Special Issue

Computational Models in Cardiovascular System

Message from the Guest Editor

Computational modeling (CM) is a powerful tool for understanding the complexities of the cardiovascular system. CM allows for the synthesis and integration of large number of variables, ranging from complex geometry to mechanical properties to boundary conditions. It is essential for novel hypothesis generation for multi-scale and multi-physics phenomena. Although finite-element CM is rigorous for research and development, the finite element method is time-intensive. For models to be clinically useful, ideally, they must be practical in real time. Artificial intelligence (AI), including machine learning (ML), deep learning (DL) and physics-informed neural networks (PINN), can be a power tool for near-real-time predictions of cardiovascular interventions and surgeries. In the years to come, AI and the associated computational tools are likely to transform cardiovascular diagnosis and treatment within the scope of precision medicine and evidence-based medicine. The goal of this Special Issue "Computational Models in Cardiovascular System" is to advance the field toward this end.

Guest Editor

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