

Aulia Khilmi Rizgi

Jl. Airlangga Gg.I/5 Pasegan, Petungasri, Pandaan – Pasuruan – Jawa Timur 67156, Indonesia

LinkedIn: <https://www.linkedin.com/in/rizgiak/> | **Github:** <https://github.com/rizgiak/>

Phone: +62838-4932-4532 | **Email:** auliakhilmirizgi@gmail.com

EDUCATION

Politeknik Elektronika Negeri Surabaya (PENS / EEPIS)

Surabaya, Indonesia

- **Major:** Electrical Engineering (Bachelor of Engineering) *Jul 2015 – Aug 2019*
- **Study Program:** Electronic Engineering (GPA: 3.48 of 4.00)
- **EE Coursework:** Embedded System, Circuits, Logic Design, Robotics, Intelligent Control, Signal Processing
- **Programming Coursework:** Algorithms, Advanced Programming, Image Processing, Networks

EMPLOYMENT

Formulatrix Inc,

Salatiga, Indonesia

RnD Software Engineer, Full-Time

Oct 2019 – Now

- Responsible to design the algorithm for liquid handling robot in Linux environment by implementing clean code and design pattern in C#.
- Created some unit test case in C# to ensure the algorithm of the robot decision work properly.
- Fixed some bugs of the former code related to robot decision making.

Wahyu Daya Mandiri

Surabaya, Indonesia

Software Engineer, Intern

Jan – Feb 2018

- Created a simulation of traffic light for intersection road in both on LAD & FBD Programming Language with PLC Siemens S7-300 and make all of the system integrated with SCADA WinCC.
- Redesigned the system of Coal Mining Factory by migrating overall system from LAD and FBD to SCL Programming Language in PLC Siemens S7-300 & SCADA WinCC.

Ide Kreasi Mandiri

Sidoarjo, Indonesia

Programmer, Freelance

Jan 2015 – Jan 2017

- Finished project with Jatim Autocomp Indonesia Corporation to create an algorithm for reading data from PDF to database in PHP web-based application and implemented it in the company.
- Finished several projects as a back-end programmer in information system such as hospital, pharmacy, and laboratory with PHP & MySQL.

ACHIEVEMENTS

RoboCup 2019 – KidSize Humanoid Soccer League

Sydney, Australia

- Round of 16 Competition

Indonesian Robot Contest 2019 – Humanoid Soccer League

Semarang, Indonesia

- 2nd Place in National Competition
- Best Strategy in National Competition

Indonesian Robot Contest 2018 – Humanoid Soccer League

Yogyakarta, Indonesia

- 1st Place in National Competition
- 1st Place Regional Competition
- Best Design in Regional Competition

RoboCup 2017 – KidSize Humanoid Soccer League

Nagoya, Japan

- Round of 16 Competition

Indonesian Robot Contest 2017 – Humanoid Soccer League

Bandung, Indonesia

- 3rd Place in National Competition
- 2nd Place Regional Competition

- Best Strategy in Regional Competition

PROJECTS

Walking Control for EROS Humanoid Robot on ROS Platform (Bachelor's Thesis / Final Project)

- Designed overall system for humanoid robot by using a single controller in high-level programming.
- Created a walking control system by using inverse kinematic and walking trajectory generator.
- Reduced the error rms of walking stability by 35% by implementing inverted pendulum approach.
- Utilized: Linux, C/C++, XML, ROS, YAML, RQT Plot, Arduino, PID Control, High-speed Serial Communication

KidSize Humanoid Robot Soccer (EROS)

- Developed five autonomous humanoid robot that has an ability to be a soccer player (walk, wake up from fall, recognize and shoot the ball, coordinate, and self-positioning inside the field) for the competition.
- Created a system to recognize the object inside the field by implementing machine learning.
- Created an optimized algorithm with cascaded finite state machines to reduce the time of self-decisioning.
- Developed a debugging system through wireless communication for all robots during soccer competition.
- Utilized: Linux, C/C++, PHP Shell, ROS, STM32F4, OpenCV, MATLAB, TCP/IP Communication, Git

