

## COMPUTATIONAL BIOENGINEERING

SUVRANU DE<sup>1</sup>, ABDUL I. BARAKAT<sup>2</sup>, SANDRA  
RUGONYI<sup>3</sup> AND YUSHENG FENG<sup>4</sup>

<sup>1</sup>Center for Modeling, Simulation and Imaging in Medicine, Rensselaer Polytechnic  
Institute, USA  
des@rpi.edu

<sup>2</sup>Departments of Mechanics and Biology  
EcolePolytechnique, France  
barakat@ladhyx.polytechnique.fr

<sup>3</sup>Department of Mechanical Engineering, University of Texas San Antonio, USA  
yusheng.feng@utsa.edu

<sup>4</sup>Department of Biomedical Engineering  
Oregon Health and Science University, USA  
rugonyis@ohsu.edu

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### ABSTRACT

The aim of the Computational Bioengineering mini-symposium is to illustrate the increasingly central role of computation in Bioengineering. It is now established that computational tools are indispensable to augment experimental techniques for the analysis of complex biosystems and increase the success rates of clinical interventions and therapeutic effectiveness. The innovations brought about by the application of computational technology to bioengineering are expected to have a substantial socioeconomic impact. Topics of interest include (but are not restricted to) the following:

- Solid and fluid biomechanics as well as fluid-structure interactions.
- Computational models for molecular, cellular, and tissue biomechanics.
- Biological mass transport.
- Development, remodeling, and regeneration.
- Computational simulations of injury and injury prevention.
- Innovations in numerical techniques (FEM/FVM/BEM/FDM/Meshless methods, etc.) and algorithmic issues for biomechanical simulations.
- Multiscale and multiphysics modeling.
- Virtual reality-based techniques of surgical simulation and planning.