Dr. Ir. Fahmizal, S.T., M.Sc., IPM.

fahmizal@ugm.ac.id fahmizal
http://fahmizal.staff.ugm.ac.id/ http://fahmizal.github.io/

Job

Agustus 2024 – now
Chair of Electrical Engineering Technology Study Program, at Department of Electrical Engineering and Informatics, Vocational College, Universitas Gadjah Mada, Indonesia.
https://tre.sv.ugm.ac.id/

Agustus 2018 – July 2019
Head of Instrumentation and Control Laboratory, at Department of Electrical Engineering and Informatics, Vocational College, Universitas Gadjah Mada, Indonesia.
https://otomasi.sv.ugm.ac.id/

Mei 2018 – now
Assistant Professor, at Department of Electrical Engineering and Informatics, Vocational College, Universitas Gadjah Mada, Indonesia.

Sep 2014 – 2018
Lecturer, at Department of Electrical Engineering and Informatics, Vocational College, Universitas Gadjah Mada, Indonesia.

Mar 2014 – July 2014
Testing IC Wafer Engineer, at Ardentec Corporation, Taiwan.
https://www.ardentec.com/

Education

January 2024
Dr., from Universitas Gadjah Mada in Control System and Robotics.
Thesis title: *Bicopter Unmanned Aerial Vehicles (UAV) Dynamic Attitude Control.*
https://youtu.be/xoP1PwHrzxQ

Januari 2014
M.Sc., from National Taiwan University of Science and Technology in Control System and Robotics.
Thesis title: *Development of a Sensor-Based Biped Robot Locomotion Controller for Uneven.*
https://youtu.be/RB_gQwXclWk

Juli 2011
S.T., from Institut Teknologi Sepuluh Nopember in Control System and Robotics.
Thesis title: *Implementasi Sistem Navigasi Behavior Based dan Kontroler PID pada Manuver Robot Maze.*
https://youtu.be/-19qtVlSn2g

Publications

Books

1. Fahmizal, A. Mayub, R. Agustiawan, and F. Joasa Ariesta, *Mudah Belajar Graphical User Interface (GUI) dengan Processing IDE*. Deepublish, 2025.
2. Fahmizal, A. Mayub, R. Agustiawan, and D. T. Utami, *Mudah Belajar Desain Gambar Teknik Mekanika dengan Autodesk Inventor Student Version*. Media Sains Indonesia, 2023.
3. Fahmizal, A. Mayub, M. Arrofiq, and F. Ruciyanti, *Mudah Belajar Arduino dengan Pendekatan berbasis Fritzing, Tinkercad dan Proteus*. Deepublish, 2022.
4. Fahmizal, A. Mayub, D. T. Utami, and Chairadeya, *Mudah Belajar Desain Printed Circuit Board (PCB) Perangkat Elektronika Menggunakan Autodesk EAGLE dan Fusion360 Student Version*. Deepublish, 2022.

