

RESUME

Behnam Dadashzadeh

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Current Position

- ◆ Head of Department of Mechatronics Engineering (since Sep. 2022), Assistant Professor (since Sep. 2013), Faculty of Mechanical Engineering, University of Tabriz.
Presented Courses: Advanced Dynamics, Advanced Robotics, Control in Robotics, Industrial Automation, Mechatronics II, Mobile Robots, Sensors and Robot Calibration, Musculoskeletal Biomechanics, Modeling and Analysis of Body Movements.
Research Interests: Dynamics and Control of Robots, Biped Walking and Running, Design of Inspection and Mobile Robots, Musculoskeletal Biomechanics.

Education

- ◆ 2008 – 2013
PhD in Mechanical Engineering - Applied Design, University of Tehran, Ranked 1st in the qualification exam, Tehran, Iran.
Thesis Title: Modeling and Control of Stable Running of a Planar Biped Robot with Compliant Legs.
Supervisors: Prof. Mohammad J. Mahjoob and Prof. Mansour Nikkhah Bahrami.
Advisors: Dr. Chris Macnab and Dr. Jonathan Hurst.
- ◆ 2005 - 2007
Master of Science (M.Sc.) in Mechanical Engineering - Applied Design, University of Tehran (GPA: 17.70/20), Tehran, Iran.
Thesis Title: Kinematic and Dynamic Modeling and Control of a Mobile Robot.
Supervisor: Dr. Mohammad J. Mahjoob.
Advisor: Prof. Mansour Nikkhah Bahrami
- ◆ 2001 - 2005
Bachelor of Science (B.Sc.) in Mechanical Engineering Design and Solid Mechanics, University of Tabriz, Ranked 1st (GPA: 17.77/20), Tabriz, Iran.
B.Sc. final project: Design and modeling of Three Wheeled Automated Guided Vehicle (AGV) for material handling in industrial environments.
Supervisor: Dr. Ahmad Ghanbari.
- ◆ 1997 – 2001
High School Diploma in Physics and Mathematics from Saadi High School for Gifted and Talented Students, with High Rank (GPA: 19.24/20), Tabriz, Iran.

Research Experience

- ◆ **Postdoctoral Research Fellow**, Supervisor: Prof. Micky Rakotondrabe, École nationale d'ingénieurs de Tarbes (ENIT), France, 1 Oct. – 31 Dec. 2019.
- ◆ **Faculty Research Assistant**, Supervisor: Dr. Jonathan Hurst, Dynamic Robotics Laboratory, Mechanical Industrial and Manufacturing Engineering Department, Oregon State University, 1 Oct. 2012 – 1 Apr. 2013.
- ◆ **Visiting Scholar**, Supervisor: Dr. Chris Macnab, Department of Electrical and Computer Engineering, Schulich School of Engineering, University of Calgary, 1 Mar. – 31 Sep. 2012.

