

Dr. Ahmed Abdellatif Hamed IBRAHIM, Ph.D.

Associate Professor of Mechatronics & Robotics



Summary

Dr. Ahmed Abdellatif Hamed IBRAHIM is an Associate Professor of Mechatronics and Robotics in the Mechanical Engineering Department of the Arab Academy for Science, Technology and Maritime Transport-Cairo Campus. He obtained his B.Sc. and MSc. in Mechanical Engineering (Mechatronics) from AAST Alexandria in 2008 and 2012 respectively. He was awarded his Ph.D. in the control of humanoid robots from Paris-Saclay University (France) in 2018. His research interests include Mechatronic systems, Humanoids and Wearable assistive robotics.

Professional Experience

2023- Present	Associate Professor, Mechanical Engineering Department, College of Engineering and Technology, Arab Academy for Science and Technology and Maritime Transport, Cairo, Egypt.
2018 – 2023	Assistant Professor, Mechanical Engineering Department, College of Engineering and Technology, Arab Academy for Science and Technology and Maritime Transport, Cairo, Egypt.
2014 – 2018	Ph.D. candidate, Université Paris-Saclay, Paris, France.
2012 – 2014	Assistant Lecturer, (TA), Mechanical Engineering Department, College of Engineering and Technology, Arab Academy for Science and Technology and Maritime Transport, Cairo, Egypt.
2008 – 2012	Graduate Teaching Assistant, (GTA), Mechanical Engineering Department, College of Engineering. and Technology, Arab Academy for Science and Technology and Maritime Transport, Cairo, Egypt.

Education:

Doctor of Philosophy: Université Paris-Saclay, Paris, France. (2018)

Master of Science: AASTMT, Alexandria, Egypt. (2012)

Bachelor of Science: AASTMT, Alexandria, Egypt. (2008)

Professional Affiliations

IEEE RAS

Egyptian Society of Mechanical Engineers

Journal Publications

1. M. K. Farouk, M. F. El-Khatib, M. I. Awad, M. R. A. Atia, and A. Abdellatif, "A multimodal EMG–IMU dataset and multi-dataset benchmark for deep learning-based human activity recognition," *Scientific Reports*, vol. 16, Art. no. 26180, 2026, doi: 10.1038/s41598-026-64847-4.

2. El-Khatib, Mohamed Fawzy, M. Abdelfattah, Mohamed M. El-Sotouhy, S. Shaaban, and **A. Abdellatif**. 2026. "Real-Time Adaptive Control for Quadrotor UAV Trajectory Tracking: Hardware-in-the-Loop Validation and Performance Evaluation" *Drones* 10, no. 7: 545. <https://doi.org/10.3390/drones10070545>
3. Mahmoud, Youssef, Mohamed Elasswad, **Ahmed Abdellatif**, Maya Sleiman, Khaled Khalil, & Samer Alfayad. "Robust nonlinear control of the HYDROiD humanoid robotic arm: a comparative study of sliding mode strategies for high-precision trajectory tracking." *Robotics : Integration, Manufacturing and Control [Online]*, 3.1 (2026): 12-31. Web. 30 Jun. 2026 .
4. M. A. Mahdy, **A. Abdellatif**, and M. F. El-Khatib, "A systematic review of eco-adaptive cruise control for electric vehicles: Control strategies, computational challenges, and the simulation-to-reality gap," *Appl. Syst. Innov.*, vol. 9, no. 5, pp. 96–119, 2026, doi: 10.3390/asi9050096.
5. H. Darwish, **A. Abdellatif**, and S. Shaaban, "Comparative analysis of solar-powered multi-stage flash desalination sites in Egypt," *J. Al-Azhar Univ. Eng. Sect.*, vol. 22, no. 2, 2026, doi: 10.21608/aej.2026.501898.
6. G. Ghazaly, **A. Abdellatif**, and S. Shaaban, "Sustainable water pumping in Egypt: Optimal operation of photovoltaic-driven centrifugal systems," *J. Al-Azhar Univ. Eng. Sect.*, vol. 22, no. 2, 2026, doi: 10.21608/aej.2026.501890.
7. O. Salem, **A. Abdellatif**, and M. R. A. Atia, "Pose estimation-driven control of humanoid upper arms for human motion mimicry," *Int. J. Mech. Eng. Robot. Res.*, vol. 15, no. 2, pp. 174–186, 2026, doi: 10.18178/ijmerr.15.2.174-186.
8. E. Allam, M. Abdelhamid, **A. Abdellatif**, and E. Elgendy, "Energy and exergy analysis of a hybrid vapor absorption cooling system driven by photovoltaic thermal collector," *Journal of Al-Azhar University Engineering Sector*, vol. 21, no. 78, pp. 322–337, 2026.
9. M. A. El-Khoreby, A. Moawad, H. H. Issa, S. I. Fawaz, M. I. Awad, and **A. Abdellatif**, "Lower limb activity classification with electromyography and inertial measurement unit sensors using a temporal convolutional neural network on an experimental dataset," *Applied System Innovation*, vol. 9, no. 1, p. 13, 2026, doi: 10.3390/asi9010013.
10. A. A. Azhari, W. M. Ahmed, M. F. El-Khatib, and **A. Abdellatif**, "AI-driven trajectory planning of Dentatron: A compact 4-DOF dental robotic manipulator," *Biomimetics*, vol. 10, no. 12, p. 803, 2025, doi: 10.3390/biomimetics10120803.
11. M. Abdelbar, **A. Abdellatif**, and M. M. Hegaze, "Optimization Based Optimal Controller for the Upper-Limb Exoskeleton (SAMA)," *Journal of Advanced Research in Applied Mechanics*, vol. 139, no. 1, pp. 60–77, Jul. 2025, doi: 10.37934/aram.139.1.6077.
12. M. K. Farouk, **A. Abdellatif**, M. I. Awad, and M. R. A. Atia, "Attention enhanced CNN-LSTM Models for Sensor based Human Activity Recognition: A Comparative Study," *International Journal of Mechatronics and Applied Mechanics*, vol. 1, no. 20, pp. 229–239, Jun. 2025, doi: 10.17683/ijomam/issue20.23.
13. M. El Asswad, **A. Abdellatif**, M. Sleiman, K. Khalil, and S. Alfayad, "Composite Hydraulic Integration: A New Step Toward Lightweight Hydraulic Robots,"