Journal Articles

1. Fahmizal, I. Danarastri, M. Arrofiq, H. Maghfiroh, H. Probo Santoso, P. Anugrah, and A. Molla, "Path Planning for Mobile Robots on Dynamic Environmental Obstacles Using PSO Optimization," *Jurnal Ilmiah Teknik Elektro Komputer dan Informatika*, vol. 10, no. 1, pp. 166–172, 2024.
2. Fahmizal, H. A. Nugroho, A. I. Cahyadi, and I. Ardiyanto, "Attitude control of UAV bicopter using adaptive LQG," *Results in Control and Optimization*, vol. 17, p. 100 484, Dec. 2024, ISSN: 26667207. DOI: 10.1016/j.rico.2024.100484.
3. Fahmizal, M. S. Pratikno, H. N. Isnianto, A. Mayub, H. Maghfiroh, and P. Anugrah, "Control and Navigation of Differential Drive Mobile Robot with PID and Hector SLAM: Simulation and Implementation," *Jurnal Ilmiah Teknik Elektro Komputer dan Informatika*, vol. 10, no. 3, pp. 594–607, 2024.
4. Fahmizal, D. Afidah, S. Istiqphara, and N. S. Abu, "Interface design of dji tello quadcopter flight control," *Journal of Fuzzy Systems and Control*, vol. 1, no. 2, pp. 49–54, 2023.
5. Fahmizal, Geonoky, and H. Maghfiroh, "Rotary inverted pendulum control with pole placement," *Journal of Fuzzy Systems and Control*, vol. 1, no. 3, pp. 90–96, 2023.
6. Fahmizal, Hanung Adi Nugroho, Adha Imam Cahyadi, and I. Ardiyanto, "Trajectory Tracking Control of Quadrotor using LQ-Servo Control with SimMechanics," *Evergreen*, vol. 10, no. 4, pp. 2412–2422, Dec. 2023, ISSN: 2189-0420, 2432-5953. DOI: 10.5109/7160931.
7. Fahmizal, D. Y. Kharisma, and S. Pramono, "Implementation of fuzzy logic control on a tower copter," *Journal of Fuzzy Systems and Control*, vol. 1, no. 1, pp. 14–17, 2023.
8. Fahmizal, H. A. Nugroho, A. I. Cahyadi, and I. Ardiyanto, "Attitude control and low cost design of uav bicopter," *arXiv preprint arXiv:2309.08209*, 2023.
9. ——, "Fuzzy logic controller for stabilizing the rolling movement of uav bicopter," *ICIC Express Letters*, vol. 17, no. 9, pp. 967–978, 2023. DOI: 10.24507/icicel.17.09.967.
10. ——, "Trajectory tracking control of uav bicopter using linear quadratic gaussian," *arXiv preprint arXiv:2309.08226*, 2023.
11. Fahmizal, J. T. Putra, S. Fatimawardhani, and H. Maghfiroh, "Hydraulic power system control using state feedback controller (sfc)," *Journal of Fuzzy Systems and Control*, vol. 1, no. 1, pp. 28–31, 2023.
12. S. Istiqphara, A. U. Darajat, Fahmizal, and M. F. Ferdous, "Movement control of three omni-wheels robot using pole placement state feedback and pid control," *Journal of Fuzzy Systems and Control*, vol. 1, no. 2, pp. 44–48, 2023.
13. H. Maghfiroh, J. S. Saputro, Fahmizal, and M. A. Baballe, "Adaptive fuzzy-pi for induction motor speed control," *Journal of Fuzzy Systems and Control*, vol. 1, no. 1, pp. 1–5, 2023.
14. Fahmizal, A. Priyatmoko, and A. Mayub, "Implementasi kinematika trajectory lingkaran pada robot roda mecanum," *Jurnal Listrik, Instrumentasi, dan Elektronika Terapan (JuLIET)*, vol. 3, no. 1, 2022.
15. M. Arrofiq, L. S. Nugroho, Fahmizal, and E. Apriaskar, "Sistem kendali eddy current brakes dinamometer menggunakan linear quadratic regulator (lqr)," *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 9, no. 4, p. 923, 2021.
16. N. Sulistyawati, Fahmizal, and I. Nathasya, "Kendali kecepatan motor dc dengan buck converter menggunakan full state feedback-pole placement," *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 9, no. 2, p. 415, 2021.
17. E. Apriaskar, Fahmizal, I. Cahyani, and A. Mayub, "Autonomous mobile robot based on behaviour based robotic using v-rep simulator–pioneer p3-dx robot," *Jurnal Rekayasa Elektrika*, vol. 16, no. 1, 2020.
18. F. Hasan, B. B. Murti, Fahmizal, and M. Arrofiq, "Kendali heading pada trajectory tracking miniatur robot mobil," *Jurnal Listrik, Instrumentasi dan Elektronika Terapan (JuLIET)*, vol. 1, no. 2, 2020.

19 L. K. N. Imani, N. Alicia, Fahmizal, and U. Y. Oktiawati, "Implementasi sistem pengendali rumah pintar menggunakan laravel," *Jurnal Listrik, Instrumentasi, dan Elektronika Terapan*, vol. 1, no. 1, 2020.

20 A. Mayub, I. Syahroni, Fahmizal, and M. Arrofiq, "Kinematika dan antarmuka robot scara serpent," *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 8, no. 3, p. 561, 2020.

