

## **Contributed Poster Presentations & Demos (I)**

### **9:25am – 10:55am on Saturday, August 7, 2004**

#### ***Accelerated 2-D and 3-D Digital Image Processing on a GPU***

Bryson R. Payne (Georgia College & State University),  
G. Scott Owen, Saeid O. Belkasim, and Patrick Flynn (Georgia State University)

#### ***Accelerating Morphable 3D Model Fitting with Graphics Hardware***

Kazuhiro Hiwada (Toshiba Corporation)

#### ***Brook for GPUs: Stream Computing on Graphics Hardware***

Ian Buck, Tim Foley, Daniel Horn, Jeremy Sugerman,  
Kayvon Fatahalian, Mike Houston, and Pat Hanrahan (Stanford)

#### ***GPU Acceleration of Iterative Clustering***

Jesse D. Hall and J. C. Hart (Univ. of Illinois at Urbana Champaign)

#### ***GPU-Based Voxelization and its Application in Flow Modeling***

Zhe Fan, Wei Li, Xiaoming Wei, and Arie Kaufman (SUNY Stony Brook)

#### ***GPU Floating Point Paranoia***

Karl Hillesland and Anselmo Lastra (UNC Chapel Hill)

#### ***Fast Computation of Database Operations using Graphics Processors***

Naga K. Govindaraju, Brandon Lloyd, Wei Wang, Ming Lin, and  
Dinesh Manocha (UNC Chapel Hill)

#### ***Mio: An Instruction Scheduling Approach to Fast Multipass Partitioning***

Andrew Riffel\*, Aaron E. Lefohn\*, Kiril Vidimce+, Mark Leone+,  
and John D. Owens\*, (\* UC Davis, + Pixar Animation Studios)

#### ***Parallel Computing with Multiple GPUs on a Single Machine to Achieve Performance Gains***

Robert Gulde, Michael Weeks, Scott Owen, and Yi Pan (Georgia State Univ.)

#### ***Quick-VDR: Interactive View-Dependent Rendering of Massive Models on Commodity GPU***

Sung-Eui Yoon, Brian Salomon, Russell Gayle, and Dinesh Manocha (UNC Chapel Hill)

#### ***RapidCT: Acceleration of 3D Computed Tomography on GPUs***

Fang Xu and Klaus Mueller (SUNY Stony Brook)

#### ***Towards Load Balanced Computations using GPU and CPU***

Thomas Gierlinger and Poojan Prabhu  
(Fraunhofer Institute for Computer Graphics, Germany)

## **Contributed Poster Presentations & Demos (II)**

### **3:05pm – 4:35pm on Saturday, August 7, 2004**

#### ***A Theoretical Case Study of Three Algorithms on the GPU: Depth Ordering, k-Selection and Matrix Multiplication***

Sudipto Guha (UPENN), Shankar Krishnan (AT&T Labs – Research), and  
Suresh Venkatasubramanian Krishnan (AT&T Labs – Research)

#### ***Accelerating Line of Sight Computation Using GPUs***

Brian Salomon, Naga Govindaraju, Russell Gayle, Avneesh Sud, Sung-Eui Yoon,  
Ming Lin, Dinesh Manocha (UNC Chapel Hill),  
Maria Bauer, Latika Eifert and Angel Rodrigues (RDECOM),  
Brett Butler (SAIC), and  
Michael Macedonia (PEO STRI)

#### ***A Versatile Stereo Implementation on Commodity Graphics Hardware***

Ruigang Yang (University of Kentucky) and Marc Pollefeys (UNC Chapel Hill)

#### ***DiFi: Fast 3D Distance Field Computation using GPUs***

Avneesh Sud, Miguel A. Otaduy, and Dinesh Manocha (UNC Chapel Hill)

#### ***Finding Mold Removal Directions using Graphics Hardware***

Rahul Khardekar and Sara McMains (UC Berkeley)

#### ***GPUBench: Evaluating GPU Performance for Numerical and Scientific Applications***

Ian Buck, Kayvon Fatahalian, and Pat Hanrahan (Stanford)

#### ***Parallel Computation On A Cluster of GPUs***

Mike Houston, Kayvon Fatahalian, Jeremy Sugerman, Ian Buck, and  
Pat Hanrahan (Stanford)

#### ***Per-Pixel Evaluation of Parametric Surfaces on GPU***

Takashi Kanai (Keio University SFC) and Yusuke Yasui (ASTOM Inc.)

