Mohsen Azimi
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Educational Background	**Ph.D. in Mechanical Engineering,** Department of Aerospace and Mechanical Engineering, College of Engineering, The University of Arizona, Tucson, AZ, US, 2016 - 2022, GPA: 4.0 **M.S. in Mechanical Engineering,** School of Mechanical Engineering, College of Engineering, The University of Tehran, Tehran, Iran, 2011 - 2014 **B.Sc. in Mechanical Engineering,** Department of Mechanical Engineering, College of Engineering, The University of Kerman, Kerman, Iran, 2005 - 2011
Working Experience	**Assistant Professor,** School of Mechanical Engineering, Mississippi State University, Starkville, MS, US, 2023 - Current **Postdoctoral Research Associate,** School of Mechanical Engineering, Purdue University, West Lafayette, IN, US, March 2022 - Aug 2023
Fields of Interest	- Nonlinear Dynamic, Bifurcation, Chaos Theory - Mechanical Vibrations in Linear/Nonlinear Discreet/Continuous Systems - Nonlinear Adaptive/Robust Control Systems Design - Robotics, Mechatronics, Digital Control, Automation, and Autonomous Systems - Computational Multi-Body 2D/3D Dynamic Systems - Mechanical Property and Stability of Elastic Material, Finite Elements Methods
Research Area	- Structural Dynamics, Fluid-Structure Interactions - Energy Harvesting, MEMS & NEMS Resonators - Vibration Absorption, Nonlinear Energy Sinks - Gyroscopic Systems, Nonholonomic Systems, Under Actuated Systems - Quadcopters, Legged Robots, Bio-inspired Robots, Rehabilitation Robots, 3D Mechanisms - Nonlinear, Time-Periodic, Time-Delayed, Stochastic, and Fractional System of Coupled Equations - Vibration-based Health Monitoring and Damage Detection of Structures & Rotating Machinery
Computer Skills	- Proficient in MATLAB and SOLIDWORKS - Familiar with Ansys, AutoCAD, CATIA, C++
Practical Skills	- Proficient in implementing digital electronic circuits, programming microcontrollers in C and Assembly languages, and software-hardware interface - Proficient in 3D printing - Familiar with CNC Machines - Familiar with Hydraulic and Pneumatic systems - Familiar with PLC programming, integration, and fault detection
Courses I Teach	**Graduate level courses** - Advanced Dynamics, Advanced Vibration, Advanced Control, Digital Control - Nonlinear Dynamics, Nonlinear Vibration, Nonlinear Control - Engineering Analysis, 3D Multibody Dynamic Systems **Undergraduate level courses** - Dynamic, Dynamics of Machinery, Design of Mechanisms, Mechanical Vibration, Classic Control - Mechatronics, Robotics, 2D Multibody Dynamic Systems - Engineering Analysis, Differential Equations, Numerical Methods - Engineering Materials, Statics, Finite Element Methods
Professional Experiences	**Research Experiences** School of Mechanical Engineering, Purdue University, West Lafayette, Indiana, US, 2022 - Current - Safety Control and Trade Study of a Resilient Deep Space Habitats Ridgetop Group Inc. 3580 W Ina Rd, Tucson, AZ 85741-2276, US - Piezoelectric Energy Harvesting in Rotary Machinery, 2021 - 2022 - Real Time Health Monitoring of Geared Systems via Shaft Mounted Wireless Accelerometer, 2018 - 2021 Department of Aerospace and Mechanical Engineering, University of Arizona, Tucson, Arizona, US - Energy Harvesting in System of Nonlinear Oscillators with Strong Coupling, 2021 - 2022 - Stability and Bifurcation in System of Nonlinear Parametrically Excited Coupled Equations; with Application to Geared Systems, Fall 2018 - 2021 - Dynamic Analysis and Simulation of Nanofiber in Electrospinning Process, Dr. Eniko Enikov, Fall 2016 - 2018 School of Mechanical Engineering, College of Engineering, University of Tehran, Tehran, Iran - Dynamic Modelling and Controlling of Bio-inspired Legged Robots, Dr. Hairi Yazdi, 2011 - 2014

Teaching Experiences

Department of Mechanical Engineering, Mississippi State University, Starkville, Mississippi, US
- Introduction to Vibration and Control Fall 2023

Department of Aerospace and Mechanical Engineering, University of Arizona, Tucson, Arizona, US
- Control System Design, Summer 2018-19
- Dynamics of Machines, Summer 2018-21
- Mechanical Vibration, IPSA Exchange Program, Fall 2019
- Mechatronics, IPSA Exchange Program, Fall 2017-19
- Mechanical Vibration Lab, IPSA Exchange Program, Fall 2017-19