21 B. B. Murti, T. Sarwono, E. Apriaskar, and Fahmizal, "Desain robot holonomic berbasis roda mecanum dengan arm manipulator," *Jurnal Rekayasa Elektrika*, vol. 16, no. 3, 2020.

22 E. Apriaskar, Fahmizal, N. A. Salim, and D. Prastiyanto, "Performance evaluation of balancing bicopter using p, pi, and pid controller," *Jurnal Teknik Elektro*, vol. 11, no. 2, pp. 44–49, 2019.

23 Fahmizal, M. Arrofiq, R. Adrian, and A. Mayub, "Robot inverted pendulum beroda dua (ipbd) dengan kendali linear quadratic regulator (lqr)," *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 7, no. 2, p. 224, 2019.

24 Fahmizal, T. R. Orlando, B. B. Murti, M. Budiyanto, and A. Mayub, "Kendali logika fuzzy pada sistem electronic control unit (ecu) air conditioner mobil," *J. Teknol. Inf. dan Ilmu Komput*, vol. 6, no. 1, p. 25, 2019.

25 Fahmizal, D. U. Rijalussalam, M. Budiyanto, and A. Mayub, "Trajectory tracking pada robot omni dengan metode odometry," *Jurnal Nasional Teknik Elektro dan Teknologi Informasi*, vol. 8, no. 1, pp. 35–44, 2019.

26 A. Mayub, Fahmizal, M. Shidiq, U. Y. Oktiawati, and N. R. Rosyid, "Implementation smart home using internet of things," *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, vol. 17, no. 6, pp. 3126–3136, 2019.

27 R. Adrian, Fahmizal, and N. R. Rosyid, "Peningkatan kualitas jaringan pada vehicle ad-hoc network menggunakan algoritma simple k-means," *Techno. Com*, vol. 17, no. 3, pp. 281–289, 2018.

28 Fahmizal, M. Arrofiq, and A. Mayub, "Identifikasi pemodelan matematis robot wall following," *Jurnal Nasional Teknik Elektro dan Teknologi Informasi*, vol. 7, no. 1, pp. 79–88, 2018.

29 Fahmizal, M. Arrofiq, A. Mayub, *et al.*, "Sistem gerak robot mainland surveillance menggunakan mecanum wheel sebagai militer robot," *Majalah Ilmiah Teknologi Elektro*, vol. 17, no. 2, 2018.

30 Fahmizal, G. Y. Dewantama, D. B. Pratama, F. Fathuddin, and Winarsih, "Rancang bangun sistem penstabil kamera (gimbal) dengan logika fuzzy untuk pengambilan gambar foto dan video," *Jurnal Teknologi Informasi dan Ilmu Komputer*, vol. 5, no. 3, pp. 277–286, 2018.

31 Fahmizal, F. Fathuddin, and R. Susanto, "Identifikasi sistem motor dc dan kendali linear quadratic regulator berbasis arduino-simulink matlab," *Majalah Ilmiah Teknologi Elektro*, vol. 12, p. 13, 2018.

32 Fahmizal, B. B. Murti, D. B. Pratama, and A. Mayub, "Kendali logika fuzzy pada car like mobile robot (clmr) penjejak garis," *ELKOMIKA: Jurnal Teknik Energi Elektrik, Teknik Telekomunikasi, & Teknik Elektronika*, vol. 6, no. 3, p. 451, 2018.

33 Fahmizal, D. B. Pratama, A. Priyatmoko, and M. R. F. Rahman, "Otomatisasi proses produksi cat berbasis simulator plc twido twdlmda20dtk," *JST (Jurnal Sains Dan Teknologi)*, vol. 7, no. 1, pp. 49–58, 2018.

34 A. Mayub and Fahmizal, "Center of pressure feedback for controlling the walking stability bipedal robots using fuzzy logic controller.," *International Journal of Electrical & Computer Engineering (2088-8708)*, vol. 8, no. 5, 2018.

35 A. Surriani, M. Arrofiq, and Fahmizal, "Pemodelan forward kinematic dan inverse kinematic robot berlengan puma 560," *Jurnal Ilmiah Teknik Elektro Komputer dan Informatika (JITEKI)*, vol. 4, no. 2, 2018.

