

# CURRICULUM VITAE

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Google Scholar



ORCID



Scopus Preview



LinkedIn

## VISION

Develop a real step forward in the field of vehicle dynamics.

## RESEARCH AND DESIGN AREAS

My current research area in the Automotive Engineering and focuses on a wide range of topics within the field of Vehicle Dynamics, and particularly interested in:

- Development of advanced control systems in *Off-Road Vehicles*.
- Modeling and mobility enhancement for *Unmanned Ground Vehicle*.
- Development of analytical and experimental methodology for *Terrain-Vehicle Systems*.
- Dynamic behavior of *vehicle stability and ride comfort*.
- Strong research collaboration with colleagues in other research field like *CAD design*.

## EDUCATION

- 2006 – 2010     **PhD**, Automobile and Tractor Engineering, Helwan University – Faculty of Engineering Mataria, Cairo, Egypt.  
Title: "**Use of Adaptive Tyre Pressure Control to Enhance Vehicle Performance**"
- 2002 – 2006     **M.Sc.**, Automobile and Tractor Engineering, Helwan University – Faculty of Engineering Mataria, Cairo, Egypt.  
Title: "**Prediction of Pneumatic Tyre Rolling Resistance on Sandy Soil**"
- 1996 – 2001     **B.Sc.**, Mechanical Engineering Department with major Automotive Engineering, Higher Technological Institute, 10<sup>th</sup> of Ramadan city, 6<sup>th</sup> of October branch, Egypt.  
Ranked the 1<sup>st</sup> over a class of 150 students with **GPA: 3.86/4.0 Excellent**

## ACADEMIC EMPLOYMENT

- 2022 – Present     Full time *Associate Professor*, in Arab Academy for Science & Technology – Mechatronics Department, Smart Village.
- 2022 – Present     Part-Time *Associate Professor*, Head of AutoTronics Program in the New Cairo Technological University.

2020 – 2022	Full time <i>Associate Professor</i> , Head of Automotive Section, Higher Technological Institute.
2011 – 2020	Full time <i>Assistant Professor</i> , in the Higher Technological Institute.
2006 – 2010	Full time <i>Assistant Lecturer</i> , in the Higher Technological Institute.
2003 – 2006	Full time <i>Demonstrator</i> , in the Higher Technological Institute.
2003 – 2006	Part time <i>Researcher</i> , in Helwan University, Faculty of Engineering in Mattaria, Automotive & Tractors Engineering Department.
2001– 2002	Part time <i>Demonstrator</i> , in the Higher Technological Institute, Mechanical and Automotive Engineering Department.

## TEACHING EXPERIENCE

### Post Graduate Courses

Oct 2022	Modeling and Simulation of Mechanical Systems, Arab Academy of Science & Tech.
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### Undergraduate Courses

#### Automotive Courses

2012 – present	Automotive Technology “A”
2012 – present	Automotive Technology “B”
2012 – present	Vehicle Dynamics
2011 – present	Off-Road Vehicles
2011 – present	Heavy Vehicle Dynamic
2022 – present	Internal Combustion Engines

#### Mechanical Courses

2010 – 2018	Theory of Machines “A” & “B”
2001 – 2012	Engineering Mechanics “Static”
2001 – 20011	Engineering Mechanics “Dynamics”
2001 – 2012	Engineering Mechanics "C"
2001 – present	Engineering Drawing Courses “A” & “B”
2007 – present	Introduction to Computer Aided Design “CAD”
2009 – present	Computer Aided Design “CAD”
2006 – present	Computer Applications "Microsoft Access"
2012 – present	Quality Control “2”

## PROFESSIONAL AFFILIATIONS

2010	Egyptian Mechanical Engineering Society, Member
2006	Society of Automotive Engineers, Member
2013	International Society for Terrain-Vehicle Systems, Member
2010	Research and Education in Mechatronics, Member

