

MANAR H. LASHIN, Ph.D.

Electrical Engineering Department, Benha Faculty of Engineering, Benha University

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Professional Summary

Dr. Manar Lashin is an accomplished Assistant Professor specializing in Mechatronics and Robotics Engineering with a Ph.D. from Egypt-Japan University of Science and Technology (EJUST). Her research is focused on the integration of artificial intelligence, machine learning, and reinforcement learning into robotics, with a particular emphasis on robot kinematics, dynamics, and optimal control synthesis. She has extensive experience in intellectual property management and innovation support, serving as the director of the Intellectual Property and Patents Office at Benha University and deputy director of the Innovation and Entrepreneurship Center (IEC) 2018-2024.

Research Interests

- Artificial Intelligence
- Machine Learning and Reinforcement Learning for Robotics
- Robot Kinematics and Dynamics
- Optimal and Robust Control Synthesis for Robotic Manipulators

Education

Ph.D. in Mechatronics and Robotics Engineering

*Egypt-Japan University of Science and Technology (EJUST), Alexandria, Egypt
September 2017*

M.Sc. in Mechatronics and Robotics Engineering

*Egypt-Japan University of Science and Technology (EJUST), Alexandria, Egypt
September 2014*

B.Sc. in Industrial Control, Electrical Engineering Department

*Benha Faculty of Engineering, Benha University, Egypt
2010*

Academic and Professional Appointments

Assistant Professor

*Benha Faculty of Engineering, Benha University
2018 - Present*

Director, Technology and Innovation Support Center (TISC)

Benha University

2019 - 2024

Deputy Director, Innovation and Entrepreneurship Center (IEC)

Benha University

2018 - 2024

Member, Incubator of MEDTECH

Benha Faculty of Engineering

2021 - Present

Director, Research and Development Unit

Benha Faculty of Engineering

2021 - 2022

Publications

1. Kalta, M., Mansour, N., Lashin, M., and Soliman, A. (2024). ***Optimal Layout of Suspension System Employing Mechatronic Inerter for Comfort Enhancement Based on Structure Immittance Approach***. International Journal of Vehicle Dynamics, Stability, and NVH, SAE.
2. Ayman Shama, Manar Lashin, Ayman Nada (2024). ***A State Machine-Based Approach for Implementing SPI Communication on FPGAs***. 3rd Annual Conference of Post Graduate Studies for Applied Science - Benha University.
3. Elgammal, Abdullah T; Lashin, Manar (2023). ***A new hybrid aerial and ground hoverbike: dynamics and control***. International Journal of Mechanisms and Robotic Systems, 5(4), 291-307.
4. Abdelrahman A. Watany, Abdel Ghany M. Abdel Ghany, Mohiy Bahgat, Manar Lashin (2023). ***Enhancing Quadrotor Performance Based on Intelligent Control Integration***. The 33rd International Conference on Computer Theory and Applications (ICCTA 2023).
5. Lashin, Manar; Ramadan, Ahmed; Abbass, Hossam S; Abo-Ismael, Ahmed (2014). ***Design of an optimized sliding mode control for loaded double inverted pendulum with mismatched uncertainties***. 2014 19th International Conference on Methods and Models in Automation and Robotics (MMAR), IEEE, pp. 270-275.
6. Lashin, Manar; Elgammal, Abdullah T; Ramadan, Ahmed; Abouelsoud, A. A.; Assal, Samy F. M.; Abo-Ismael, A. (2014). ***Fuzzy-based gain scheduling of Exact FeedForward Linearization control and sliding mode control for magnetic ball levitation system: A comparative study***. 2014 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR), IEEE, pp. 1-6.
7. Elgammal, Abdullah T; Fanni, Mohamed; Lashin, Manar; Mohamed, Abdelfatah M. (2016). ***Dynamic modeling and robust motion control of a 2D compliant pantograph for micromanipulation***. 2016 2nd International Conference on Control, Automation and Robotics (ICCAR), IEEE, pp. 159-164.
8. Lashin, Manar; Fanni, Mohamed; Magdy, Mahmoud; Mohamed, Abdelfatah M. (2016). ***PD type of fuzzy controller for a new 3DOF fully decoupled translational manipulator***. 2016

- 2nd International Conference on Control, Automation and Robotics (ICCAR), IEEE, pp. 263-267.
9. Elgammal, Abdullah T; Fanni, Mohamed; Lashin, Manar; Magdy, Mahmoud; Mohamed, Abdelfatah M. (2017). **Parametric design and analysis of a new 3D compliant manipulator for micromanipulation**. 2017 IEEE International Conference on Advanced Intelligent Mechatronics (AIM), IEEE, pp. 1197-1202.
 10. Lashin, Manar; Fanni, Mohamed; Mohamed, Abdelfatah M; Miyashita, Tomoyuki (2018). **Dynamic modeling and inverse optimal PID with feed-forward control in H^∞ framework for a novel 3D pantograph manipulator**. International Journal of Control, Automation and Systems, 16(1), 39-54.
 11. Lashin, M; Ramadan, A (2015). **Optimal design of a state feedback sliding mode controller of a loaded double inverted pendulum**. Conference Paper.
 12. Lashin, Manar; Elgammal, Abdullah T; Fanni, Mohamed; Mohamed, Abdelfatah M; Miyashita, Tomoyuki (2018). **Optimal controller design for fully decoupled 3D transnational pantograph manipulator for high-speed pick and place**. International Journal of Mechatronics and Automation, 6(4), 160-172.

Patents

- Elgammal, A. T., & Lashin, M. (2020). Hoverbike with Two Systems: Aerial and Ground. *Patent filing no 1007/2020, Egypt*.
- Lashin, M., & Fanni, M. (2016). Novel 3D Translational Pantograph Manipulator. *Patent filing no 518/2016, Egypt*.

Teaching Experience

- **Robotics** – Lecturer, Department of Electrical Engineering
- **Robot Controllers** – Lecturer, Postgraduate, Department of Electrical Engineering
- **Electric Circuits I-II** – Lecturer, Department of Electrical Engineering
- **Adaptive Controllers** – Lecturer, Postgraduate, Department of Electrical Engineering
- **Computer Programming** – Lecturer, Department of Electrical Engineering
- **Engineering Economy** – Lecturer, Electromechanics Engineering Program

Extracurricular Activities and Service

- **Managerial Team Member**, Technology Innovation Commercialization Office (TICO) Academy of Scientific Research and Technology, 2020 - Present
- **Training Coordinator**, Project of Developing a Center/System of Measurement and Evaluation, Benha Faculty of Engineering, 2019 - 2021
- **Invited Speaker**, Various symposiums and conferences on Intellectual Property, Innovation, and Robotics

Workshops and Trainings

- **WIPO Advanced Course on Patents** (2022)
- **Enhancing Partnerships Between Academia and Industry** (2022)
- **EKB Benha Uni: From Papers to Patents** (2022)
- **Visiting Research Fellow** at Waseda University, Tokyo, Japan (2016-2017)

Languages

- **Arabic:** Native
- **English:** Proficient (TOEFL 80 IBT)

References

- **Prof. Ghada Amer**, Dean of Faculty of Engineering, Misr University for Science & Technology (MUST), ghada.amer@bhit.bu.edu.eg.
- **Prof. Ayman Nada**, Head of MTR Department, ayman.nada@ejust.edu.eg, EJUST
- **Prof. Walaa Gabr**, Head of Electrical Engineering Department, walaa_gabr@bhit.bu.edu.eg, Benha University