Differential-Drive Mobile Robot

- Created a robot that automatically followed the line with certain color by using photodiode sensor and controlled the motor direction with PID control in AT Mega microcontroller.
- Designed the circuits, sensors, motor drivers, and the mechanical.
- Designed the overall system with C in CV AVR Software then uploaded the binary code to microcontroller.
- Utilized: C Programming, ATmega16/32, CV AVR, PID Control, Circuit Design and Analysis

PUBLICATIONS

- [1] **Rizgi, A.**, Risnumawan, A., Ardila, F., Arifin, I., Wijaya, R., Sutoyo, E., Anggraeni, M., and Herawan, T. (2019). Visual Perception System of EROS Humanoid Robot Soccer. Accepted in *International Journal of Intelligent Information Technologies (IJIIT)*, to appear in 2020. Scopus.
- [2] **Rizgi, A.**, Risnumawan, A. (2019). Self-Positioning using Field Detection and k-NN Algorithm for Humanoid Robot Soccer. *Tokyo-Tech Indonesia Commitment Award 2019*, Tokyo Institute of Technology, Japan. (On-Going Published)
- [3] **Rizgi, A.**, Wijaya, R., Arifin, I., Basthomi, M., Priambodo, C., Febrianto, R., Akhyar, I., Anwar, M., Risnumawan, A., and Khalilullah, A. (2019). EROS – Team Description Paper for Humanoid KidSize League, RoboCup 2019. *RoboCup Humanoid League – RoboCup Federation*, pp.1-8.
- [4] **Rizgi, A.**, Muhajir, M., Sutoyo, E., Fauzi, I., Febrianto, R., Priambodo, C., Anwar, M., Risnumawan, A., and Anggraeni, M. (2018). Improving Field and Ball Detector for Humanoid Robot Soccer EROS Platform. *20th International Electronics Symposium on Engineering Technology and Application (IES-ETA)*, 20, pp.284-287.
- [5] **Rizgi, A.**, Muhajir, M., Sutoyo, E., Arifin, I., Wijaya, R., Basthomi, M., Almutawakkil, A., Akhyar, I., Risnumawan, A., and Anggraeni, M. (2018). Implementation of Balance Recovery by Slight Movement in Humanoid Robot Soccer. *20th International Electronics Symposium on Engineering Technology and Application (IES-ETA)*, 20, pp.101-105.
- [6] Sucipto, A., Khalilullah, A., Risnumawan, A., Alasiry, A., Riananda, D., Fauzi, I., **Rizgi, A.**, Wijaya, R., Syahputra, K., Arifin, I., Basthomi, M., and Almutawakkil, A. (2017). Increasing Stability of Shooting Motion on EROS (EEPIS Robot Soccer) Using Joint Trajectory Controller. *5th Indonesian Symposium on Robotic Systems and Control 2017*, 5, pp.208-211.

CONFERENCE PRESENTATIONS

2018. Rizgi, Aulia Khilmi. "Visual Perception System of EROS Humanoid Robot Soccer." *International Conference on Enhanced Computer Research, Engineering, and Advanced Multimedia*, Yogyakarta, Indonesia.
2018. Rizgi, Aulia Khilmi. "Improving Field and Ball Detector for Humanoid Robot Soccer EROS Platform." *20th International Electronics Symposium on Engineering Technology and Application*, Bali, Indonesia.

SKILLS

Tools: (proficient): C#, C/C++, Linux, ROS, OpenCV (familiar): PHP, SQL, PLC, WinCC, Basic, MATLAB, Python

Other Skills: Humanoid Robotics, Electronics, Computer Vision

English Proficiency: TOEIC (790 of 990), E-TEFL (487 of 677)

REFERENCES

Anhar Risnumawan, S.ST., M.Cs (Robotic Team Advisor)

Lecturer in Computer Vision

Mechatronic Engineering

Politeknik Elektronika Negeri Surabaya, Indonesia

Email: anhar@pens.ac.id

Ali Husein Alasiry, S.T., M.Eng (Final Project Advisor)

Lecturer in Robotics and Embedded System

Electronic Engineering

Politeknik Elektronika Negeri Surabaya, Indonesia

Email: ali@pens.ac.id