## DEVELOPMENT OF RESEARCH FACILITIES

- 2022      *“SAE Formula Student – Design Concept”*  
Implement the first design team for SAE formula student competition, Arab Academy.
- 2021      *“Central Tyre Inflation System Prototype Vehicle”*  
Study the effect of tyre pressure control on vehicle axle vibration, H.T.I.  
Fully Funded by Academy of Scientific Research & Technology (ASRT).
- 2020      *“Autonomous Vehicle Prototype”*  
Fully Funded by Academy of Scientific Research & Technology (ASRT)., H.T.I.  
*“SHELL Electric Vehicle Prototype”*  
Study the effect of vehicle aerodynamic on electric power consumption, H.T.I.
- 2019      *“Seat Suspension of Hybrid Vehicle Prototype”*  
Study the effect of vehicle drive on seat suspension vibration, H.T.I.
- 2017      *“Active Camber Angle”*  
Dynamically changing the camber angle in a single wheel tester, H.T.I.
- 2016      *“Tyre Camber Angle Test Rig”*  
Monitoring the camber angle effect in a single wheel tester, H.T.I.  
*“Flex Fuel”*  
Converting a traditional gasoline engine into mixed ethanol gasoline engine using Mega Squirt-II control system, H.T.I.
- 2015      *“Active Suspension Quarter Car Model”*  
Develop and testing of AIRmatic damper for Mercedes S500, H.T.I.  
*“Automated Manual Transmission”*  
Converting a manual transmission gearbox to an electronically automated transmission, H.T.I.  
*“Unmanned Ground Vehicle”*  
Self-operated vehicle moving over any terrain type used for especial missions, H.T.I.
- 2014      *“Hydroforming Punch Machine”*  
Using hydraulic system to increase the fluid pressure below the workpiece, H.T.I.  
*“EXO-Skeleton Suit”*  
A wearable suit robot helping wounded veterans to stand up and walk again, H.T.I.  
*“Universal Tyre Testers”*  
Measuring the dynamic tyre performance, H.T.I.
- 2013      *“Static Tyre Characteristics Machine”*  
Measuring the static tyre performance, H.T.I.  
*“Remotely Operated Vehicle”*  
ROV under water, H.T.I.
- 2012      *“Automatic Baler Machine”*  
Densify Aluminum Cans machine, H.T.I.
- 2011      *“Design of a Plastic Injection Mold”*  
Design and manufacture of plastic injection die, H.T.I.
- 2009      *“Adaptive Self Inflated Tyre Test-Rig”*  
Design and control a central tyre inflation system for single tyre tester H.T.I.
- 2005      *“Design an Innovative Method for Measuring Tyre Rolling Resistance in the Lab.”*,  
Helwan University, Faculty of Engineering in Mattaria.
- 2004      *“Design and Manufacture of Soil-Bin for Tyre-Soil Interaction”*  
Helwan University, Faculty of Engineering in Mattaria.

## HONORS AND AWARDS

- 2014 Best Lecturer Competition, Mechanical Engineering Department Higher Technological Institute, 6<sup>th</sup> of October Branch
- 2001 Appreciation certificate from the Engineers Syndicate for the acquisition for the first position in the Higher Technological Institute.
- 1998 A preeminence certificate from the Ministry of Higher Education and Scientific Research.