36 Fahmizal, G. Setyawan, M. Arrofiq, and A. Mayub, "Logika fuzzy pada robot inverted pendulum beroda dua," *J. Teknol. Inf. Dan Ilmu Komput*, vol. 4, no. 4, p. 244, 2017.

37 C. H. Kuo, Fahmizal, and S. L. Wu, "Development of fuzzy logic controllers for controlling bipedal robot locomotion on uneven terrains with imu feedbacks," *Indian Journal of Science and Technology*, vol. 9, no. 28, 2016.

Conference Proceedings

1 E. Apriaskar, D. Prastiyanto, A. A. Manaf, I. Amelia, and Fahmizal, "Multi-criteria genetic algorithm optimization approach for balancing bicopter control," in *IOP Conference Series: Earth and Environmental Science*, IOP Publishing, vol. 1203, 2023, p. 012 027.

2 Fahmizal, H. A. Nugroho, A. I. Cahyadi, and I. Ardiyanto, "Tuning lqr parameters using neuro evolution of augmenting topologies (neat) on a double pendulum cart," in *2022 11th Electrical Power, Electronics, Communications, Controls and Informatics Seminar (EECCIS)*, IEEE, 2022, pp. 270–275.

3 ——, "Twin rotor mimo system control using linear quadratic regulator with simechanics," in *2021 7th International Conference on Electrical, Electronics and Information Engineering (ICEEIE)*, IEEE, 2021, pp. 301–306.

4 U. Y. Oktiawati, M. N. F. Alfata, Fahmizal, S. D. Rahayu, A. F. Ridwan, D. Y. Kusuma, and C. V. H. Permana, "Development of monitoring system of furnace temperature for fire resistance test," in *2021 International Conference on Electrical, Communication, and Computer Engineering (ICECCE)*, IEEE, 2021, pp. 1–6.

5 E. Apriaskar, Fahmizal, and M. Fauzi, "Robotic technology towards industry 4.0: Automatic object sorting robot arm using kinect sensor," in *Journal of Physics: Conference Series*, IOP Publishing, vol. 1444, 2020, p. 012 030.

6 Fahmizal, M. Arrofiq, E. Apriaskar, and A. Mayub, "Rigorous modelling steps on roll movement of balancing bicopter using multi-level periodic perturbation signals," in *2019 6th International Conference on Instrumentation, Control, and Automation (ICA)*, IEEE, 2019, pp. 52–57.

7 Fahmizal, A. Priyatmoko, E. Apriaskar, and A. Mayub, "Heading control on differential drive wheeled mobile robot with odometry for tracking problem," in *2019 International Conference on Advanced Mechatronics, Intelligent Manufacture and Industrial Automation (ICAMIMIA)*, IEEE, 2019, pp. 47–52.

8 Fahmizal and A. Mayub, "Vobiro-vocational bipedal robot platform, kinematic and locomotion control," in *2018 10th International Conference on Information Technology and Electrical Engineering (ICITEE)*, IEEE, 2018, pp. 1–6.

9 Fahmizal, A. Surriani, M. Budiyanto, and M. Arrofiq, "Altitude control of quadrotor using fuzzy self tuning pid controller," in *2017 5th International conference on Instrumentation, Control, and Automation (ICA)*, IEEE, 2017, pp. 67–72.

10 B. T. Nugraha, S.-F. Su, and Fahmizal, "Towards self-driving car using convolutional neural network and road lane detector," in *2017 2nd international conference on automation, cognitive science, optics, micro electro-mechanical system, and information technology (ICACOMIT)*, IEEE, 2017, pp. 65–69.

11 Fahmizal and C. H. Kuo, "Trajectory and heading tracking of a mecanum wheeled robot using fuzzy logic control," in *2016 International Conference on Instrumentation, Control and Automation (ICA)*, IEEE, 2016, pp. 54–59.

12 Fahmizal, T. S. Chen, S. W. Chi, and C. H. Kuo, "Fuzzy controller based subsumption behavior architecture for autonomous robotic wheelchair," in *2013 International Conference on Advanced Robotics and Intelligent Systems*, IEEE, 2013, pp. 158–163.

