**IMI PhD Interdisciplinary Seminars**

**DATE:** 28 August 2012, Tuesday  
**TIME:** 11:00 am - 12:10pm  
**VENUE:** IMI Seminar Room, Research Techno Plaza, Level 03-01, XFrontiers Block, Singapore 637553  
* Lunch will be served

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**Dr. Martin Tobias**  
Postdoc  
Eidgenössische Technische Hochschule Zürich

**Parametric 3D Representations for Simulation and Visualization**

Volumetric parameterization is an emerging field in computer graphics, where volumetric representations that have a semi-regular tensor-product structure are desired in applications such as 3D texture mapping and physically-based simulation. At the same time, volumetric parameterization is also needed in the Isogeometric Analysis (IA) paradigm, which uses the same parametric space for representing geometry, simulation attributes, and solutions. In these applications, accurate visualization methods are required to inspect the smooth geometry and simulation attributes. In this talk I present a pipeline to create, analyze and visualize higher order volumetric representations.

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**Zhang Wenjing**  
PhD Student  
SCE-IMI

**Example Based Dynamic Deformation**

Physically based deformable models are widely used in Computer Graphics like animation for its realism as well as automation. However, the application of physically based method is hindered by its two main shortcomings: computational expensive and tedious to tune material parameters. We propose an example based approach to address these two problems concurrently. The user provides a set of example poses as preferred deformations. Our method can encourage the object deforming towards these example poses without the need to tuning the material parameters.

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**Zhang Juzheng**  
PhD Student  
SCE-IMI

**Design Mood Dynamics for Virtual Human**

Affective system, integrating emotions, moods, personalities and relationships, is the core part of believable virtual human and social robots. Given external stimuli or events, an affective system generates responsive moods and emotions, which are essential for decision making, facial expression generation, primary and secondary behavior producing, and episodic memory encoding and decoding, etc. In this talk, we design a new computational method for mood dynamics and a new emotion focus model, which integrate the personality as an influence factor in a creative way. Experiments are implemented to validate the advantages and usefulness of this system.

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