Lower urinary tract dysfunction (LUTD) is a debilitating medical condition that affects millions of individuals worldwide. Urodynamics is the current gold-standard for diagnosing LUTD, but uses non-physiologically fast, retrograde cystometric filling to obtain a brief snapshot of bladder function. Current state-of-the-art research in bladder monitoring includes ambulatory urodynamics using wireless implantable devices to evaluate bladder function during natural filling for long-term monitoring. However, there are various challenges and limitations to this multi-sensor approach. This research aims at developing a framework for automated event detection, data analysis and optimization of long-term bladder recordings to improve diagnosis and treatment of LUTD. In particular, this work proposes estimation of bladder detrusor signal from single-channel recordings using signal processing and neural network techniques, integration of accelerometry and bladder volume signals into the event detection framework using sensor fusion techniques, and optimization of sensing and event detection parameters using machine learning for system power reduction and reliability enhancement.

Wednesday, December 8th, 2021
10:00 - 11:00 AM
Online (MS Teams)

Please email fzareen@usf.edu for more information

THE PUBLIC IS INVITED

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Robert Karam, Ph.D., Major Professor
Mehran Mozaffari Kermani, Ph.D.
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Nasir Ghani, Ph.D.
Kaiqi Xiong, Ph.D.

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If you require a reasonable accommodation to participate, please contact the Office of Diversity & Equal Opportunity at 813-974-4373 at least five (5) working days prior to the event.