

### Research Interests

- Cardiovascular biomechanics
- Experimental vascular mechanobiology
- Constitutive modeling of biological tissues and synthetic grafts
- Machine learning and data analytics in biomechanics

### Education

University of Nebraska Lincoln Lincoln, NE  
**Ph.D. in Mechanical Engineering**  
**Minor in Business Administration** Aug 2016 – Oct 2020

Isfahan University of Technology Isfahan, Iran  
**B.Sc. in Mechanical Engineering**, double major with:  
**B.Sc. in Industrial Engineering and Systems Management** Aug 2011 – July 2016

### Experience

University of Nebraska Omaha, Department of Biomechanics Omaha, NE  
**Assistant Professor** Jan 2021 – Present

- Study function and pathophysiology of major human arteries and develop tools that can inform the development of materials and devices for vascular and endovascular repairs

University of Nebraska Medical Center, Department of Surgery Omaha, NE  
**Graduate Research Assistant** Dec 2016 – Dec 2020

- Studied cardiovascular biomechanics and have written 8 first-author, 3 co-author papers, and one book chapter
- Developed experiments and characterized biomechanics of arteries to support cardiovascular device development
- Initiated and managed collaborations with clinicians and data scientists resulting in a novel machine learning tool to predict patient-specific arterial properties
- Led a cross-functional team resulting in software for histology image analysis
- Characterized porcine and human arteries for assessing the performance of aortic stent-grafts
- Presented work to a variety of audiences in written, oral, and poster formats

University of Nebraska Lincoln, Department of Mechanical and Materials Engineering Lincoln, NE  
**Graduate Teaching Assistant** Aug 2016 – May 2017

- Taught recitations, held office hours, graded assignments and exams for 100+ students in a Statics course

University of Nebraska Lincoln, Persian Students Organization Lincoln, NE  
**President** Aug 2017 – Dec 2018

### Publications

#### Peer-reviewed journal papers and book chapters

- **Jadidi, M.**, Razian, S., Anttila, E., Doan, T., Adamson, J., Pipinos, M., & Kamenskiy, A., (2021). Comparison of morphometric, structural, mechanical, and physiologic characteristics of human superficial femoral and popliteal arteries, *Acta Biomaterialia (IF 7.2)*, In Press.
- **Jadidi, M.**, Sherifova, S., Sommer, G., Kamenskiy, A., & Holzapfel, G., (2021). Constitutive modeling using structural information on collagen fiber direction and dispersion in human superficial femoral artery specimens of different ages, *Acta Biomaterialia (IF 7.2)*, In Press.
- **Jadidi, M.**, Razian, S., Habibnezhad, M., Anttila, E., & Kamenskiy, A., (2021). Mechanical, structural, and physiologic differences in human elastic and muscular arteries of different ages: comparison of the descending thoracic aorta to the superficial femoral artery, *Acta Biomaterialia (IF 7.2)*, 119, 268-283

- Kamenskiy, A., **Jadidi, M.**, Desyatova, A., & MacTaggart, J., (2021). Biomechanics of the main artery in the lower limb. *Book Chapter in Series in Mechanobiology, Tissue Engineering and Biomaterials*. Springer, In Press
- **Jadidi, M.**, Habibnezhad, M., Anttila, E., Maleckis, K., Desyatova, A., MacTaggart, J., & Kamenskiy, A. (2020). Mechanical and Structural Changes in Human Thoracic Aortas with Age. *Acta Biomaterialia (IF 7.2)*, 103, 172-188
- **Jadidi, M.**, Desyatova, A., MacTaggart, J., & Kamenskiy, A., (2019). Mechanical stresses associated with flattening of human femoropopliteal artery specimens during planar biaxial testing and their effects on the calculated physiologic stress–stretch state. *Biomechanics and modeling in mechanobiology (IF 2.5)*, 18(6), 1591-1605
- **Jadidi, M.**, et al., Prevalence of calcification in different vascular zones and its associations with demographics, risk factors, and morphometry, Submitted

### Journal papers in preparation

- **Jadidi, M.**, et al., A machine learning approach to predict orthotropic mechanical properties of human femoropopliteal arteries
- **Jadidi, M.**, et al., Growth and remodeling framework to model aging of human femoropopliteal arteries
- Maleckis, K., Keiser, C., **Jadidi, M.**, Anttila, E., Desyatova, A., MacTaggart, J., & Kamenskiy, A., Safe balloon inflation parameters for the resuscitative endovascular balloon occlusion of the aorta
- Anttila, E., **Jadidi, M.**, Maleckis, K., Desyatova, A., MacTaggart, J., & Kamenskiy, A., Experimental characterization of percutaneous transluminal balloon angioplasty of diseased human femoropopliteal arteries

### Conferences

- **Jadidi, M.**, Desyatova, A., & Kamenskiy, A. A Microstructurally-Motivated Growth and Remodeling Framework to Describe Aging of Human Femoropopliteal Arteries. *Society of Engineering Science (SES)*. September 28-October 1. 2020. Online oral presentation (in-person meeting got canceled due to COVID-19).
- **Jadidi, M.**, & Kamenskiy, A. Changes in the Biomechanics of Human Aortas and Femoropopliteal Arteries with Age. *5<sup>th</sup> Annual Human Movement Variability Conference and 1<sup>st</sup> Annual Great Plains Biomechanics Conference*. September 4. 2020. Online oral presentation (in-person meeting got canceled due to COVID-19).
- **Jadidi, M.**, Anttila, E., Habibnezhad, M., Keiser, C., Maleckis, K., Desyatova, A., MacTaggart, J., & Kamenskiy, A. Mechanical Changes in Human Elastic and Muscular Arteries with Age. *Summer Biomechanics, Bioengineering, and Biotransport Conference (SB<sup>3</sup>C-2020)*. June 17-20. 2020. Online oral presentation (in-person meeting got canceled due to COVID-19).
- **Jadidi, M.**, & Kamenskiy, A. A machine-learning approach to describing non-linear orthotropic mechanical properties of human femoropopliteal arteries. *5th African Conference on Computational Mechanics (AfriComp2020)*. November 29-December 1. 2021. (2020 meeting got canceled due to COVID-19). Accepted for oral presentation.
- **Jadidi, M.**, Desyatova, A., & Kamenskiy, A. Mechanical Stresses Associated with Flattening of the Human Femoropopliteal Artery Specimens During Planar Biaxial Testing. *7<sup>th</sup> International Conference on Mechanics of Biomaterials and Tissues*. Waikoloa, HI. Dec 10-14, 2017. Poster presentation.