- Malaysian Journal on Composites Science and Manufacturing*, vol. 16, no. 1, pp. 150–166, Apr. 2025, doi: 10.37934/mjcs.16.1.150166.
14. A. Moawad, M. A. El-Khoreby, S. I. Fawaz, H. H. Issa, M. I. Awad, and **A. Abdellatif**, “New Framework for Human Activity Recognition for Wearable Gait Rehabilitation Systems,” *Applied System Innovation*, vol. 8, no. 2, p. 23, Apr. 2025, doi: 10.3390/asi8020053.
 15. Elkodama A, **Abdellatif A**, Shaaban S, Rushdi MA, Yoshida S, Ismaiel A. “Investigation into the Yaw Control of a Twin-Rotor 10 MW Wind Turbine”. *Applied Sciences*. 2024; 14(21):9810. <https://doi.org/10.3390/app14219810>
 16. M. Alasswad, **A. Abdellatif**, S. Alfayad, and K. Khalil., “Novel Lightweight Hydraulic Integration Methodology for Robotic Applications”, *Journal of Advanced Research in Applied Sciences and Engineering Technology*, 49(2), 102–117. <https://doi.org/10.37934/araset.49.2.102117>
 17. Mostafa Mohammed Massoud Hamd, **Ahmed Abdellatif Hamed Ibrahim**, and Mostafa Rostom Ahmed Atia. “Selecting Dynamic Path Planning Algorithm Based-Upon Ranking Approach for Omni-Wheeled Mobile Robot”. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, vol. 42, no. 2, Mar. 2024, pp. 125-38, doi:10.37934/araset.41.2.125138.
 18. Elwaly A, **Abdellatif A**, El-Shaer Y. “New Eldercare Robot with Path-Planning and Fall-Detection Capabilities. *Applied Sciences*. 2024; 14(6):2374. <https://doi.org/10.3390/app14062374> .
 19. Elkodama, A.; Ismaiel, A.; **Abdellatif, A.**; Shaaban, S.; Yoshida, S.; Rushdi, M.A. Control Methods for Horizontal Axis Wind Turbines (HAWT): State-of-the-Art Review. *Energies* 2023, 16, 6394. <https://doi.org/10.3390/en16176394> .”
 20. Albashir A. Youssef, Mohamed Atef El Khoreby, Hanady Hussein Issa, **A. Abdellatif**, "Brief Survey on Industry 4.0 Warehouse Management Systems" , *International Review on Modelling and Simulations (IREMOS)*, Vol.15, no.5, pp. 340-350, DOI:<https://doi.org/10.15866/iremos.v15i5.22923> ., 2022 .
 21. Amira Elkodama, Amr Ismaiel, **A. Abdellatif**, S. Shaaban, "Modelling and Simulation of an Asynchronous Generator for a 5 MW Wind Turbine" , *International Review of Automatic Control (IREACO)*, 15 (5), pp. 233-241. doi:<https://doi.org/10.15866/ireaco.v15i5.22922> (2022) .
 22. Elmira Amrollah, **A Abdellatif**, S Alfayad, FB Ouezdou, "Performance enhancement of an integrated electro-hydraulic actuator using dynamic modeling and optimization" , *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*,(online), <https://doi.org/10.1177/09544062221142404> , 2022.
 23. Mostafa Mo. Massoud, **A. Abdellatif**, Mostafa R. A. Atia, "Different Path Planning Techniques for an Indoor Omni-Wheeled Mobile Robot: Experimental Implementation, Comparison and Optimization" , *MDPI Applied Sciences*, vol.12, no.2, pages:27, <https://doi.org/10.3390/app122412951> , 2022.
 24. O. Saied, **A. Abdellatif**, S. Shaaban, A. F. Elsafty, "Efficient Energy Recovery Scenarios from Pressure-Reducing Stations Intended for New Al-Alamein City in

