



Smart Machines And Robotics Technology Lab

SMART Lab's Workshop on Surgical Simulation

SMART lab has been working on the ICT R&D Funded project "Development of a Tele-Surgical Training Robot & Simulator" for the past few months. In order to share our research with faculty and students we organized a workshop from Oct 18th to 19th. The workshop started by a discussion on the existing commercial simulators available and their limitations followed by a discussion on reasons for developing a new simulator. This discussion was followed by a talk on the design concepts of Simulators and the architecture of a new simulator.

The second day started with a presentation on SOFA (Simulation Open Framework Architecture) an open source framework developed by INRIA, France, for surgical simulations. Major features available were discussed along with the overall architecture. Then a brief demo was given on the SOFA Modeler and SOFA Simulator. This was followed by hands on session on SOFA, which included three exercises,

Exercise 1

Understanding SOFA Modeler and Simulator

- o Modeling a particle in a gravitational field
- o Loading a visual model in SOFA and mapping to a mechanical model

Exercise 2

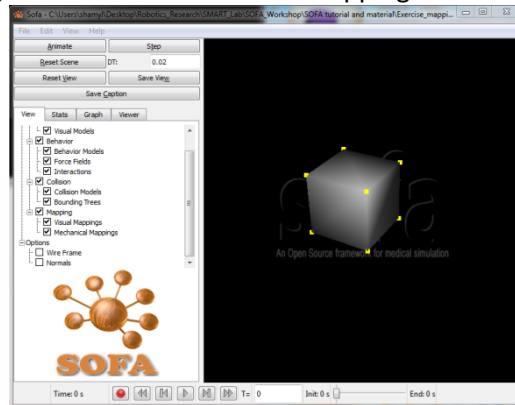
Modeling object collisions under a planar force field

Exercise 3

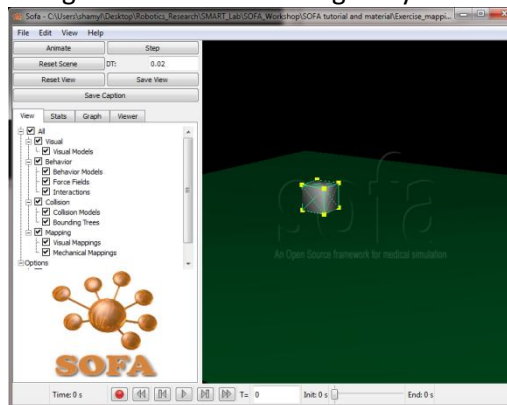
Modeling a 3 dimensional object along with bio-mechanical properties

Around 40 people registered for the workshop but around 15 students attended the two days of the workshop. Their experience with the workshop was worthwhile as most of them were able to finish the given exercises on the last day and were interested in learning more about SOFA. The following three exercises were done by the students in the hands on part of the workshop.

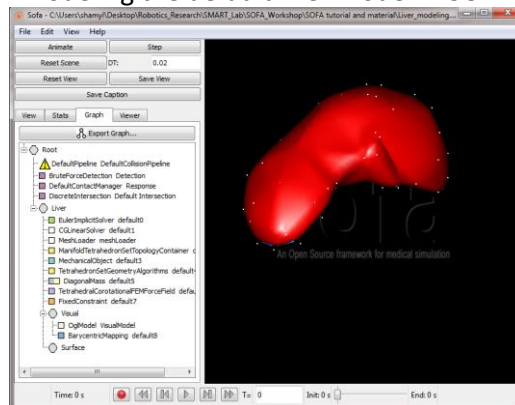
Modeling a mechanical model and mapping it to a visual model



