KEYNOTE TALK

Tuesday, October 8, 2019 at 9am (Sand Harbor II)

Fast, accurate and stable simulations for interactive VR training

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Abstract: Physical simulations are an ubiquitous component in modern computer graphics applications, and over the past several decades a plenitude of specialized algorithms have been developed for solving the linear systems that govern their dynamical behavior. Methods in the field have trended toward iterative techniques that are well-suited to GPU parallelization, yet some applications require alternative approaches. In this talk, I will present our recent results for improving the tractability of stiff and highly coupled multibody simulations that are CPU bound. Our work focuses not only on techniques to improve the computational performance, but also preserving physical and numerical traits. I will motivate the work with some challenging examples and postulate about open problems that lie ahead for the community.



Speaker Bio-Sketch: Sheldon Andrews is a professor of Software and IT Engineering at the École de technologie supérieure (Université du Quebec) in Montreal, Canada. He received his Ph.D. in Computer Science in 2015 from McGill University with Paul Kry. More recently, he was a postdoctoral researcher at Disney Research in Edinburgh (2014-2015) and then CMLabs Simulations in Montreal (2016). His research interests include real-time multibody

dynamics, computational contact mechanics, physics-based 3D characters, motion capture, and measurement-based modeling for virtual environments.