the Qt framework and C++ for development
- Collaborated with a team to refine the decision-making logic for humanoid robot soccer players, resulting in enhancements to ball-finding algorithms, ball approaches, path planning, and individual attacking strategies, thereby increasing performance and efficiency during gameplay
- Worked collaboratively to improve the logic for the robot teamwork algorithm, leading to improved role allocation and teamwork performance for humanoid robot soccer players
- Designed a robot localization system, contributing to better teamwork and individual performance of humanoid robot soccer players through more accurate ball tracking, efficient attacking and defending strategies, and precise positioning. This was implemented using the Particle Filter algorithm
- Developed an image processing algorithm, leveraging OpenCV DNN module with MobileNetV2, to accurately identify the goalpost, landmarks, and the ball. This greatly enhanced the efficiency and effectiveness of the robot localization system for humanoid robot soccer players
- Utilized: Linux, C++, OpenCV, Qt Framework, and ROS (Robot Operating System)

## HONORS and AWARDS

1st place in National Indonesian Robot Contest (KRI), Humanoid Soccer, Ball Dribbling Category	2020
4th place in National Indonesian Robot Contest (KRI), Humanoid Soccer, Sprint Category	2020
4th place in Regional Indonesian Robot Contest (KRI), Humanoid Soccer, Ball Dribbling Category	2020
3rd place in Regional Indonesian Robot Contest (KRI), Humanoid Soccer, Sprint Category	2020
Adaro Scholarship Awardee	2020
Round of 16 in Robocup Humanoid Kidsize League at Robocup 2019 Sydney	2019
2nd place in National Indonesian Robot Contest (KRI), Humanoid Soccer League	2019
Best Strategy in National Indonesian Robot Contest (KRI), Humanoid Soccer League	2019
<i>Peningkatan Prestasi Akademik (PPA)</i> Scholarship awardee	2019
1st place in National Indonesian Robot Contest (KRI), Humanoid Soccer League	2018
1st place in Regional Indonesian Robot Contest (KRI), Humanoid Soccer League	2018
<i>Peningkatan Prestasi Akademik (PPA)</i> Scholarship Awardee	2018
Best Design in National Indonesian Robot Contest (KRI), Humanoid Soccer League	2018

## PROJECTS

### Postingan Media Gen Z ([repository](#), [demo](#))

March 2023

A fun and collaborative open-source project aimed at creating social media news thumbnails in the style of Folkative (an online media platform focused on news, arts, culture, and local brands)

- Contributed by developing a dark mode canvas and a color picker to provide customization
- Utilized Next.js, TypeScript, and Tailwind CSS for the development

### NMEA Monitor ([demo](#))

April 2021

An app capable of processing various navigation data transmitted through the TCP protocol and NMEA communication standard, offering multiple data handling features

- Developed a Graphical User Interface to display real-time data, including screen recording, playback, and video file management (upload and download) for improved user experience and analysis
- Developed using C++ and enhanced by Qt Framework, FFmpeg, and OpenCV

### Portable External Examination Device (PEED) ([demo](#))

March 2021

A project focused on enhancing health monitoring through an IoT device, designed to facilitate remote consultations and empower patients to monitor their health at home, allowing healthcare professionals to quickly access vital patient information and make informed decisions

- Collaborated with the team to develop the IoT device that is capable to assess human health conditions (ear, lungs, heart, mouth, skin, and body temperature), incorporating sensory access for accurate data collection and transmission to a web server, using C++ and Python
- Developed a user-friendly Graphical User Interface for seamless user interaction and effective device communication, enabling accurate data analysis and display, using Qt framework in C++

### Archery Pose Estimator ([demo](#))

December 2020

A project aimed at boosting archers' performance with a self-training software for analyzing poses, enabling users to save and compare ideal poses with live ones, enabling data-driven adjustments and progress tracking

- Developed a user-friendly Graphical User Interface for seamless user interaction and effective visualization of pose analysis. Utilized the Qt framework and C++
- Implemented skeleton detection and joint measurement algorithms to accurately assess archers' poses and identify areas for improvement using OpenCV and Intel Cubemos

### Descotin (Deteksi Suhu for Covid-19) ([demo](#))

August 2020

A project designed to detect if a person is wearing a mask, measure human temperature, and send the report to a website for efficient health monitoring in public spaces or workplaces during pandemics

- Developed the Graphical User Interface for seamless user interaction and effective device communication, ensuring a smooth operation, utilizing Qt Framework in C++
- Implemented the mask detection algorithm to accurately identify whether a person is wearing a mask or not, using OpenCV in C++

## TECHNICAL SKILLS

Languages: C, C++, JavaScript, TypeScript, Golang, Clojure, ClojureScript, and Python

Framework/Libraries: Qt, OpenCV, TensorFlow, Next.js, NestJS, React JS, Material UI, Tailwind CSS

Skills: Computer Vision, Robotics, Desktop Programming, Web Development