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EDUCATION

PhD Exercise Science & Biomechanics (2022). University of Nebraska, Omaha, NE

PhD Candidate. Mechanical Engineering (2017). State University of Semnan, Semnan, Iran

MS Mechanical Engineering (2010). State University of Semnan, Semnan, Iran

BS Mechanical Engineering (2008). State University of Semnan, Semnan, Iran

POSITIONS and APPOINTMENTS

2025-present	Director Rehabilitation Engineering Institute for Rehabilitation Science and Engineering Madonna Rehabilitation Hospitals, Omaha & Lincoln, NE
2024-present	Adjunct Assistant Professor Department of Biomechanics University of Nebraska at Omaha (UNO), Omaha, NE
2020-2025	Assistant Research Director Rehabilitation Engineering Center Institute for Rehabilitation Science and Engineering Madonna Rehabilitation Hospitals, Lincoln, NE

2020	Part-time Institute Research Assistant II Institute for Rehabilitation Science and Engineering Madonna Rehabilitation Hospitals, Lincoln, NE
2018-2020	Research Assistant Department of Biomechanics University of Nebraska at Omaha, Omaha, NE
2014-2016	Part-time Mechanical Designer NANA, food manufacturing machinery Semnan, Iran
2014-2015	Part-time Software Developer Pouyan Motor & Mega Motor Company, automotive manufacturing company Tehran, Iran
2008-2016	Part-time Consultant Various industrial companies and academic departments of engineering Tehran, Iran
2008-2010 & 2014-2016	Part-time Mechanical Designer Kala Gostar Farayand (KGF), industrial food manufacturing machinery Tehran, Iran
2008-2010	Part-time Mechanical Designer Nobar E Sabz, food processing plant Tehran/Khavaran, Iran
2008-2010	Part-time Mechanical Designer Felez Taban, Industrial metal machinery manufacturing Garmsar, Iran
2008	Part-time Mechanical Designer SAIPA and Iran Khodro, automotive manufacturing companies Tehran, Iran
2007-2013	Part-time Municipal Consultant Tehran and Semnan, Iran
2006-2015	Part-time Research Assistant in Mechanical Laboratories Universities of Iran Universities of Tehran, Garmsar, Semnan, Parand
2006-2016	Part-time Instructor and Supervisor in Mechanical Engineering Universities of Iran Universities of Tehran, Garmsar, Semnan, Parand, AmirKabir

CONTRACTS and GRANTS

Current Research

Real-Time Optimization of Robotic Hip Exoskeletons for Improved Post-Stroke Gait Rehabilitation. Role: Principal Investigator. American Heart Association Career Development Award (AHA Award Number: 25CDA1454074). 2025 to 2028.

Effects of High-Intensity Gait Training on Gait Mobility Outcomes in Early Subacute Stroke Survivors. Role: Co-Investigator, Rehabilitation Engineering Center. Nebraska Research Initiative (NRI) Collaborative Research via sub-award from Madonna. 2024 to 2025.

Development and Implementation of a Model System of Rehabilitation Care for Patients Post-COVID-19. Role: Assistant Research Director, Rehabilitation Engineering Center. U.S. Department of the Treasury, Coronavirus State, and Local Fiscal Recovery Funds via sub-award from the Department of Health and Human Services (FAIN: SLFRP1965). 2022 to 2026.

Developing a Model System of Rehabilitation Care for Patients Post-COVID-19. Role: Assistant Research Director, Rehabilitation Engineering Center. U.S. Department of the Treasury, Rescue Act Funds via subaward from Douglas County, NE (FAIN: SLFRP1615). 2022 to 2026.

Select Examples of Previous Research

Adaptive & Individualized AAC- Phase 2 SBIR. Role: Assistant Research Director, Rehabilitation Engineering Center. Rehabilitation Engineer. National Institute on Deafness and Other Communication Disorders (Award Number 2R44DC018437-02A1). 2022-2023.

Optimization of the musculoskeletal Simulation in the estimation of metabolic cost. Role: Principal Investigator. Graduate Research and Creative Activity (GRACA) Grant (No Award Number). 2021-2022.

RERC on AAC. Role: Assistant Research Director, Rehabilitation Engineering Center. National Institute on Disability, Independent Living, and Rehabilitation Research (Award Number 90REGE0014). 2020-2023.

