

CURRICULUM VITAE

Biographical & Contact Information

First Name: Mahmood Reza

Surname: Azizi

Birth: 16st September 1983, Jahrom, Iran.

Nationality: Iranian

Marital Status: Single

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Education

- Doctor of Philosophy:** Mechanical engineering, Dynamics and Control
Tabriz University, Tabriz, Iran
GPA: 19 (out of 20)
2013-2018 **Thesis:** Motion planning and control of nonholonomic spherical mobile robot using nonlinear model predictive control
Supervisor: Dr. J. Keighobadi
- Master of Science:** Mechanical Engineering, Dynamics and Control
Bu-Ali Sina University, Hamedan, Iran
2006-2008 GPA: 17.97 (out of 20)
Thesis: Trajectory planning optimization of a spherical mobile robot
Supervisor: Dr. D. Naderi
- Bachelor of science:** Mechanical Engineering, Solid design,
Shahid Bahonar University, Kerman, Iran
2002-2006 GPA: 15.70 (out of 20)

Honors and Awards

- 2000 2rd rank winner in Computer Programming Olympiad in Jahrom City
- 2006 Ranked second among all Department Alumni at the end of Bachelor's degree
- 2008 Ranked first among all Department Alumni at the end of master's degree
- 2018 Ranked first among all Department Alumni at the end of PhD's degree

Publications

A: Journal Papers

1. Mahmood Reza Azizi, Alireza Rastegarpanah, Rustam Stolkin, "Motion Planning and Control of Omnidirectional Mobile Robot in Dynamic Environments", *Robotics*, Volume 10(1): 48, (2021).
2. M.R. Azizi, J. Keighobadi, "Point stabilization of nonholonomic spherical mobile robot using nonlinear model predictive control", *Robotics and Autonomous Systems*, 98, (2017), pp. 347-359.
3. Mahmood Reza Azizi, Rahmatolah Khani, "An Algorithm for Smooth Trajectory Planning Optimization of Isotropic Translational Parallel Manipulators", *Proceedings of the iMechE, Part C: Journal of Mechanical Engineering Science*, 230 (12), (2015), pp. 1987-2002.
4. Mahmood Reza Azizi, Jafar Keighobadi, Robust Sliding Mode Controller for Trajectory Tracking and Attitude Control of a Nonholonomic Spherical Mobile Robot, *Amirkabir International Journal of Science & Research (AIJ-MISC)*, 47 (2) (2015), pp. 45-56.
5. Mohammad Hadi Gholami, Mahmood Reza Azizi, "Multi-objective optimization of peripheral grinding process using NSGA II", *The International Journal of Advanced Manufacturing Technology*, 73 (2014), pp. 981-988.
6. M.R. Azizi, D. Naderi, Dynamic Modeling and Trajectory Planning for a Mobile Spherical Robot with a 3DOF Inner Mechanism. *Mechanism and Machine theory*, 64, (2013) pp. 251-261.
7. D. Naderi, M.R. Azizi, "Path Planning Optimization of a Spherical Mobile Robot via Genetic Algorithm", *Iranian Journal of Mechanics & Aerospace*, Volume 7(1), (2012) pp. 1-13 (In Persian).
8. Mahmood Reza Azizi, Jafar Keighobadi, " Deep Reinforcement Learning Approach for Position and Orientation Control of Nonholonomic Spherical Mobile Robot ", Preparing Manuscript, 2025.

B: Conference Papers

1. M.R. Azizi, J. Keighobadi, "Robust Sliding Mode Trajectory Tracking Controller for a Nonholonomic Spherical Mobile Robot", *IFAC Proceedings*, Cape town, South Africa (2014), pp. 4541-4546 .
2. M.R. Azizi, D. Naderi, "Dynamic Modeling and Trajectory Planning Optimization for a Ball Shape Robot Using Genetic Algorithm", *ISME Conference*, Tehran, (2008).

Teaching Experiences

2014-2017	Course Title: Linear Control Theory, Jahrom PNU University
2014-2017	Course Title: Mechanical Vibration, Jahrom PNU University
2014 - 2015	Course Title: Robotics: Kinematics & Dynamics of Serial Manipulators, Jahrom University
2014 - 2015	Course Title: Engineering Drawing I, Jahrom University
2014 - 2015	Course Title: Solid Mechanics II, Jahrom University
2011-2012	Course Title: CAD/CAM & Solidworks, Bahonar University of Shiraz

Research Experiences

A: Completed Projects

2011-2012 **Research Title:** Dynamic modeling, and optimal design of a novel rotary engine using genetic algorithm.
Shiraz Elites Center

B: Review for International Journals

2012 to present **Reviewer of:** Journal of Robotica, Journal of Intelligent and Robotic Systems
Journal of Advanced Robotics and Journal of Nonlinear Dynamics.

