

Science Symposium Program

GPGPU Techniques for Medical Image Processing & Simulation

Monday 30th March 2009

CSIRO and the IEEE Engineering in Medicine and Biology (EMB) Society Queensland Chapter are proud to present the program for the Science Symposium on GPGPU Techniques for Medical Image Processing and Simulation on Monday the 30th March 2009.

The upcoming Science Symposium offers researchers an opportunity to see the potential for how GPGPU techniques can be leveraged in their own imaging and simulation research via technical briefs and real-world examples.

At the end of the Symposium, delegates should have a solid understanding of GPGPU techniques, including preferred hardware and software platforms.

Our keynote speaker, Dr. Mark Harris, Senior Developer Technology Engineer at NVIDIA, will speak about the latest NVIDIA hardware architecture and the CUDA programming platform.

Agenda

8:30am – 8:55am	Registration
09:00am – 9:10am	Opening remarks <i>Dr Olivier Salvado – (CSIRO)</i> <i>Professor Stephen Wilson (University of Queensland/IEEE EMBS)</i>
Session 1	Introduction to GPGPU
09:10am – 10:45am	Dr Mark Harris (NVIDIA) <i>Introduction to NVIDIA CUDA and Tesla</i> <i>CUDA Parallel Programming Model and C for CUDA</i> <i>Live Programming Demo</i> <i>CUDA Toolkit and Libraries</i>
10:45am – 11:00am	Morning Tea
11:00am – 11:40am	Dr Mark Harris (NVIDIA) <i>Optimising Performance on NVIDIA GPUs</i>
Session 2	Large Dataset Visualisation
11:40am – 12:00pm	Dr Hans de Visser (CSIRO) <i>Real-time Rendering & Analysis of Volumetric Image Data for Pre-operative Planning</i>
12:00pm – 1:00pm	Lunch

Session 3	GPGPU Techniques for Surgical Simulation
1:00pm – 1:20pm	Mr Greg Ruthenbeck (Flinders University) <i>Tissue Simulation with CUDA</i>
1:20pm – 1:40pm	Mr Josh Passenger (CSIRO) <i>High-Fidelity Colonoscopy Simulation using the GPU</i>
1:40pm – 2:00pm	Dr Oscar Acosta (CSIRO) <i>Real-time Simulation of Ultrasound from CT Images using CUDA</i>
2:00pm – 2:15pm	Afternoon Tea
Session 4	Image Analysis – Current Research
2:15pm – 2:35pm	Mr Yaniv Gal (The University of Queensland) <i>A Variation on Non-Local Means for the Denoising of Dynamic Contrast-Enhanced MR Images</i>
2:35pm – 2:55pm	Mr Andrew Hill (The University of Queensland) <i>Evaluating the Accuracy of Registration Methods for Dynamic Contrast-Enhanced MRI of the Breast</i>

For IEEE EMBS Queensland members and interested parties:

3:00pm – 4:00pm	Monthly meeting IEEE EMBS Queensland Chapter
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A \$100 book voucher will be awarded for the best student presentation.

When	Monday 30 th March 2009 8:30am – 4:00pm
Where	Level 2 UQCCR Building 71/918 Royal Brisbane and Women's Hospital Herston QLD Australia
Cost	Free (lunch and refreshments provided)
Registration	Please register your intention to attend to Lauren.Anderson@csiro.au or call (07) 3253 3600

On-site parking is available at Wilson parking, corner of Herston Road & Gilchrist Ave Herston:

