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# Functional Imaging and Modeling of the Heart

First International Workshop, FIMH 2001  
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## Preface

The recent developments in dynamic cardiac imaging and modeling are the result of an increasingly fruitful cooperation between theoreticians, engineers, and practitioners. The standard clinical parameters are progressively benefitting from more accurate quantitative measurements thanks to a simultaneous use of sophisticated data acquisition techniques such as multichannel ECG and MEG, dynamic US, doppler, X-Ray, CT, helical CT, MRI, fMRI, SPECT, PET... data and advanced physical and mathematical tools. It is becoming possible to efficiently combine prior anatomical and functional knowledge with advanced 3D spatio-temporal digital data. The challenge now is clearly to correlate the micro structure and function of the organ from the cellular level with its macroscopic functional behavior.

The FIMH 2001 international workshop aimed to promote collaboration between scientists in signal and image processing, applied mathematics and physics, biomedical engineering and computer science, and experts in cardiology, radiology, biology, and physiology. The FIMH 2001 workshop, in its first year, focused on complex heart models involving anatomical and functional information. The goal is to gradually move toward hybrid 3D biomechanical and electrophysiological models able to simulate the dynamic behavior of the heart.

We feel that FIMH 2001 presented an opportunity to create a cardio-vascular research network at a European level to federate the main pluridisciplinary groups involved in advanced research in cardiovascular imaging and modeling in Europe. The idea is to create what could be called the “European Beating Heart Project”. The purpose of such a project is to join research efforts to improve diagnosis and therapy of pathological dysfunctions of the heart, for the benefit of the patient, through fundamental and clinical research.

September 2001

Toivo Katila  
Isabelle E. Magnin

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