Developing Clinically Feasible Human-in-the-Loop Exoskeleton Optimization Methods: Instrumentation and algorithm development. Role: Principal Investigator. Graduate Research and Creative Activity (GRACA) Grant (No Award Number). 2019-2020.

Exoskeleton Optimization for Reducing Gait Variability in Patients with Peripheral Artery Disease. Role: Collaborator. NIH (Award Number GM109090). 2019-2024.

Dynamic Indirect Calorimetry, Effects of Timing and Magnitude of Waist Pulling Assistance on Metabolic Cost and Joint Mechanics. Role: Collaborator. Nebraska/NSF EPSCOR and University Committee on Research and Creative Activity (Award Number OIA-1557417). 2018-2021.

Exoskeletons for Mobility Assistance. Role: Collaborator. University of Nebraska System Collaboration Initiative (No Award Number). 2018-2019.

Gait-O-Gram: Use of Gait Analysis to Assess the Likelihood of Falls in At-Risk Populations. Role: Collaborator. J. Brasch Co., LLC (No Award Number). 2017.

Study of the Influence of Foot-Ground Traction on Mechanics and Energetics of Gait. Role: Collaborator. National Space Grant College and Fellowship Program (Award Number NNX15AI09H). 2017.

HONORS and AWARDS

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| 2021-2022 | <i>Regent's Tuition Waiver (RTW)</i> for Spring 2021 through Fall 2022, University of Nebraska at Omaha, Omaha, NE. |
| 2019 | <i>Outstanding Graduate Student Research Assistant</i> , Division of Biomechanics and Research Development, University of Nebraska at Omaha, Omaha, NE |
| 2018 | <i>OpenSim Virtual Workshop 2018</i> from Stanford University, OpenSim team. |
| 2018 | <i>Gait-O-Gram project (footswitch prototype)</i> , Omaha, NE. |
| 2018 | <i>Student Stipend Award</i> , 13th Annual Dynamic Walking Conference. Pensacola, Florida. |
| 2017 | <i>The Literacy Center Midland</i> , Positive Attitude, Omaha, Nebraska. |
| 2012-2017 | <i>Governmental Scholarship</i> (full tuition waiver) for PhD in Mechanical Engineering, Semnan Province, State University of Semnan, Iran |
| 2008-2010 | <i>Governmental Scholarship</i> (full tuition waiver) for MSc in Mechanical Engineering, Semnan Province, State University of Semnan, Iran |
| 2004-2008 | <i>Governmental Scholarship</i> (full tuition waiver) for BSc in Mechanical Engineering, Semnan Province, State University of Semnan, Iran |

PATENTS

Mahdipour Bouzani N, **Mohammadzadeh Gonabadi A**, Mahdipour Bouzani H, Mahdipour Bouzani M, inventors (October 3, 2012). Design & Production of Optimized Helical Gear. Iran #74288.

SKILLS & ABILITIES

Methodologies

Mechanical Design And Simulation, Robotic, Finite Element Method (FEM/FEA), Static, Quasi-Static, Dynamic, Impulse/Impact, Explosion/Blasting, Shock Absorbers, Sandwich Panels, Foam, Shape Optimization, MEMS, Dynamic Balancing With AI, Vibration, Mode Shapes, Contact, Collision, High-Speed Rotors, Engineering And Technology, Machinery Design, Technology Design, Dynamic Mesh, Mesh Generation, Motion Capture System, Assistive Devices And Exoskeletons (Ankle, Hip, Waist Tether, Elbow, Footswitch), Rehabilitation, Microcontrollers (Arduino Boards, Real-Time MATLAB Speedgoat, I/O Units, Hardware-In-The-Loop), GRAIL Machine, CAREN Machine, Zeno Walkway Gait Analysis System, EEG/ECG/EKG, EMG, GD&T, R&D, Artificial Intelligence Methods, Machine Learning, Deep Learning, Artificial Neural Network (ANN), Optimization (Evolutionary Algorithms), Muscle Oxygenation, Metabolic Cost/Rate.