Making the model fall under gravity on a floor



Modeling the default liver model in SOFA

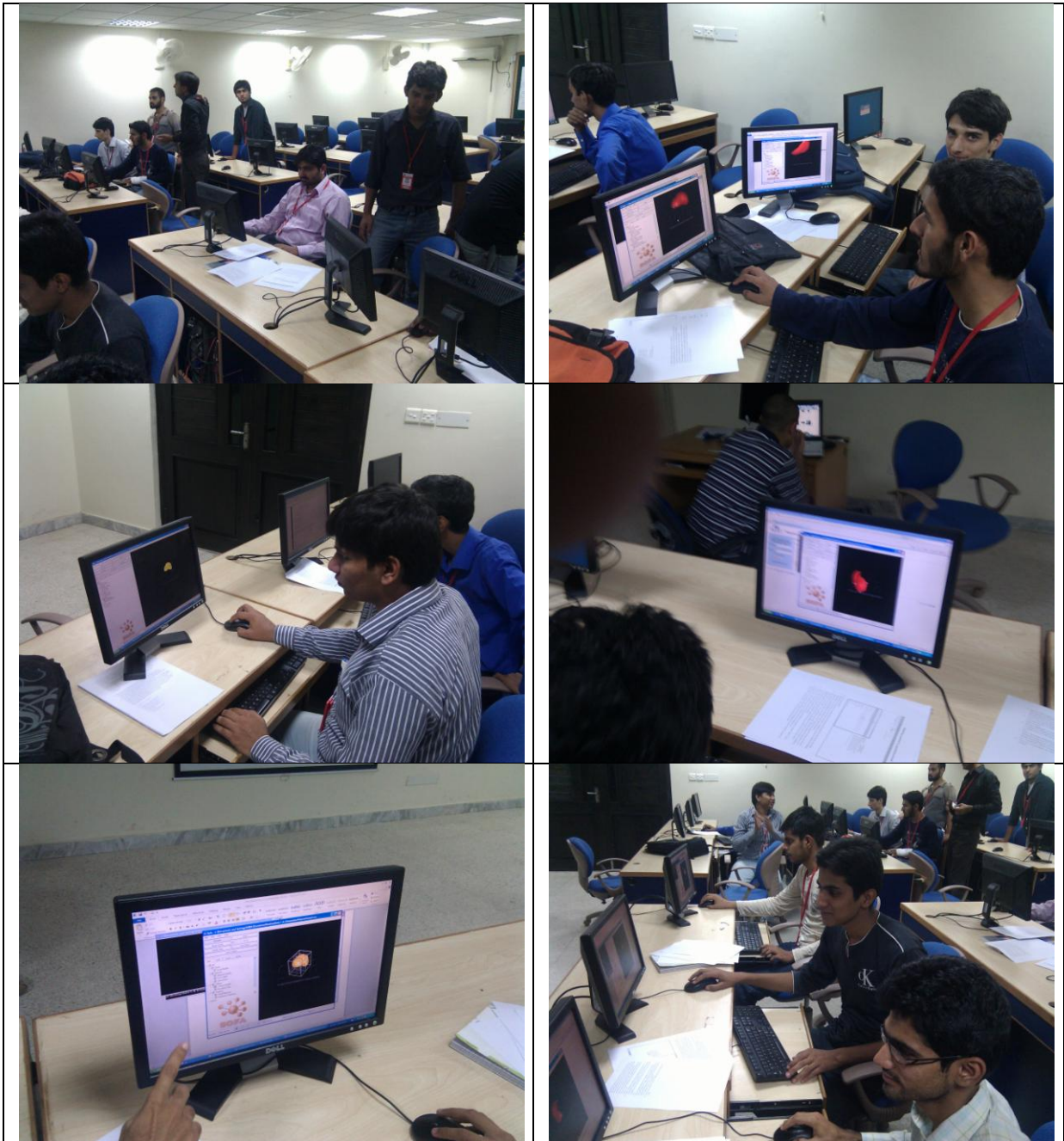


Here are some pictures of the participants from the workshop on

DAY 1



DAY 2 Hands On SOFA



For further information please visit

<http://smart.seecs.nust.edu.pk/surgws.html>

Some updates are also available on

<http://smartlab-seecs.blogspot.com>