Informatik-Oberseminar

Rheinisch-Westfälische Technische Hochschule Aachen
Lehrstuhl f"ur Informatik 12

RWTH

EINLADUNG

Zeit: Mitwoch, 9. Mai 2012, 16.00 Uhr

Ort: Konferenzraum E.11, Seffenter Weg 23

Referent: Dipl.-Inform. Tobias Rick

Thema: Interactive Tracing of Radio Waves and Neuronal Fiber Pathways for Exploratory Visualization in Virtual Reality

Exploratory visualization of physical simulations in virtual environments greatly benefits from interactively changing parameters with real-time feedback. The present thesis addresses two specific research questions by problem reformulation and implementation on the Graphics Processing Unit's many-core architecture towards a simulation and interaction in real-time: (1) simulating and manipulating wireless radio networks and (2) estimating and disambiguating neuronal fiber connectivity in the living human brain. This works assists in the exploratory scientific analysis by directly coupling simulation input and output with visual feedback and natural interaction via an interactive Virtual Reality (VR) interface.

The user becomes an integral part of the workflow in order to observe computation results in real-time and to react appropriately. An interactive manipulation is enabled by decomposing and reformulating the domain specific algorithms into parallel sub tasks. Their scalability is demonstrated in the presence of a huge number of cores as available on current graphics hardware. This work uses VR interfaces to put the user in more control of the computing pipeline in order to exploit the full potential of a human-in-the-loop to see patterns and structures arise.

Es laden ein: Die Dozenten der Informatik