Software

Solidworks, Solidworks Flow Simulation, Solidworks Mechanical Simulation, Abaqus, ANSYS, Simwise4d, MSC. Visual Nastran Desktop 4D, Working Model, ADAMS, Sheet Metal (Solidworks), COSMOS, ARTAS SAM, Gear Trax / Cam Trax, Trace Part, 3D Printers (Preform, BCN3D Stratos, Insight, Control Center, Chitubox, Creality Slicer), 3D Scanners (ExScan, Artec EVA), Simbody, OpenSim, Visual 3D, SCONE, Qualisys, Motion Analysis Cortex, Vicon, Theia Markerless Motion Capture, Nexus, Bertec's Computerized Dynamic Posturography (CDP/IVR), Cosmed K5, Muscle Oxygenation (PortaMon), Ultra Sound, Sigma Plot, GraphPad, SPSS, Photoshop, Microsoft Office.

Programming & Scripting

Matlab, Simulink, Simmechanics, Delphi, Pascal, Fortran, C, C++, D-Flow, Unity, Arduino, Gnu Octave.

CERTIFICATIONS

1. International Certificate: ABAQUS Software - Q.A.L England.
2. Certificate of ABAQUS Software - Ghoomesh Institute, Iran.
3. Educational Certificate of Geometric Dimensioning and Tolerancing (GD&T) - Technical Institute, Iran.

BOOKS

1. **Mohammadzadeh Gonabadi A**, Mohammadi N (2015). Cogwheels, First Edition. *MAJAAL Publication*, Tehran, Iran.
2. **Mohammadzadeh Gonabadi A**, Mohammadi N (2015). Computer – Aided Design, First Edition. *MAJAAL Publication*, Tehran, Iran.
3. Mohammadi N, **Mohammadzadeh Gonabadi A**, Karimi MA, Amrovani A (2015). Metal Shaping & Forming, First Edition. *MAJAAL Publication*, Tehran, Iran.
4. **Mohammadzadeh Gonabadi A**, Mohammadi N, Fallahtafti F (2014). Application of EES in Solving Engineering Equations, First Edition. *MAJAAL Publication*, Tehran, Iran.
5. **Mohammadzadeh Gonabadi A**, Nouri Damghani M (2013). Application of MSC. Visual Nastran Desktop 4D in Dynamics, Vibration, and Design of Mechanisms, Second Edition. *MAJAAL Publication*, Tehran, Iran.
6. **Mohammadzadeh Gonabadi A**, Mohammadi N (2013). Application of Artas SAM in Design of Mechanisms, Second Edition. *MAJAAL Publication*, Tehran, Iran.
7. **Mohammadzadeh Gonabadi A**, Mohammadi N (2013). Coding in SolidWorks in Simple Language, First Edition. *MAJAAL Publication*, Tehran, Iran.
8. Mohammadzadeh A, **Mohammadzadeh Gonabadi A** (2011). C Programming in Simple Language, First Edition. *MAJAAL Publication*, Tehran, Iran.

PUBLICATIONS (peer-reviewed)

1. **Mohammadzadeh Gonabadi A**, Fallahtafti F, Pipinos II, Myers SA (2025). Predicting lower body joint moments and electromyography signals using ground reaction forces: an artificial neural network approach. *Gait & Posture*. 117, 323–331. <https://doi.org/10.1016/j.gaitpost.2025.01.014>.
2. **Mohammadzadeh Gonabadi A**, Fallahtafti F, Burnfield JM. (2024). How gait nonlinearities in individuals without known pathology describe metabolic cost during walking using artificial neural network and multiple linear regression. *Applied Sciences*. 2024. 14(23):11026. <https://doi.org/10.3390/app142311026>.
3. Dzewaltowski AC, Antonellis P, **Mohammadzadeh Gonabadi A**, Song S, Malcolm P (2024). Perturbation-Based Estimation of within-Stride Cycle Metabolic Cost. *Journal of Neuro Engineering and Rehabilitation*. 2024, 21, 131, doi:10.1186/s12984-024-01424-8.
4. **Mohammadzadeh Gonabadi A**, Fallahtafti F, Antonellis P, Pipinos II, Myers SA (2024). Ground Reaction Forces and Joint Moments Predict Metabolic Cost in Physical Performance: Harnessing the Power of Artificial Neural Networks. *Applied Sciences*. 14, 5210. <https://doi.org/10.3390/app14125210>.
5. **Mohammadzadeh Gonabadi A**, Buster TW, Cesar GM, Burnfield JM (2024). Effect of data and gap characteristics on the nonlinear calculation of motion during locomotor activities. *Journal of Applied Biomechanics*. 1–9. doi:10.1123/jab.2023-0283.

