SEMINAR SERIES

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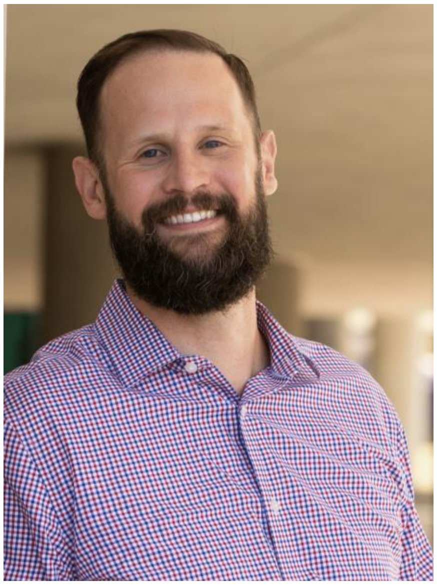

Computational Optimization of Medical Devices to Treat Coronary Artery Disease

Featuring Dr. Lucas Timmins

University of Utah

Friday, Feb. 11 | 12:00 - 1:15 pm | BRB 167

https://unomaha.zoom.us/s/92012305734

PRESENTATION ABSTRACT

Despite advances in medical imaging, interventional and surgical procedures, and treatment guidelines, coronary atherosclerosis continues to be the leading cause of death worldwide. Motivated by the seminal works in the late 1960s that linked disturbed blood flow patterns with atherosclerosis development, there continues to be great interest in integrating biomechanics into the clinic setting of coronary artery disease. Efforts are not solely directed at advancing diagnostic and prognostic strategies for coronary artery disease, but also focusing on leveraging biomechanics to optimize treatment strategies. In this seminar, I will discuss my laboratory's efforts to establish robust computational frameworks to characterize the fluid and solid mechanical environments to advance the treatment of coronary atherosclerosis. First, I will highlight efforts to optimize interventional treatment strategies for coronary atherosclerosis (e.g., vascular stenting) guided by intravascular imaging. Second, I will introduce a patient-specific computational framework to evaluate the post-stent biomechanical environment and discuss its integration into a longitudinal clinical study. Finally, I will discuss recent efforts to use computational mechanics to guide the design of tissue engineering vascular grafts for the surgical treatment of coronary heart disease.

ABOUT DR. TIMMINS

Lucas (Luke) Timmins is an Assistant Professor in the Department of Biomedical Engineering and Affiliate Faculty Member in the Scientific Computing and Imaging Institute at the University of Utah. He received his B.S. and Ph.D. from the Department of Biomedical Engineering at Texas A&M University in 2005 and 2010, respectively. He conducted a fellowship in the Pathology Group at Barts and The London School of Medicine and Dentistry and post-doctoral training at Georgia Tech and Emory University School of Medicine. His research is directed at understanding the interactions between mechanics and cardiovascular disease progression and focuses on translating these efforts and establishing disruptive technologies that advance patient management. His research has been supported by the National Institutes of Health, American Heart Association, Whitaker International Program, and Burroughs Welcome Fund.

more info at **cobre.unomaha.edu**

*This seminar was supported by the National Institutes of General Medical Sciences of the National Institutes of Health under Award Number P20GM109090 Center for Research in Human Movement Variability.