

Computational and Experimental Modelling of Biological Tissue Pathologies and Surgical Techniques: Applications in Precision Medicine

Abstract. Organs, tissues and cells of the human body experience multi-directional and complex mechanical loads in their natural environment. Consequently, mechanical forces play an important role in pathogenesis of many connective tissue diseases and in the outcome various surgeries. In this talk, I will discuss how computational modeling and experimental techniques can be utilized to better understand the interaction of both native tissue and implants with their mechanical environment. Furthermore, I will present examples from my past and present research dealing with predictive modeling of connective tissue pathologies and surgical outcomes with the overarching goal of making various surgical techniques safer and more effective.

Biography. Dr. Vahdati is an Assistant Professor in the Department of Engineering at East Carolina University. His research is focused in the areas of multi-physics computational modeling and multi-scale biomechanical testing of natural and synthetic biomaterials for applications in precision medicine. He utilizes computer modeling (virtual experiments) and experimental techniques to study the interaction of implants with native tissue, to predict the outcome of subject-specific surgical techniques and to prevent and diagnose mechanically-induced pathologies of soft and calcified tissues. Dr. Vahdati joined ECU after working for a Fortune 500 medical device company and the Cleveland Clinic in Ohio.



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<http://www.ecu.edu/cs-cet/engineering/Vahdati-Engineering.cfm>

Friday January 18, 2019
Time: 2:00 - 2:50pm
Room: SciTec 144A

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