Egypt", *Energies* 2022, 15(23), 9077, <https://doi.org/10.3390/en15239077> (2022)

25. Amira Elkodama, Amr Ismaiel, **A. Abdellatif**, S. Shaaban, "Aerodynamic Performance and Structural Design of 5 MW Multi Rotor System (MRS) Wind Turbines", *International Journal of Renewable Energy Research-IJRER*, vol.12, no.3, 1495-1505, doi: 10.20508/ijrer.v12i3.13343.g8535 , 2022.
26. Abdelbar, M., I. Mohamed, **A. Abdellatif**, and Moutaz M. Hegaze, "Towards the Mechatronic Development of a New Upper-Limb Exoskeleton (SAMA)", *MDPI Designs*, Volume 6, Issue 5, pp:80, <https://doi.org/10.3390/designs6050080> , 2022.
27. **Ahmed Abdellatif Hamed Ibrahim**, Anas Ammounah, Samer Alfayad, Sami Tliba, Fethi Ben Ouezdou, Stéphane Delaplace, "Hydraulic Robotic Leg for HYDROiD Robot: Modeling and Control", *Journal of Robotics and Mechatronics*, Vol.34, No.3, pp. 576-587, doi: 10.20965/jrm.2022.p0576 , 2022.
28. Anas Ammounah, **Ahmed Abdellatif Hamed Ibrahim**, Ahmad Tayba, S. Alfayad, F.B. Ouezdou, "Pressure Optimization of a New Hydraulic Ankle Mechanism for HYDROiD Robot", *International Review of Mechanical Engineering (IREME)*, Volume 16, Issue 2, Pages 92-100, Praise Worthy Prize, DOI: <https://doi.org/10.15866/ireme.v16i2.21729> , 2022.
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30. **A. Abdellatif**, S. Hallak, and S. Alfayad, "Development of an On-Board Power Pack for the Hydraulic Humanoid Robot HYDROiD", *International Review of Mechanical Engineering (IREME)*, Vol.12, No.8, pp. 726-733, DOI: <https://doi.org/10.15866/ireme.v12i8.14066> , 2018.
31. **A. Abdellatif**, Tan Quang DUONG, S.ALFAYAD, Olivier BRUNEAU, "Force control for electro-hydraulic servo actuator used for a humanoid robotic arm", *The International Journals of Engineering and Sciences (IJENS)*, Vol:18 No:05, pp:1-10, 173106-1805-5454-IJMME-IJENS , 2018.
32. **A. Abdellatif**, S. Alfayad, Arne-Christoph Hildebrandt, F.B. Ouezdou, N. Mechbal, Yahya Zweiri, "Development of a new hybrid ankle mechanism for humanoid robot HYDROiD" *Journal of Intelligent & Robotic Systems*, issn=1573-0409, doi=10.1007/s10846-017-0750-z, March 2018.
33. **A. Abdellatif**, Samer Alfayad, Fethi B. Ouezdou, Salem A. Haggag, Faycal Namoun, "Mathematical Modeling of an Electro-Hydraulic Actuator for Humanoid Robots", *WSEAS Transactions on Circuits and Systems*, vol. 16, pp. 187-195, Print ISSN: 1109-2734, E-ISSN: 2224-266X. , 2017.
34. M. Ellasswad, A. Tayba, **A. Abdellatif**, S. Alfayad, K. Khalil, "Development of lightweight hydraulic cylinder for humanoid robots applications", *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, Volume 232, Issue 18, Pages: 3351 - 3364, <https://doi.org/10.1177/095440621773179> , 2017.

