

## In silico methods in biofluid transport and biomechanics

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### Organisation

**Name of the organisation** Ghent University (UGent)

**Department** Electronics and Information Systems (ELIS)

**Country** Belgium

**Geographical Area** Flemish Region

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research, Translational - Applied Research
<b>Type of method</b>	In silico

## DESCRIPTION

### Method keywords

computational models  
finite element modeling  
computational fluid dynamics  
mass transport

### Scientific area keywords

biofluids  
soft tissue biomechanics  
blood flow  
drug transport  
drug administration  
cardiovascular  
arterial stiffness  
medical devices

### Method description

The scope of our research ranges from the study of flow and transport processes in blood and biological fluids in the cardiovascular system and artificial organs to biomechanical aspects of the cardiovascular and the skeleto-muscular system and medical devices. All research tracks explored by our past and present Master and PhD students relate to the study of (fluid) mechanical aspects of and transport processes in a native organ or

system, in artificial organs and prosthetic devices. We hereby strive towards integration of research at different levels - often starting from a clinical problem or question - and combining computer modelling (from simple lumped parameter models to full 3D-simulation of biomechanical and fluid-structure interaction problems), experimental (hydraulic and test bench) work and in vivo data to explore and unravel the problem. As such, our work combines basic engineering with applied biomedical and clinical research. The final goal can be a better understanding of a patho-physiological problem, a better quantification (and diagnosis) of the function of an (artificial) organ or system, or design of new or improved medical devices for a better patient treatment.

## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

### Links

[web-site](#)

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