Computer and Programming Skills

Programming: Excellent knowledge and experience in MATLAB & Simulink.

Programming: High proficiency in programming with Python, and its widely used scientific libraries e.g. PyTorch, Stable Baseline, Pandas, NumPy, SciPy, PyMoo.

Programming: Good knowledge in programming with C/C++.

Machine Learning: Excellent knowledge in PyTorch for developing deep learning models.

Intelligent Control: Excellent Knowledge of MATLAB Reinforcement Learning Toolbox.

Robot Simulator: Excellent knowledge and experience in CoppeliaSim (V-REP)

Modelling & Simulation: Excellent knowledge and experience in MATLAB/SimScape.

CAD Software: Excellent knowledge and experience in Solidworks.

Dynamic Analysis Software: Basic knowledge and experience in ADAMS.

FEM Software: Elementary knowledge and experience in ANSYS

Special Trainings/Courses

2019 **Course Title:** Repair & maintenance of gas compressors.
N.I.O.P.D.C, Shiraz, Iran

2018 **Course Title:** Guide to prepare scientific papers.
N.I.O.P.D.C, Shiraz, Iran

2012 **Course Title:** Welding and welding inspection.
N.I.O.P.D.C, Shiraz, Iran

2011 **Course Title:** Introduction to industrial piping.
N.I.O.P.D.C, Shiraz, Iran

Research and Teaching Interests

A: Dynamics

- 1 Kinematic and dynamic modeling and analysis of mechanical systems
- 2 Lagrangian and Kane dynamics

B: Robotics

- 1 Robots Kinematic, dynamic and control
- 2 Nonholonomic mobile robots
- 3 Parallel and serial manipulators
- 4 Trajectory planning and optimization
- 5 Motion planning and obstacle avoidance

C: Control

- 1 Nonlinear control methods
- 2 Model Predictive Control
- 3 Machine Learning

D: Mathematical aspect of mechanics

- 1 Optimization (classical and Metaheuristic methods)
- 2 Differential Geometry

Language Skills

Fluent in English (spoken and written), **IELTS Certificate - Feb 2020**
Mother tong: Persian

Personal Interests, Attributes and Hobbies

Highly interested in Persian Calligraphy and playing Santoor.
Highly interested in western philosophy and philosophical problems.
Interested in Mountain climbing, Table Tennis, Traveling and Visiting New Places.
Highly motivated towards Robotics and Control engineering.

References

A: Useful Links

My Google Scholar
My ResearchGate Page
Tabriz University

<https://scholar.google.com/citations?user=wrBQPL8AAAAJ&hl=en>
[Mahmood Reza Azizi \(researchgate.net\)](https://www.researchgate.net/profile/Mahmood-Reza-Azizi)
www.Tabrizu.ac.ir

Bu-Ali Sina University
Shahid Bahonar University
Higher Education in Iran
Payame Noor University

www.basu.ac.ir
<http://www.uk.ac.ir/Default8.aspx?Id=5187>
http://en.wikipedia.org/wiki/Higher_Education_in_Iran
<http://en.pnu.ac.ir/Portal/Home/>

A: Co-Author

Professor Rustam Stolkin

Chair in Robotics

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B: Co-Author & Supervisor

Dr. Alireza Rastegarpanah

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Birmingham, UK

Email: a.rastegarpanah@bham.ac.uk

Web page: <https://www.birmingham.ac.uk/staff/profiles/metallurgy/rasregarpanah-alireza.aspx>

C: PhD Supervisor

Associate Professor Jafar Keighobadi

Faculty of Mechanical Engineering

Tabriz University

Tabriz, Iran

Email: keighobadi@tabrizu.ac.ir

Web page: <https://asatid.tabrizu.ac.ir/en/pages/default.aspx?keighobadi>

D: MSc Supervisor

Associate Professor Davood Naderi

Department of Mechanical Engineering

Bu-Ali Sina University

Hamedan, Iran

Email: d_naderi@basu.ac.ir

Web page: <http://profs.basu.ac.ir/naderi/index.php?L=en&pc>