6. **Mohammadzadeh Gonabadi A**, Antonellis P, Dzewaltowski AC, Myers SA, Pipinos II, Malcolm P (2024). Design and evaluation of a bilateral semi-rigid exoskeleton to assist hip motion. *Biomimetics*, 9, 211. DOI: 10.3390/biomimetics9040211.
7. Fallahtafti F, Bruijn SM, **Mohammadzadeh Gonabadi A**, Sangtarashan M, Boron J, Curtze C, Siu KC, Myers SA, And Yentes J (2023). Trunk velocity changes in response to physical perturbations are potential indicators of gait stability. *Sensors*. 23(5):2833. <https://doi.org/10.3390/s23052833>.
8. Cesar GM, Buster TW, **Mohammadzadeh Gonabadi A**, Burnfield JM (2022). Muscle demand and kinematic similarities between pediatric-modified motor-assisted elliptical training at fast speed and fast overground walking: Real-world implications for pediatric gait rehabilitation. *Journal of Electromyography and Kinesiology* 63: p102639. <https://doi.org/10.1016/j.jelekin.2022.102639>.
9. **Mohammadzadeh Gonabadi A**, Cesar GM, Buster TW, Burnfield JM (2022). Effect of gap-filling technique and gap location on linear and nonlinear calculations of motion during locomotor activities. *Gait & Posture*, 94:85-92. DOI: 10.1016/j.gaitpost.2022.02.025. PMID: 35255383.
10. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2021). Metabolically efficient walking assistance using optimized timed forces at the waist. *American Association for the Advancement of Science (AAAS), Science Robotic*, 7(64). <https://doi.org/10.1126/scirobotics.abh1925>.
11. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2021). Differentiating fallers from non-fallers using nonlinear variability analyses using a portable footswitch. *ACTA of bioengineering and biomechanics*. 23(2), 139-145: DOI: 10.37190/ABB-01776-2020-05.
12. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2020). Differences between joint-space and musculoskeletal estimations of metabolic rate time profiles. *PLOS Computational Biology*. 16(10): e1008280. <https://doi.org/10.1371/journal.pcbi.1008280>.
13. Fallahtafti F, **Mohammadzadeh Gonabadi A**, Samson K, Curtze C, Yentes JM (2021). Margin of stability is larger and less variable during treadmill walking versus overground. *Journal of Biomechanics*. 1(1), 118-130: <https://doi.org/10.3390/biomechanics1010009>.
14. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2020). A system for simple robotic walking assistance with linear impulses at the center of mass. *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*. 28(6): 1353-1362. DOI: 10.1109/TNSRE.2020.2988619.
15. Antonellis P, Frederick CM, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). Modular footwear that partially offsets downhill or uphill grades minimizes the metabolic cost of human walking. *Journal of the Royal Society Open Science*. 7(2): 191527. DOI:10.1098/rsos.191527.
16. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2018). Improving the performance of the sandwich panel with the corrugated core filled with metal foam: Mathematical and Numerical methods. *Journal of Mechanics of Advanced Composite Structures*. 6(2): 249-261. DOI: 10.22075/MACS.2019.16211.1171.