## RESEARCH PUBLICATIONS: JOURNAL ARTICLES

10. H. M. El-Zomor and Eid S. Mohamed, "Vehicle Motion Stability Enhancement Based on Active Camber Angle Control for a Double Wishbone Suspension". International Journal of Vehicle Structures & Systems, accepted for forthcoming issue Vol. 12 (1), Feb 2020. DOI: <https://doi.org/10.4273/ijvss.12.1.06>
9. H. M. El-Zomor, "Reducing Tyre`s Hysteresis Losses Using Copper Oxide Nanoparticles". International Journal of Vehicle Structures & Systems, email acceptance June 2016, accepted for publication in the forthcoming issue Vol. 11 (6), Dec 2019. DOI: <https://doi.org/10.4273/ijvss.11.6.10>
8. H. M. El-Zomor, E. E. Khalil, and M. Morsy, "Parametric Approach for Winglet in Gas Turbine Blade Tip". International Journal of Mechanical and Production Engineering, Vol. 7 (3), pp. 51-57, Mar 2019.
7. H. M. El-Zomor, "Real-Time Estimation of Pneumatic Tyre Hysteresis Loss". International Journal of Heavy Vehicle Systems, Vol. 26 (2), pp. 175-187, Mar 2019. DOI: <https://doi.org/10.1504/IJHVS.2019.098275>
6. Sara G. Seadby, Yehia H. Hosameldin, Saber M. Abd Rabbo, and Haytham M. El Zomor, "Lane Tracking and Obstacle Avoidance for Autonomous Vehicles Using Embedded Machine Vision System", Engineering Research Journal Faculty of Engineering Mataria Helwan University, Vol. 153, pp. AT1– AT13, 2017.
5. E. E. Khalil, H. M. ElZomor, and M. M. Morsy, "Numerical Investigation of Flat and Suction Side Squealer Tips for Gas Turbine", Engineering Research Journal Banha University, vol. 25, issue 2, pp. 63-77, 2015.
4. E. E. Khalil, H. M. ElZomor, and M. M. Morsy, "Numerical Investigation of Double Squealer and Flat Tips for Gas Turbine", Engineering Research Journal Banha University, vol. 25, issue 2, pp. 78-101, 2015.
3. H. M. El-Zomor and M. Hany, "Enhancement in a Mechatronic Aluminum Beverage Cans Recycling Machine". World Academy of Science, Engineering and Technology, International Journal of Mechanical and Mechatronics Engineering, Vol. 7 (9), pp. 1894-1899, Nov 2013. DOI: [doi.org/10.5281/zenodo.1335914](https://doi.org/10.5281/zenodo.1335914)
2. M. A. Emam, S. Shaaban, S. El-Demerdash, and H. El-Zomor, "A Computerized Tyre Pressure Control System", International Journal of Vehicle Structures & Systems, Vol. 3(4), pp. 210-218, 2012. DOI: [10.4273/ijvss.3.4.01](https://doi.org/10.4273/ijvss.3.4.01)
1. M. A. Emam, S. Shaaban, S. El-Demerdash, and H. El-Zomor, "A Tyre-Terrain Interaction Model for Off-Road Vehicles", Journal of Mechanical Engineering Research, Vol. 3(7), pp. 226-238, 2011.

## RESEARCH PUBLICATIONS: PRESENTATIONS AND CONFERENCES

10. H. M. El-Zomor, "Development of Unmanned Ground Vehicle with Enhanced Wheel Slip Control". Proceeding of the 15<sup>th</sup> ISTVS European-African Regional Conference, Prague, Czech Republic, Sep 2019.

9. H. M. El-Zomor, Essam E. Khalil, and Mohamed Morsy, "Parametric Approach for Winglet in Gas Turbine Blade Tip", Proceeding of Academicsera 38<sup>th</sup> International Conference on Mechanical and Aerospace Engineering, London, United Kingdom, pp. 5-11, 2018
8. E. E. Khalil, H. M. El-Zomor and M. Morsy, "On the Computations of Double Squealer and Flat Gas Turbine Blades Tips". Proceeding of the 54<sup>th</sup> AIAA Aerospace Sciences Meeting, California, USA, Jan 2016. DOI: <https://doi.org/10.2514/6.2016-1366>
7. E. E Khalil, H. ElZomor, and M. Morsy, "Numerical Investigations of Flat and Suction Side Squealer Tips for Gas Turbine", Proceedings of ISABE, Paper ISABE-2015-21290, Arizona, USA, 2015.
6. Haytham ElZomor, Mohamed Gamal, Hassan Reda, Ammar Khlousy, and Amr Ahmed, "Design and Field Experimentation of Unmanned Ground Vehicle", Poster Session in the 15<sup>th</sup> International Workshop on Research and Education in Mechatronics (REM), El Gouna, Egypt, 2014.
5. Haytham ElZomor & Mohamed Hany, "Reducing the Transportation Costs in Aluminum Beverage Cans Recycling by using Densifying Machine", 19<sup>th</sup> Conference of Mechanical Engineering, Alexandria, Egypt, 2013.
4. E. Elbially, H. El-Zomor, E. Khalil, and M. Morsy, "Effect of Compound and Forward Diffusion Angles on Film Cooling Effectiveness of Flat Plate Surface". Proceeding of the 51<sup>th</sup> AIAA Aerospace Sciences Meeting, Texas, USA, Jan 2013. DOI: <https://doi.org/10.2514/6.2013-600>
3. H. El-Zomor, S. Shaaban, S. El-Demerdash, and M. A. Emam, "Optimization of Off-Road Tyres' Inflation Pressure", 12<sup>th</sup> European Conference of the International Society of Terrain Vehicle System, South Africa, 2012.
2. H. El-Zomor, S. Shaaban, S. El-Demerdash, and M. A. Emam, "Adaptive Tyre Pressure Control for Off-Road Vehicles", Proceedings of the 14<sup>th</sup> AMME-14 Conference, AM-PT1-10, Cairo, 2010
1. H. M. El-Zomor, S. M. Shaaban, M. A. El-Nashar, and I. M. Ibrahim, "The Effect of Relative Sinkage in Rolling Resistance for Off-Road Tyres", International Conference of Terrain vehicle System, Alaska, USA, 2007.