Journal Publications

- ◆ M. Azhdarzadeh, R. Jahangiri, A. Allahverdizadeh, **B. Dadashzadeh**, Ramin Nabati, “Investigation of Nonlinear Thermo-Elastic Behavior of Fluid Conveying Piezoelectric Microtube Reinforced by Functionally Distributed Carbon Nanotubes on Viscoelastic-Hetenyi Foundation”, *European Journal of Computational Mechanics*, Vol. 31, Issue 1, 2022.
- ◆ **B. Dadashzadeh**, A. Allahverdizadeh, M. Azhdarzadeh, “Modeling and Optimized Gait Planning of Biped Robots with Different Leg Mechanisms”, *International Journal of Modelling, Identification and Control*, Vol.37 No.2, pp.176 – 186, 2021.
- ◆ **B. Dadashzadeh**, A. Allahverdizadeh, M. Esmaeili, H. Fekrmandi “A Case Study on Influence of Utilizing Hill-type Muscles on Mechanical Efficiency of Biped Running Gait”, *International Applied Mechanics*, Vol. 56, No. 4, pp 512-521, July 2020.
- ◆ E. Aliabbasi, A. Allahverdizadeh, **B. Dadashzadeh**, and R. Jahangiri, "Non-contact AC current measurement using vibration analysis of a MEMS piezoelectric cantilever beam", *Journal of Energy Management and Technology (JEMT)*, Vol. 4, Issue 4, pp 28-35, 2020.
- ◆ R. Jahangiri, A. Allahverdizadeh, **B. Dadashzadeh**, H. Azimzadeh, “Effect of Viscoelastic-Hetenyi Foundation and Fluid Viscosity on Dynamic Behavior of Fluid Conveying Microtube under Flutter and Parametric Magnetic Resonance,” *Modares Mechanical Engineering*, 20(2) :435-446, 2020. [*in Persian*]
- ◆ **B. Dadashzadeh** and C. Macnab, “SLIP-based Control of Biped Robots Walking Using a Two Level Control strategy,” *Robotica* (IF = 2.09), Vol. 38, Issue 8, pp. 1434 - 1449, August 2020.
- ◆ H. Chalengari, M. Tale Masouleh, **B. Dadashzadeh**, “Modeling and Experimental Evaluation of Stiffness of a Linear Decoupled 3 Degree of Freedom Parallel Robot”, *Modares Mechanical Engineering*, Vol. 19 Issue 5, pp 1385-1396, Jun 2019. [*in Persian*]
- ◆ **B. Dadashzadeh**, S.A. Mostafavi, A. Allahverdizadeh, “Dynamic Modeling and Optimal Walking Gait Planning of a Real Biped Robot Based on SLIP and Compass gait Models”, *Journal of Applied and Computational Sciences in Mechanics*, Vol. 30, No. 1, 2019. [*in Persian*]
- ◆ P. Doosti, M.J. Mahjoob, **B. Dadashzadeh**, “Finite-time control strategy for the running of a telescopic leg biped robot”, *Journal of the Brazilian Society of Mechanical Sciences and Engineering* (IF = 2.22), 41: 196, 2019. <https://doi.org/10.1007/s40430-019-1697-8>
- ◆ B. Hazrati, **B. Dadashzadeh**, M. Shoaran, “Fuzzy Control of Bipedal Running with Variable Speed and Apex Height”, *International Journal of Dynamics and Control*, 7, pp 1379–1391, 2019. <https://doi.org/10.1007/s40435-019-00518-9>
- ◆ **B. Dadashzadeh**, H. Fekrmandi, “Tracking of maximum electrical power for a piezoelectric energy harvesting system,” *International Journal of Recent Technology and Engineering*, Vol. 8 Issue 3, September 2019.
- ◆ **B. Dadashzadeh**, M. Esmaeili, C. Macnab, “Arbitrary Symmetric Running Gait Generation for an Underactuated Biped Model”, *PloS one* (IF = 3.24), 12 (1), e0170122, Jan. 2017.
- ◆ O. Heydarnia, **B. Dadashzadeh**, A. Allahverdizadeh, S.M.R. Sayyed Noorani, “Discrete sliding mode control to stabilize running of a biped robot with compliant kneed legs”, *Automatic Control and Computer Sciences*, 51 (5), pp. 347-356, 2017.
- ◆ S. Khodaei, A. Allahverdizadeh, **B. Dadashzadeh**, “Design and fabrication of an autonomous mobile robot equipped with color lasers and its trajectory control based on machine vision”, *Modares Mechanical Engineering*, 17 (6): 213-220, 2017. [*in Persian*]