17. **Mohammadzadeh Gonabadi A**, Malcolm P (2018). Tutorial: Using EduExo to visualize electromechanical delay in m. biceps brachii Tutorial version: 1.0. *The Americans Society of Biomechanics, Teaching Repository*. DOI: 10.13140/RG.2.2.23371.03368.
18. **Mohammadzadeh Gonabadi A**, Mohebbi M, Sohan Ajini A (2017). Topology and Weight Optimization of a 3D Truss by Numerical Method. *Mechanics, Materials Science & Engineering*. Vol 10. DOI:10.2412/mmse.52.11.596.
19. **Mohammadzadeh Gonabadi A**, Mohebbi M, Sohan Ajini A (2017). The Topology and Weight Optimization of a truss using Imperialist Competitive Algorithm (ICA). *Mechanics, Materials Science & Engineering*. Vol 10. <http://seo4u.link/doi:10.2412/mmse.33.83.364>.
20. **Mohammadzadeh Gonabadi A**, Nouri Damghani M (2017). Multi-Objective Optimization of Kinematic Characteristics of Geneva Mechanism Using High-Tech Optimization Methods. *Mechanics, Materials Science & Engineering*. Vol 8. DOI: <http://seo4u.link/10.2412/mmse.26.65.331>.
21. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2017). Numerical and Experimental Study of Energy Absorption in Aluminum Corrugated Core Sandwich Panels by Drop Hammer Test. *Mechanics, Materials Science & Engineering*. Vol 8. DOI: <http://seo4u.link/10.2412/mmse.85.747.458>.
22. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2017). Numerical study of energy absorption in aluminum foam sandwich panel structures using drop hammer test. *Journal of Sandwich Structures & Materials*. 21(1): 3–18. <http://doi.org/10.1177/1099636216685315>.
23. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2016). Experimental Investigation of Energy Absorption in Aluminum Sandwich Panels by Drop Hammer Test. *Mechanics, Materials Science & Engineering*. Vol 7. DOI: <http://seo4u.link/10.2412/mmse.37.93.34>.
24. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2016). Analytical and Numerical Study of Foam-Filled Corrugated Core Sandwich Panels under Low Velocity Impact. *Mechanics, Materials Science & Engineering*. Vol 7. DOI: <http://seo4u.link/10.2412/mmse.6.55.34>.
25. Nouri Damghani M, **Mohammadzadeh Gonabadi A** (2016). Investigation of Energy Absorption in Aluminum Foam Sandwich Panels by Drop Hammer Test: Experimental Results. *Mechanics, Materials Science & Engineering*. Vol 7. DOI: <http://seo4u.link/10.2412/mmse.6.953.525>.
26. Mohammadi N, **Mohammadzadeh A** (2015). Balancing of the flexible rotors with ICA methods. *International Journal of Research and Reviews in Applied Sciences*. 23(1): 54-64.
27. Mohammadi N, **Mohammadzadeh A** (2015). Optimizing the Collector Performance of a Solar Domestic Hot Water System by the Use of Imperialist Competitive Algorithm with the Help of Exergy Concept. *International Journal of Engineering & Technology Sciences*. 3: 65-78.

28. Mohammadi N, Fallah Tafti F, Arshi AR, **Mohammadzadeh A**, Mimar R (2014). Extracting the Optimal Vibration Coefficients of Forefoot Offloading Shoes Using Genetic Algorithms. *International Journal of Engineering and Technology*. 2: 487-496.
29. Mohammadi N, **Mohammadzadeh A**, Fallah Tafti F (2014). Design and Optimization of Piezoresistive MEMS Pressure Sensors Using ABAQUS. *International Journal of Engineering & Technology Sciences*. 2(6): 461-473.
30. Mohammadi N, Zooleh M, Payandeh M, **Mohammadzadeh A** (2013). Coefficient of Energy for Wheat Production in Savojbolagh, Iran. *International Journal on Energy Conversion (I.R.E.CON.)*, 1(4): 213-218.
31. Fereidoon A, Hemmatian H, **Mohammadzadeh A**, Assareh E (2013). Sandwich panel optimization based on yielding and buckling criteria by using imperialist competitive algorithm. *Modares Mechanical Engineering*. 13(4): 25-35. [In Persian].
32. Dehghan M, Mirzaei M, **Mohammadzadeh A** (2013). Numerical formulation and simulation of a non-Newtonian magnetic fluid flow in the boundary layer of a stretching sheet. *Journal of Modeling in Engineering*. 11(34): 73-82.
33. Fereidoon A, **Mohammadzadeh A** (2012). Optimal design in honeycomb sandwich panels under the pressure load with ICA method. *Journal of Modeling in Engineering*. 12(38): 117-128. DOI:10.22075/JME.2017.1683. [In Persian].
34. **Mohammadzadeh A**, Etemadee N (2012). Design of Heater for City Gate Station Assisted by Solar Energy. *International Review of Mechanical Engineering*. 6(4): 730-735.
35. Mohammadzadeh A, Mahdipour N, **Mohammadzadeh A**, Ghadamyari M (2012). Comparison of forecasting the cost of water using statistical and neural network methods: Case study of Isfahan municipality. 6(8), 3001-3013. <https://doi.org/10.5897/AJBM11.2249>.
36. **Mohammadzadeh A**, Mahdipour N, **Mohammadzadeh A** (2012). Forecasting the Cost of Water Using a Neural Network Method in the Municipality of Isfahan. *Journal of Optimization in Industrial Engineering*. 11: 73-85.
37. Noori-Damghani M, Rahmani H, **Mohammadzadeh A**, Shokri-Pour S (2011). Comparison of Static and Dynamic Buckling Critical Force in the Homogeneous and Composite Columns (Pillars). *International Review of Mechanical Engineering*. 5(7): 1208-1212.
38. **Mohammadzadeh A**, Etemadee N (2011). Optimized Positioning of Structure Supports with PSO for Minimizing the Bending Moment. *International Review of Mechanical Engineering*. 5(3): 422-425.
39. **Mohammadzadeh A**, Ghoddosian A, Noori-Damghani M (2011). Balancing of the Flexible Rotors with Particle Swarm Optimization Method. *International Review of Mechanical Engineering*. 5(3): 490-496.
40. **Mohammadzadeh A**, Ghoddosian A (2010). Balancing of Flexible Rotors with Optimization Methods. *International Review of Mechanical Engineering*. 4(7): 917-923.