#### REFeree FOR THE FOLLOWING JOURNALS AND CONFERENCE

16 Papers	SAE International, Journal of Commercial Vehicles
1 Paper	International Conference on Research and Education in Mechatronics (REM)
8 Papers	Proc. of the Institution of Mech. Eng., Part D: Journal of Automobile Eng.
6 Paper	Journal of Vehicle System Dynamics
1 Paper	Journal of Aerospace Engineering
8 Papers	SAE International, Journal of Passenger Cars

#### GRADUATE SUPERVISIONS

2013 – 2016	<b>M.Sc.</b> , Banha University, Title "Autonomous Vehicle Control and Obstacle Avoidance Using Image Processing".
2013 – 2016	<b>Ph.D.</b> , Cairo University, Title "Numerical Investigations of Gas Turbine Stage Design Configurations and Tip Leakage".
2010 – 2013	<b>M.Sc.</b> , Cairo University, Title "Effect of Compound and Forward Diffusion Angles on Film Cooling Effectiveness of Flat Plate Surface".

#### PROFESSIONAL ACADEMIC ACTIVITIES AND SERVICE

##### *Faculty Level (Higher Technological Institute):*

2020	Head of Mechanical Engineering curriculum Committee for Mechanical & Automotive Section under-graduate Programs.
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- 2019 – Present Head of Automotive Engineering Section, 6<sup>th</sup> of October Branch.
- 2018 Strategic Plan committee for 6<sup>th</sup> of October Branch, Managing Director.
- 2016 Vehicle Inspection Committee for 10<sup>th</sup> of Ramadan Branch, Member.
- 2016 – 2018 Judge in NASA Space Apps Competition at Nile University Cairo.
- 2016 – 2018 “Report on Evaluation of Higher Education Institutions Submitted to Ministry of Higher Education”, Managing Director.
- 2015 “Self-Review Report for Quality Assurance & Accreditation of Education” for the 6<sup>th</sup> of October branch, Managing Director.
- 2014 – 2015 Managing Director of the Society and Environmental Service Center, Higher Technological Institute, 6<sup>th</sup> of October Branch.
- 2014 New under-graduate curriculum for Automotive Section Committee, Member.
- 2013 – 2015 Workers Welfare Fund Committee in the HTI 10<sup>th</sup> of Ramadan City, Member.
- 2013 – 2014 Society and Environmental Service Center committee in the Higher Technological Institute 10<sup>th</sup> of Ramadan City, Member.
- 2012 – 2013 Implementing Automatic Control Laboratory committee, Member.
- 2010 – 2015 Responsible for Learning and Education Module, 6<sup>th</sup> of October Branch.

***Department Level (Higher Technological Institute):***

- 2014 – 2015 Implementing of Modern Automotive Workshop committee in HTI, Member.
- 2011 – 2012 Director of Student’s Industrial Training Program, 6<sup>th</sup> of October Branch.
- 2010 – 2015 Coordinator of Automotive Section Education Quality, 6<sup>th</sup> of October Branch.
- 2010 Member, Under-graduate Program for Mechatronics Section at the Higher Technological Institute; Funded by TEMPUS project.

**RELEVANT SKILLS**

**Languages:** Oral and written proficiency in English, and Arabic is mother tongue.

**Engineering Software:**

Programming ability in Q-Basic and Visual Basic.

Excellent in using the following software packages **LABVIEW, MATLAB, SOILD EDGE, SOILD WORKS, ANSYS WORKBENCH, AUTOMATION STUDIO, and CARSIM.**

**REFERENCES**

***Prof. Dr. Sayed Mahmoud Shaaban***

Automotive and Tractor Engineering Department, Helwan University, Egypt.

**Email:** [Shaabansayed@Rocketmail.com](mailto:Shaabansayed@Rocketmail.com)

***Prof. Dr. Saeed AboAlyzeed***

Vice-Dean, of the Higher Technological Institute, 6<sup>TH</sup> of October Branch, Egypt.

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***Prof. Dr. Yasser El-Shaer***

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