- ◆ O. Heydarnia, **B. Dadashzadeh**, A. Allahverdizadeh, S.M.R. Sayyed Noorani, “Fuzzy Nonlinear Controller for Stable Walking of Biped Robots”, International Journal of Mechatronics, Electrical and Computer Technology, Vol. 6(21), pp. 2967-2976, 2016.
- ◆ A. Khaleghian, **B. Dadashzadeh**, “Kinematic Calibration and Positioning Error Compensation for the Puma Robot Model”, Modares Mechanical Engineering, 15 (13): 506-510, 2015. [*in Persian*]
- ◆ **B. Dadashzadeh**, H. Shaban, M. S. Noorani, B. Koohestani, “Optimal Control Command Generation for Planar Running of ATRIAS Biped Robot vs. SLIP Based Running”, Journal of Control, 9 (1) :59-72, 2015. [*in Persian*]
- ◆ **B. Dadashzadeh**, M.J. Mahjoob, M. Nikkhah Bahrami and C. Macnab, "Compliant Leg Architectures and Linear Control Strategy for Stable Running of Planar Biped Robots", International Journal of Advanced Robotic systems (IF = 1.65), Vol. 10, 2013.
- ◆ **B. Dadashzadeh**, M.J. Mahjoob, M. Nikkhah Bahrami and C. Macnab, "Stable Active Running of a Planar Biped Robot Using Poincare Map Control", Advanced Robotics (IF = 1.70), vol.28, Issue 4, 2014.
- ◆ M.M. Seyyed Fakhrabadi, A. Allahverdizadeh, V. Norouzifard, **B. Dadashzadeh**, “Mechanical Characterization of Deformed Carbon Nanotubes”, Digest Journal of Nanomaterials and Biostructures (IF = 0.96), Vol. 7, No. 2 , pp. 717-727, Jun. 2012
- ◆ M.M. Seyyed Fakhrabadi, A. Allahverdizadeh, V. Norouzifard, **B. Dadashzadeh**, "Effects of boron doping on mechanical properties and thermal conductivities of carbon nanotubes", Solid State Communications (IF = 1.80), Volume 152, Issue 21, pp. 1973–1979, Nov. 2012.
- ◆ M.M. Seyyed Fakhrabadi, A. Allahverdizadeh, V. Norouzifard, **B. Dadashzadeh**, “Mechanical characterization of deformed carbon nanotubes”, Digest Journal of Nanomaterials and Biostructures (IF = 0.96), 7 (2), pp. 717-727, 2012.
- ◆ M. M. Seyyed Fakhrabadi, **B. Dadashzadeh**, V. Norouzifard, M. Dadashzadeh, “Application of Genetic Algorithm in Optimization of Composite Laminates”, International Review of Modeling and Simulation, Vol. 4 Issue 2, pp.911-917, Apr. 2011.

Conference Publications

- ◆ E. AliAbbasi, A. Allahverdizadeh, **B. Dadashzadeh**, R. Jahangiri, “Energy Harvesting Using MEMS Porous Functionally Graded Piezoelectric Cantilever Beam”, the 9th International Conference on Acoustics and vibration, Tehran, Iran, Dec. 2019.
- ◆ **B. Dadashzadeh**, Design And Investigation Of Biped Running Gait Using Hill-Type Muscles, ACN-International Conference on Artificial Intelligence, Robots and Mechanical Engineering, Istanbul, Turkey, 2019.
- ◆ **B. Dadashzadeh**, E. Moslemi, “Design and Fabrication of a Jumping Robot with Pneumatic Mechanism for Obstacle Crossing”, 5th National Conference on Electrical and Mechatronics Engineering, Tehran, Iran, 2019. [*in Persian*]
- ◆ **B. Dadashzadeh**, A. Allahverdizadeh, S. Esmaili, “Design and Implementation of an automation system for optimal agricultural automation using PLC”, 5th National Conference on Electrical and Mechatronics Engineering, Tehran, Iran, 2019. [*in Persian*]
- ◆ A. Salimian, **B. Dadashzadeh**, “Design of an Optimal Energy Harvesting System Using Piezoelectric Materials”, 5th National Conference on Electrical and Mechatronics Engineering, Tehran, Iran, 2019. [*in Persian*]
- ◆ M. Shaleh, **B. Dadashzadeh**, A. Allahverdizadeh, A. Koochi, “Design and fabrication of a modular robot with optimal angles of wheels to move inside natural gas transmission

lines”, 3rd International Conference on Electrical Engineering, Kharazmi University, Tehran, Iran, 2018. [*in Persian*]