PRESENTATIONS and ABSTRACTS (peer-reviewed)

1. Massey JA, Solsrud AE, Connelly E, Carson A, Janovec DE, Williams NA, Chaidez V, Scofield DE, **Mohammadzadeh Gonabadi A**, Burnfield JM (2024). Feasibility of using a commercially available smartwatch to advance outcomes for patient with Post-Acute Sequelae of COVID-19 (PASC): Case report. *American Congress of Rehabilitation Medicine 101st Annual Fall Conference*. Dallas, TX. November 2024. (Poster).
2. **Mohammadzadeh Gonabadi A**, Connelly E, Williams NA, Massey JA, Solsrud AE, Janovec DE, Chaidez V, Scofield DE, Burnfield JM (2024). Prediction of overall sleep score outcomes in patients with Post-Acute Sequelae of COVID-19 (PASC) using smartwatch data: An Artificial Neural Network (ANN) approach. *American Congress of Rehabilitation Medicine 101st Annual Fall Conference*. Dallas, TX. November 2024. (Poster).
3. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2022). Optimizing metabolic cost in a semi-rigid bilateral hip exoskeleton by actuation timing and magnitude of the moment. *12th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. April 8, 2022. (Poster).
4. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2022). How can musculoskeletal simulation parameters affect estimating metabolic cost? *12th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. April 8, 2022. (Poster).
5. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2022). Can actuation timing and magnitude of a bilateral semi-rigid hip exoskeleton alter metabolic cost? *6th Human Movement Variability Conference & 2nd Great Plains Biomechanics Conference*. University of Nebraska at Omaha, Omaha, Nebraska. May 16-20, 2022. (Poster).
6. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2022). Effects of actuation timing and magnitude of a semi-rigid hip exoskeleton on metabolic cost. Accepted. *46th Annual Meeting of the American Society of Biomechanics (ASB2022)*.
7. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2022). How can actuation timing and magnitude of a bilateral semi-rigid hip exoskeleton optimize metabolic cost? *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. March 3, 2022. (Poster).
8. **Mohammadzadeh Gonabadi A**, Malcolm P (2022). Optimization of the musculoskeletal simulation in estimation of metabolic cost. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. March 3, 2022. (Poster).
9. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2022). Optimization of musculoskeletal simulation parameters for estimating metabolic cost. *6th Human Movement Variability Conference & 2nd Great Plains Biomechanics Conference*. University of Nebraska at Omaha, Omaha, Nebraska. May 16-20, 2022. (Poster).
10. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2021). New simulation methods estimate metabolic cost of gait phases, but how consistent are those estimations? *Dynamic Walking Conference*. July 12, 2021.

11. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2021). Bandwidth testing of a semi-rigid hip exoskeleton. *Dynamic Walking Conference*. May 17, 2021.
12. Shah S, Buster T. W., **Mohammadzadeh Gonabadi A**, Cesar GM, Burnfield J. M. (2021). Comparison of lower extremity joint movement variability during motor-assisted elliptical exercise and treadmill walking. *American Academy of Physical Medicine and Rehabilitation 2021 Annual Assembly*. Nashville, TN. November 11-14, 2021 (AAPM&R).
13. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2021). Effects of forward forces at the center-of-mass on joint moments. *45th Annual Meeting of the American Society of Biomechanics (ASB2021)*. August 10-13, 2021.
14. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2021). On the estimation of metabolic cost time profiles using different models. *45th Annual Meeting of the American Society of Biomechanics (ASB2021)*. August 10-13, 2021.
15. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2021). Differences between metabolic cost time profile estimations. *11th Annual Regional Meeting of the, Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. April 2, 2021. (Poster)
16. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2021). Optimal force profiles at the center of mass to reduce the energy cost of walking with unilaterally reduced push-off. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. March 26, 2021. (Podium)
17. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2021). Design and development of a semi-rigid hip exoskeleton to reduce metabolic cost. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. March 26, 2021. (Poster)
18. Fallahtafti F, Gonabadi AM, Curtze C, Samson K, Yentes, JM (2020). Margin of stability is larger and less variable during treadmill walking versus overground. *5th Human Movement Variability Conference & 1st Great Plains Biomechanics Conference*. University of Nebraska at Omaha, Omaha, Nebraska, September 4, 2020. (Podium)
19. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2020). Designing and developing a new semi-rigid bilateral exoskeleton to assist hip joint motion. *5th Human Movement Variability Conference & 1st Great Plains Biomechanics Conference*. University of Nebraska at Omaha, Omaha, Nebraska, September 4, 2020. (Podium)
20. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). Optimal Center-Of-Mass Assistance Timing Does Not Coincide with Propulsion. *5th Human Movement Variability Conference & 1st Great Plains Biomechanics Conference*. University of Nebraska at Omaha, Omaha, Nebraska, September 4, 2020. (Poster)
21. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). A robotic tether can assist more efficiently than a passive tether, but the optimal timing is counterintuitive. *International Symposium on Wearable Robotics*, online, 2020. (Podium)

22. Fallah Tafti F, **Mohammadzadeh Gonabadi A**, Samson K, Curtze C, Yentes JM (2020). Speed of Walking, as well as Walking Mode (Treadmill vs. Overground), can affect Margin of Stability. To be presented at the *44th Annual Meeting of the American Society of Biomechanics*. Atlanta, GA, August 4-7, 2020.
23. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2020). A new semi-rigid bilateral exoskeleton to assist hip extension and flexion: design and development. *10th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado.
24. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). Effects of assistance timing of forward forces at the center-of-mass on propulsion. *10th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado.
25. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). The timing of forward forces at the center-of-mass has little effect on propulsion ground reaction forces. *44th Annual Meeting of the American Society of Biomechanics (ASB2020)*.
26. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2020). Designing and developing a new semi-rigid bilateral exoskeleton to assist hip joint motion. *44th Annual Meeting of the American Society of Biomechanics (ASB2020)*.
27. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2020). Development of a system for assistance at the center of mass. *44th Annual Meeting of the American Society of Biomechanics (ASB2020)*.
28. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2020). Simple robotic walking assistance at the center of mass. *Student Research and Creative Activity Fair. University of Nebraska at Omaha. (Podium)*.
29. **Mohammadzadeh Gonabadi A**, Antonellis P, Myers SA, Pipinos II, Malcolm P (2020). Design and development of a semi-rigid hip exoskeleton. *Student Research and Creative Activity Fair. University of Nebraska at Omaha. (Poster)*.
30. Malcolm P, Antonellis P, **Mohammadzadeh Gonabadi A**, Galle S, Clercq DD (2019). Assistive mechanisms of (distal) ankle exoskeletons and a (proximal) robotic waist tether. *43rd Annual Meeting of the American Society of Biomechanics (ASB2019)*. Calgary, Canada 2019.
31. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2019). Effects of timing and magnitude of forward forces at the waist on the metabolic cost of walking. *43rd Annual Meeting of the American Society of Biomechanics (ASB2019)*. Calgary, Canada 2019.
32. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating the time profile of metabolic cost within the gait cycle during level and uphill walking. *43rd Annual Meeting of the American Society of Biomechanics (ASB2019)*. Calgary, Canada 2019.
33. **Mohammadzadeh Gonabadi A**, Yentes JM (2019). The effect of arm swing on countermovement vertical jump performance. *Student Research and Creative Activity Fair. University of Nebraska at Omaha. (Poster)*

34. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2019). Effects of timing and magnitude of forward forces at the waist on the metabolic cost of walking. *9th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. (Poster)
35. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating the time profile of the metabolic cost during the gait cycle of level and uphill walking. *9th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. (Podium)
36. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating variations in metabolic cost within the stride cycle during level and uphill walking. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. (Poster)
37. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2019). Effects of Timing and Magnitude of Waist Pulling Assistance on Metabolic Cost and Joint Mechanics. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. (Podium)
38. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating variations of metabolic cost within the stride cycle during level and uphill walking. *Human Movement Variability Conference*. University of Nebraska at Omaha, Omaha, Nebraska. (Podium)
39. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2019). Effects of variations in timing and magnitude of forward forces at the waist on the metabolic cost of walking. *Human Movement Variability Conference*. University of Nebraska at Omaha, Omaha, Nebraska. (Poster)
40. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2019). Effects of timing and magnitude of forward forces at the waist on the metabolic cost of walking. *14th Annual Dynamic Walking Conference*. Canmore, Canada 2019.
41. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating the time profile of the metabolic cost during the gait cycle of level and uphill walking. *14th Annual Dynamic Walking Conference*. Canmore, Canada 2019.
42. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2019). Estimating the time profile of metabolic cost of level and uphill walking within the stride cycle. University of Memphis, Memphis, TN. *Mid-South Movement Science Conference (MSBC2019)*, Feb 22, 2019. (Podium)
43. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2018). Effects of timing and magnitude of waist pulling assistance on metabolic cost and joint mechanics. *8th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. (Saturday, April 14, 2018, Podium)
44. **Mohammadzadeh Gonabadi A**, Antonellis P, Vanderheyden T, Bishop KI, Malcolm P (2018). Development of a footswitch device to predict falls using nonlinear analysis. *8th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics*. Estes Park, Colorado. (Saturday, April 14, 2018, Podium)

45. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2018). Energetics of Walking with Waist Pulling Assistance. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. (2-3-2018, poster)
46. **Mohammadzadeh Gonabadi A**, Antonellis P, Vanderheyden T, Bishop KI, Malcolm P (2018). Developing a footswitch device to assess the likelihood of falls in at-risk populations. *Student Research and Creative Activity Fair*. University of Nebraska at Omaha. (2-3-2018, poster)
47. **Mohammadzadeh Gonabadi A**, Antonellis P, Malcolm P (2018). Development of waist perturbation effector for investigating relationship between mechanical work and metabolic cost. *13th Annual Dynamic Walking Conference*. Pensacola, Florida. 2018. (May 21-24, 2018, podium and poster)
48. Antonellis P, **Mohammadzadeh Gonabadi A**, Malcolm P (2018). Effects of timing and magnitude of waist pulling assistance on metabolic cost and joint mechanics. *Human Movement Variability Conference*. University of Nebraska at Omaha, Omaha, Nebraska. (May 17, 2018, poster)
49. **Mohammadzadeh Gonabadi A**, Antonellis P, Vanderheyden T, Bishop KI, Malcolm P (2018). Development of a footswitch device to assess the likelihood of falls in at-risk populations. *Human Movement Variability Conference*. University of Nebraska at Omaha, Omaha, Nebraska. (May 17, 2018, poster)
50. Mashhadiali N, Kheyroddin A, **Mohammadzadeh A** (2013). Structure architecture interaction in tall building with diagrid system. *Second International Conference on Architecture and Structure*, Volume: 2. May 2013.
51. Etemadee N, Saedodin S, **Mohammadzadeh Gonabadi A** (2012). Thermal energy losses in pressure reducer valve of city gate station. *First International Conference and third national conference of Dams & Hydro power*. January 2012.
52. Ramezani H, Sasan A, Moradi M, **Mohammadzadeh A** (2010). Design of robot path in three-dimensional workspace, with the aid of thermal potential. *11th Iranian Conference of make & Production*, University of Tabriz, Iran, Tabriz.