HPC biomedical simulations based on CT data

Ivan Georgiev
Institute of Information and Communication Technologies & Institute of Mathematics and Informatics, Bulgarian Academy of Sciences
ivan.georgiev@parallel.bas.bg

Computed Tomography is a modern imaging technique with various applications in medicine, biology, engineering, etc. [1,2]. Particular features of the reconstructed CT volume can be extracted by applying different filtering and segmentation techniques [3]. Resulting geometry can be used as a computational domain for realistic numerical simulations. High Performance Computing is crucial for such kind of applications due to the complicated geometry and high resolution of the CT data. Typical biomedical applications are related to simulations of blood flow through the blood vessels [4], and bone tissue simulations [5].

References