- ◆ M. Fallah Bagheri, A. Allahverdizadeh, **B. Dadashzadeh**, H. Madineh, “Modeling and Simulation of a three-layer Cantilever Piezoelectric Micro Beam for Energy Harvesting”, 7th International Conference on Acoustics and Vibration ISAV, Tehran, Iran, 2017. [*in Persian*]
- ◆ F. Mohammadi Amin, B. Koohestani, **B. Dadashzadeh**, “Design and implementation of an improved deep learning system for classifying images and its performance comparison with neural networks”, 2nd International Conference on knowledge-based Research in Computer Engineering & IT, Tehran, Iran, 2017. [*in Persian*]
- ◆ O. Heydarnia, A. Allahverdizadeh, **B. Dadashzadeh**, S. M.R. Sayyed Noorani, “Control of Underactuated Biped Robots Using Event Based Fuzzy Partial Feedback Linearization”, 18th International Conference on Mechanical, Mechatronics and Materials Engineering (ICMMME), Tokyo, Japan, 2016.
- ◆ E. Aliabbasi, A. Allahverdizadeh, **B. Dadashzadeh**, “Non-Contact Electrical Current Measurement Using Piezoelectric Cantilever Beams”, 6th International Conference on Acoustics & Vibration (ISAV), Tehran, Iran, 2016.
- ◆ S.A. Mostafavi, A. Allahverdizadeh, **B. Dadashzadeh**, “Control of DC Motor by Backstepping Method and Comparison of its Results with PID and Sliding Mode Controllers”, 24th Annual International Conference on Mechanical Engineering (ISME 2016), Yazd, Iran, 2016. [*in Persian*]
- ◆ R. Soleimani, **B. Dadashzadeh**, N. Saei, M. Esmaili, “Design and fabrication of a 3 DOF manipulator with pneumatic universal gripper and investigation of applying harmony search algorithm to the end-effector positioning function”, 3rd National and First International Conference in applied research on Electrical, Mechanical and Mechatronics Engineering, Tehran, Iran, 2016. [*in Persian*]
- ◆ **B. Dadashzadeh**, H.R. Vejdani, J. Hurst, "From Template to Anchor: A Novel Control Strategy for Spring-Mass Running of Bipedal Robots", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2014), Chicago, USA, 978-1-4799-6933-3/14, pp. 2566-2571, Sep. 2014.
- ◆ **B. Dadashzadeh**, M.J. Mahjoob, "Dynamics Synchronization of the Running of Planar Biped Robots with SLIP Model in Stance Phase", The 2nd ICRoM International Conference on Robotics and Mechatronics, K. N. Toosi University of Technology, Tehran, Iran, Oct. 2014.
- ◆ **B. Dadashzadeh**, M. Esmaili, B. Koohestani, S.M.R.S. Noorani, "Hopping Gait Generation for a Biped Robot with Hill-Type Muscles", Recent Advances in Robotics and Mechatronics (RARM-2014), Istanbul, Turkey, 978-605-86637-4-9, pp. 255-260, Aug. 2014.
- ◆ A. Allahverdizadeh, **B. Dadashzadeh**, "A Fuzzy Logic Controller for Thrust Level Control of Liquid Propellant Engines", Recent Advances in Robotics and Mechatronics (RARM-2014), Istanbul, Turkey, 978-605-86637-4-9, pp. 249-254, Aug. 22-23, 2014.
- ◆ **B. Dadashzadeh**, H.R. Vejdani, J. Hurst, "Controlling the spring-mass running robots during the stance phase", Dynamic Walking Conference, Carnegie Mellon University, Pittsburgh, USA, June 2013.
- ◆ **B. Dadashzadeh**, M.J. Mahjoob, C. Lucas, “GA Optimized Fuzzy Logic Control of a Light Tracker Mobile Robot”, 13th IEEE IFAC International Conference on Methods and Models in Automation and Robotics, Szczecin, Poland, Aug. 2007.

- ◆ **B. Dadashzadeh**, M.J. Mahjoob, “Fuzzy Logic Control vs. Nonlinear P Control of a Three Wheeled Mobile Robot (TWMR)”, IEEE International Conference on Mechatronics and Automation, Harbin, Heilongjiang, China, Aug. 2007.
- ◆ **B. Dadashzadeh**, M.J. Mahjoob, H. Habibi, “Kinematics and Dynamics of a Three Wheeled Mobile Robot”, Proceeding of the 4th International Symposium on Mechatronics and its Applications (ISM07), Sharjah, UAE, Mar. 2007.
- ◆ M. Nikkhah Bahrami, **B. Dadashzadeh**, A. Biabangard, "Kinematic and Dynamic Modeling and Simulation of Path Tracking of Three Wheeled Mobile Robot (TWMR)", International Conference on Modeling and Simulation, Konya, Turkey, 2006.
- ◆ A. Ghanbari, **B. Dadashzadeh**, A.H. Biabangard, “Kinematic Modelling and performance Study of Three Wheeled Mobile Robot (TWMR)”, 1st International Congress Manufacturing Engineering, Tehran, Iran, 2005. [*in Persian*]

Research Projects (in Persian)

