Zahra Keshavarz Motamed

Assistant Professor at McMaster University, Department of Mechanical Engineering
Hamilton, ON, CA
Assistant Professor, Department of Mechanical Engineering, McMaster University

Biography

Dr. Motamed is an assistant professor at the Department of Mechanical Engineering at McMaster University. She was a postdoctoral fellow in the Institute for Medical Engineering & Science at MIT (Cambridge, USA) and Harvard-MIT Biomedical Engineering Center (2014-2016). She received her PhD in mechanical engineering from Concordia University (Montreal, Canada) in 2012 where she was a part-time/adjunct faculty member from 2013 to 2014. Furthermore, she was a postdoctoral fellow in University of Montreal/Laval University. She is a scientific consultant to medical device companies. She also has 8 years of industrial experience in the design sector with a proven record of leadership and project and team management. Dr. Motamed?s research interests are in the areas of translational and basic cardiovascular mechanics. In her multidisciplinary research, she uses and advances knowledge in biomechanics, fluid mechanics, solid mechanics, medical imaging and mathematical modelling. Cardiovascular disease is the leading cause of death globally, taking more lives than all forms of cancer combined. Despite advancement in surgical/interventional techniques, many cardiovascular patients do not respond favorably to treatments and, consequently, life expectancy for them remains reduced. Sources of morbidity can be explained on the basis of abnormal hemodynamics that lead to initiation and progression of cardiovascular diseases. A major part of Dr. Motamed's work is dedicated to the development of advanced numerical algorithms for simulation of cardiovascular mechanics and patient-specific modelling using medical imaging and clinical measurements with the following objectives: - To develop most needed quantitative non-invasive diagnostic methods for cardiovascular disease - To design, develop, evaluate and optimize cardiovascular devices such as transcatheter heart valves and vascular stents - To lead multidisciplinary collaborative efforts to translate engineering-based findings and developments into clinical practice Due to the interdisciplinary nature of her research, Dr. Motamed established a very strong collaborative network with other researchers such as clinical scientists, surgeons, cardiologists, engineers and applied mathematicians in Canada, USA and Europe as well as with medical-device companies.

Industry Expertise

Medical Devices, Automotive

Areas of Expertise

Translational & basic cardiovascular mechanics, Biomechanics, Fluid Mechanics, Solid Mechanics, Medical Imaging, Mathematical Modelling, Medical Device, Development of advanced numerical algorithms, Patient-specific modelling

Education

Massachusetts Institute of Technology (MIT) (Cambridge, USA)
PDF Biomedical Engineering

Concordia University (Montreal, Canada)
PhD Mechanical Engineering

Sharif University of Technology (Tehran, Iran)
B.Sc., M.Sc. Mechanical Engineering