13 Fahmizal and C.-H. Kuo, "Development of a fuzzy logic wall following controller for steering mobile robots," in *2013 International Conference on Fuzzy Theory and Its Applications (iFUZZY)*, IEEE, 2013, pp. 7–12.

Intellectual Property

2023 **Hak Cipta (EC00202386957)** . Sistem Monitoring Suhu Tungku.

2022 **Hak Cipta (EC00202201142)**. Kompilasi ciptaan/data `https://otomasi.sv.ugm.ac.id`.

Research

2025 **Simlitabmas - Riset Konsorsium Unggulan Berdampak (RIKUB)**, Pengembangan Mobile Smart Waste Management System Berbasis AI dan IoT untuk Meningkatkan Eco-Awareness dan Ekonomi Hijau.

Dana penelitian masyarakat SV UGM, Pemetaan Posisi Mobile Robot dengan RGBD SLAM menggunakan Kamera Kinect.

2024 **Dana penelitian masyarakat SV UGM**, Perancangan Pemetaan Jalur Pergerakan Differential Drive Mobile Robot menggunakan Robot Operating System (ROS).

2019 **Ditlit UGM - Hibah Bersaing Penelitian Dosen Muda UGM**, Rancang Bangun Platform Rumah Pintar Berbasis Internet of Things (IoT) sebagai Upaya Making Indonesia 4.0.

2018 **Dana penelitian masyarakat SV UGM**, Perancangan Sistem Cerdas pada Purwarupa Robot Self-driving Car menggunakan Convolutional Neural Network dan Road Lane Detector.

Community Service and Outreach

2025 **Field Supervisor of KKN-PPM UGM**, unit YO-056, Gedang Sari District, Gunung Kidul. `https://www.instagram.com/gedangsari.berseri/`

2024 **Field Supervisor of KKN-PPM UGM**, unit YO-095, Tempel District, Sleman. `https://www.instagram.com/kkntempel.ugm/`

Community-funded Service Program of SV UGM, titled "Advanced Arduino Training for Vocational High Schools in Kulonprogo."

Skills

Languages	Bahasa Indonesia, Minang, Jawa, English.
Coding	C/C++, Python, MATLAB, Java, LaTeX.
Mechanical Design	Autodesk Inventor, Fusion360, Solidworks, Free CAD, onshape.
Electronics Design	Autodesk Eagle, KiCAD, EasyEDA.
Embeded System	Arduino, Tennsy, STM32, Raspberry Pi, Jetson Nano.
GUI Dev	Processing IDE, PyQT, PyVisual.
ROS Dev	Linux, ROS2.
Web Dev	Html, css.
Misc.	Academic research, teaching, training, consultation and publishing.

Miscellaneous Experience

Awards and Achievements

2019 **Dosen Muda Berprestasi**, Awarded by Dean of Vocational College UGM, Wikan Sakarinto, Ph.D.

Beasiswa Pendidikan Pascasarjana Dalam Negeri (BPPDN) from DIKTI, Pendidikan Doktor.

2012 Beasiswa Master Degree from National Taiwan University ofScience and Technology, Taiwan.

Certification

2025 **Sertifikasi Digital Marketing**. Awarded by BNSP.

Sertifikasi Asesor Kompetensi. Awarded by BNSP.

2021 **Sertifikasi Dosen Professional**. Awarded by DIKTI.

PEKERTI. Awarded by UNY.

Professional Affiliations

2024-now **Persatuan Insinyur Indonesia (PII)**. A professional organization that represents engineers in Indonesia.

Forum Pendidikan Tinggi Teknik Elektro Indonesia (FORTEI). An organization serving as a communication platform for higher education institutions in Indonesia with Electrical Engineering and Informatics study programs.

Personal Links

Acadstaff UGM `https://acadstaff.ugm.ac.id/Fahmizal`

GitHub `https://github.com/fahmizal`

LinkedIn `https://www.linkedin.com/in/fahmizal/`

Instagram `https://www.instagram.com/fahmi_zal`

Facebook `https://www.facebook.com/fahmizal.note`

YouTube `https://www.youtube.com/user/fahmizal`

WordPress `https://fahmizaleeits.wordpress.com/`