- ◆ H. Baghban, A. Allahverdizadeh, H. Khajeh Saeid, **B. Dadashzadeh**, B. Koohestani, “Investigation and recognition of utilized technology in design and fabrication of pressure and temperature transmitters (including the main board, diaphragm and displays)”, Research and Technology Directorate, Iranian National Gas Company, 2018.
- ◆ M. Shaleh, **B. Dadashzadeh**, A. Allahverdizadeh, A. Koochi, ‘Design and Construction of a Modular Robot to Move Inside Urban Natural Gas Transmission Pipelines’, Research and Technology Directorate, Iranian National Gas Company, 2018.
- ◆ **B. Dadashzadeh**, “Design of a two level controller using leg force control for bipedal walking and running of real robots based on spring loaded inverted pendulum”, Research Affairs Administration, University of Tabriz, 2017.

Executive Engagement

- ◆ Head of Department of Mechatronics Engineering, University of Tabriz, Sep 2022-present.
- ◆ Deputy Head of Mechatronics Department, University of Tabriz, 2016-2018.
- ◆ Head of Mobile Robots Research Lab, University of Tabriz, 2015-present.
- ◆ Head of Automation and Control Lab, University of Tabriz, 2016-present.
- ◆ Supervisor of the faculty library, School of Engineering-Emerging Technologies, University of Tabriz, 2014-2020.

Honors

- ◆ Awarded a postdoctoral fellowship scholarship from Campus France for École nationale d'ingénieurs de Tarbes (ENIT), France, 2019.
- ◆ Awarded a scholarship from Iran Ministry of Science and Technology for a sabbatical leave at the University of Calgary, Canada, 2011.
- ◆ Ranked 1st in qualification exam among 5 PhD students of mechanical engineering at the University of Tehran, 2010.
- ◆ Ranked 1st among 35 bachelors students of mechanical engineering at the University of Tabriz, 2005.

Skills Training

- ◆ Teaching Methods and Techniques, University of Tabriz, Jan. 2015.

- ◆ Management of Scientific Information and Electronic Resources, University of Tabriz, Jan. 2015.
- ◆ Methods and Skills for Writing Articles, University of Tabriz, Dec. 2014.

Reviewer for International Journals

- ◆ IEEE Transactions on Industrial Electronics
- ◆ IEEE/ASME Transactions on Mechatronics
- ◆ Mechatronics
- ◆ Robotica
- ◆ International Journal of Robotics and Automation
- ◆ Modares Mechanical Engineering

Teaching Experience

- ◆ Lecturer of *Advanced Dynamics, Advanced Robotics, Mobile Robots, Sensors and Robot Calibration Industrial Automation, Mechatronics II, Musculoskeletal Biomechanics, Modeling and Analysis of Body Movements*, University of Tabriz, 2013-present.
- ◆ Lecturer of *Engineering Mathematics, Machine Parts 2, Dynamics, Statics, Technical Drawing, Mechanics of Materials, Automobile Electrical Systems Technology*, Islamic Azad University, 2007 – 2009.
- ◆ Teaching assistant, *Mathematics 1*, for E-course students, University of Tehran, fall 2005.
- ◆ Teaching assistant of *Mathematics 1 & Differential Equations* for students of Engineering Faculty, University of Tehran, spring 2006- fall 2007.
- ◆ Teaching assistant of *Advanced Engineering Mathematics* for M.Sc. students, Mechanical Engineering Faculty, University of Tehran, spring 2006.

Industry Experience

- ◆ Technical consultant of Tabriz Wire and Cable Production Company (Simcat), Tabriz, Iran, 2018.
- ◆ Technical consultant of Hadi Bargh Company, Ghazvin, Iran, 2017.
- ◆ Student training in manufacturing at Iran Tractor Manufacturing Company, Tabriz, Iran, 2003.

Computer Skills

- ◆ Engineering Software: MATLAB/Simulink, ROS, SolidWorks, AutoCAD, Labview, Visual Nastran, AnyBody, Simatic Manager.
- ◆ Programming Languages: MATLAB, Python, C++, Fortran, Bascom, CAM g-code, LAD.
- ◆ Applied software: Microsoft Word, Excel, PowerPoint, Project

Membership of Professional Bodies

- ◆ Iranian Society of Mechatronics

Language Skills

- ◆ English : Fluent
- ◆ Persian : Fluent
- ◆ Turkish : Fluent
- ◆ Arabic : Intermediate