35. Samer Alfayad, Mohamad El Asswad, **A. Abdellatif**, Fethi B. Ouezdou, Arnaud Blanchard, Nils Beaussé, Philippe Gaussier, "HYDROiD Humanoid Robot Head with Perception and Emotion Capabilities: Modeling, Design, and Experimental Results", *Frontiers in Robotics and AI*, Vol.3, Pages 15, doi: 10.3389/frobt.2016.00015 , 2016.
36. S.F.Rezeka, A.Khalil, **A.Abdellatif**, "Parametric Study of Electro-Hydraulic Servo Valve Using A Piezo-Electric Actuator" , *International Review of Mechanical Engineering Journal*, Vol.5, No.5, pp:961-967 , 2011.

Conference Publications

1. I.-N. Kone, J. Charafeddine, S. Ayari, T. Houada, **A. A. H. Ibrahim**, and Y. Dhafer, "2D Nanomaterials and AI-Driven Control for Next-Generation Exoskeletons," in *Proc. 12th Int. Conf. Automation, Robotics and Applications (ICARA)*, Istanbul, Türkiye, 2026, pp. 531–537, doi: 10.1109/ICARA69401.2026.11480284.
2. Mahmoud Wael Mahmoud, Hassan Maged Rowaizak, Kerolos Ezzat AbdelMalak, Sohaib Taher Ahmed, **A. Abdellatif**, Shady A. Maged, "Teleoperated Robotic Arm for Medical Applications using Internet of Robotic Things (IORT)", *The International Undergraduate Research Conference Volume 5, Issue 5*, Page 616-623, DOI: 10.21608/iugrc.2021.246717 , 2021.
3. Dina Khaled, Hussien Aly, Mariam Khaled, Nourhan Mahmoud, S.Shabaan, **A. Abdellatif**, "Development of a Sustainable Unmanned Surface Vehicle (USV) for Search and Rescue Operations", *The International Undergraduate Research Conference Volume 5, Issue 5*, Page 462-468, DOI: 10.21608/iugrc.2021.246530 , 2021.
4. M. Massoud, **A. Abdellatif**, Mostafa R. A. Atia, "Mechatronic Design and Path planning optimization for an Omni wheeled mobile robot for indoor applications", *31st International Conference on Computer Theory and Applications (ICCTA)*, pp. 90-98, doi: 10.1109/ICCTA54562.2021.9916626. , 2021.
5. M. Raslan, **A. Abdellatif** and M. R. A. Atia, "A novel exoskeleton finger mechanism for robotic applications," *2021 3rd Novel Intelligent and Leading Emerging Sciences Conference (NILES)*, 2021, pp. 5-10, doi: 10.1109/NILES53778.2021.9600087.
6. A. Halim, **A. A. Ibrahim**, M. I. Awad and M. R. A. Atia, "Optimization of Sensor Number for Lower Limb Prosthetics using Genetic Algorithm," *2020 International Conference on Innovative Trends in Communication and Computer Engineering (ITCE)*, Aswan, Egypt, 2020, pp. 210-215.
7. **A.Abdellatif**, Samer ALFAYAD, Fethi BENOUEZDOU, "New Hydraulic leg for the humanoid hydraulic robot HYDROiD" *Journées Nationales de la Robotique Humanoïde*, Nancy, June 2018.

8. *Alfayad S, Abdellatif A, Amrollah E, Ouezdou FB, Haggag S, et al. Mathematical Modeling of an electro-hydraulic actuator for humanoid robots. 2018 Int.Conf. on Applied Mathematics and Computational Physics, Rome, Italy, Jan 2017.*
9. *A.Abdellatif, Samer ALFAYAD, Fethi BENOUEZDOU, “Design of an ankle robotic mechanism for humanoid robot HYDROiD” iCODE final congress, Paris, 2016.*