Teaching Assistant Experiences

Department of Aerospace and Mechanical Engineering, University of Arizona, Tucson, Arizona, US
- Advanced Engineering Analysis, Prof. Barry D. Ganapol, Spring 2022
- Engineering Analysis, Dr. Wane Hacker, Fall 2021
- Control System Design, Prof. Eniko T Enikov, Fall 2020 & Spring 2021
- Advanced Control, IPSA Exchange Program, Prof. Eniko T Enikov, Fall 2019
- Dynamics, Dr. Paul Reverdy, Spring 2019 & Dr. Wayne Hacker, Fall 2020
- Dynamics of Machines. Prof. Erick Butcher, Fall 2018
- Mechatronics, Prof. Eniko T Enikov, Spring 2017-18 & 2020-22
- Numerical Methods, Prof. Barry D. Ganapol, Spring 2017, Fall 2021
- Mechanical Vibrations, Dr. Morad Nazari, Fall 2016

School of Mechanical Engineering, College of Engineering, University of Tehran, Tehran, Iran
- Dynamics and Mechanical Vibrations Lab, Dr. M. R. Zakerzadeh, Spring & Fall 2013, Spring 2014
- Engineering Materials, Dr. Abolfazl Masoumi, Spring 2013

College of Science, University of Tehran, Tehran, Iran
- Dynamics and Vibration Laboratory, Dr. Reza Zakerzadeh, Spring & Fall 2013, Spring 2014
- Engineering Analysis, Dr. Ahmad Fiez Dizaji, Fall 2013
- Physics, Dr. Dariani, Fall 2013

Publications
- Mohsen Azimi, Qiuchen Zhang, Eniko T Enikov, "System Identification, Control and Stability of Bicopter; a Simplified Model to Identify Quadcopter Dynamic Characteristics." In progress
- Mohsen Azimi, Eniko T Enikov, "Implementation of Shaft-Mounted Accelerometer in the Local Fault Diagnosis of Geared Systems." Under review
- Mohsen Azimi, "Pitchfork and Hopf Bifurcation of Geared Systems with Nonlinear Suspension in Permanent Contact Regime" Nonlinear Dynamics. Springer Netherlands. doi: https://doi.org/10.1007/s11071-021-07110-x
- Mohsen Azimi, "Parametric Stability of Geared Systems with Linear Suspension in Permanent Contact Regime" Nonlinear Dynamics. Springer Netherlands. doi: 10.1007/s11071-021-06943-w.
- Mohsen Azimi, "Parametric Frequency Analysis of Mathieu-Duffing Equation," International Journal of Bifurcation and Chaos, vol. 31, no. 12, 2021, doi:10.1142/S0218127421501819.
- Mohsen Azimi, "Stability and Bifurcation in Mathieu-Duffing Equation," International Journal of Non-Linear Mechanics, https://doi.org/10.1016/j.ijnonlinmec.2022.104049.
- Mohsen Azimi, and M.R. Hairi Yazdi, "Biped Robot Joint Trajectory Generation for Given ZMP," In progress
- Mohsen Azimi, and M.R. Hairi Yazdi, "Energy Dissipation Rate Control and Parallel Equations Solving Method for Planar Spined Quadruped Bouncing Robot," Journal of Mechanical Science and Technology (JMST), vol. 31, no. 2, pp. 875–884, 2017.
- Mohsen Azimi, and M.R. Hairi Yazdi - "Energy Dissipation Rate Control via a Semi-Analytical Pattern Generation Approach for Planar Three-Legged Galloping Robot based on the Property of Passive Dynamic Walking," Journal of Applied Mechanic (JAMECH) 46, no 1 (2015) 31-39
- Mohsen Azimi, and M.R. Hairi Yazdi, "Energy Dissipation Rate Control for Planar Quadruped Bouncing Robot Based on the Property of Passive Dynamic Walking," The 2nd RSI International Conference on Robotics & Mechatronics (ICRoM), Tehran, October 15-17, 2014.
- Mohsen Azimi, and M.R. Hairi Yazdi, "Energy Dissipation Rate Control for Planar Biped Walking Robot Based on the Property of Passive Dynamic Walking", IMECH2014 - ASME2014 International Mechanical Engineering Congress and Exposition, Montreal, November 14-20, 2014

Rewards and Honors
- Outstanding Graduate Teaching Assistant, Department of Aerospace and Mechanical Engineering, The University of Arizona, Spring 2021.