



EVROPSKÁ UNIE
Evropské strukturální a investiční fondy
Operační program Výzkum, vývoj a vzdělávání



Inverse problem solving

Název studijního předmětu	Biophysical modeling in cardiology
Vedoucí cvičení/experimentu	Ksenia Sedova

Anotace cvičení/experimentu:

Forward and inverse modeling in electrocardiography permits researchers to study the relationship between cardiac activity and body surface potentials while eliminating the highly invasive component of experimental models.

In first part of the exercise students will go through the basic functionality of the SCIRun:

- Dataflow Vocabulary
- Scheduler
- Network Design
- Modules
- ...

In the second part of the exercise the students will receive practical task focused on utilization of the functionality of SCIRun, e.g.

- Manual manipulation of dipole
- Playback of dipole sequence
- Localization of dipole from body surface potential map

Required datasets will be provided to students to solve the inverse problem.

Writing a lab report is an essential part of completing the laboratory exercise.

Cíle cvičení/experimentu:

The purpose of the exercise is to develop some skill in powerful software tool for performing simulations of physiologic systems. SCIRun actually has much broader application than just for this course so it could be useful for subsequent courses, projects, and research studies

Popis použitých zařízení/přístrojů:

1. Powerful workstations
2. SCIRun is a problem solving environment for modeling, simulation and visualization of scientific problems.