#### ***Procedural Geometry Synthesis on the GPU***

Patrick Lacz and J. C. Hart (Univ. of Illinois at Urbana Champaign)

#### ***Scout: A GPU-Accelerated Language for Visualization and Analysis***

Patrick McCormick\*, Jeff Inman\*, Greg Roth+, James Ahrens\*, and  
Charles Hansen+ (\*Los Alamos National Laboratory, + University of Utah)

#### ***Simulation and Rendering of Viscous Fluid Paint on GPUs***

William Baxter, Jeremy Wendt, and Ming Lin (UNC Chapel Hill)

#### ***Ultrasound Image Restoration on GPUs***

Qi Wei and Dinesh K. Pai (University of British Columbia and Rutgers University)

## **Contributed Poster Presentations & Demos (III)**

### **9:10am – 10:40am on Sunday, August 8, 2004**

#### ***Accelerating Molecular Dynamics with GPUs***

Ian Buck, Vidya Rangasayee, Eric Darve, Vijay Pande, and Pat Hanrahan (Stanford)

#### ***Anisotropic Diffusion of Height Field Data using Multigrid Solver on GPU***

Won-Ki Jeong, Tolga Tasdizen, and Ross Whitaker (University of Utah)

#### ***Fluid Simulations on GPU with Complex Boundary Conditions***

Youquan Liu<sup>1,3</sup>, Xuehui Liu<sup>1</sup>, and Enhua Wu<sup>1,2</sup>

(1 - Institute of Software Chinese Academy of Sciences, Beijing

2 - University of Macau, Macao

3 - Chinese Academy of Sciences, China)

#### ***GPU Accelerated Dispersion Simulation for Urban Security***

Feng Qiu, Ye Zhao, Zhe Fan, Xiaoming Wei, Haik Lorenz, Jianning Wang,  
Suzanne Yoakum-Stover, Arie Kaufman, and Klaus Mueller (SUNY Stony Brook)

#### ***GPU-Based Penetration Depth Computation for Haptic Texture Rendering***

Miguel A. Otaduy, Nitin Jain, Avneesh Sud, and Ming C. Lin (UNC Chapel Hill)

#### ***GPU Cluster for Scientific Computing and Large-Scale Simulation***

Zhe Fan, Feng Qiu, Arie Kaufman, and Suzanne Yoakum-Stover (SUNY Stony Brook)

#### ***Fast and Reliable Collision Culling using Graphics Hardware***

Naga K. Govindaraju, Ming Lin, and Dinesh Manocha (UNC Chapel Hill)

#### ***Lattice-Based Flow Simulation on GPU***

Ye Zhao, Zhe Fan, Wei Li, Arie Kaufman, and  
Suzanne Yoakum-Stover (SUNY Stony Brook)

#### ***New Challenges for Cellular Automata Simulation on the GPU***

John Tran, Don Jordan, and David Luebke (University of Virginia)

#### ***Particle-Based Fluid Simulation on GPU***

Takashi Amada, Masataka Imura, Yoshihiro Yasumuro, Yoshitsugu Manabe, and  
Kunihiro Chihara (Nara Institute of Science and Technology)

#### ***Rapid Evaluation of Potential Fields in N-Body Problems Using Programmable Graphics Hardware***

Lars Nyland (Colorado School of Mines),

Jan Prins (UNC Chapel Hill), and

Mark Harris (NVIDIA Corporation)

#### ***Unified Stream Processing Ray Tracer***

Gabriel Moreno-Fortuny and Michael McCool (University of Waterloo)

## **Contributed Poster Presentations & Demos (IV)**

### **2:10pm – 3:40pm on Sunday, August 8, 2004**

#### ***AI on the GPU***

Christian J. Darken, E. Ray Pursel, and J. Steve Correia (MOVES Institute, NPS)

#### ***Data-Dependent Multipass Control Flow on GPUs***

Tiberiu Popa and Michael McCool (University of Waterloo)

#### ***Discrete Wavelet Transform on GPU***

Jianqing Wang , Tien-Tsin Wong , Pheng-Ann Heng (Chinese University of Hong Kong),  
and Chi-Sing Leung (City University of Hong Kong)

#### ***Efficient 3D Audio Processing with the GPU***

Emmanuel Gallo and Nicolas Tsingos (REVES/INRIA Sophia-Antipolis)

#### ***Final Gathering on GPU***

Toshiya Hachisuka (The University of Tokyo)

#### ***Functional Parallelism using Programmable GPUs***

Ramgopal Rajagopalan, Dhruvajyoti Goswami, and S.P. Mudur (Concordia University)

#### ***Hybrid Volumetric Ray-Casting***

Wei Hong, Feng Qiu, and Arie Kaufman (SUNY Stony Brook)

#### ***Implementation of Cellular Automata using a Graphics Processing Unit***

Johannes Singler (University of Karlsruhe, Germany)

#### ***Merrimac – Supercomputing with Streams***

Mattan Erez, Jung-Ho Ahn, Nuwan Jayasena, Timothy J. Knight,  
Abhishek Das, Francois Labonte, Jayanth Gummaraju, William J. Dally,  
Patrick Hanrahan, and Mendel Rosenblum (Stanford University)

#### ***Multi-Resolution Belief Propagation on the GPU for Phase-Unwrapping***

E. Scott Larsen (UNC Chapel Hill),  
Jonathan Yedidia, and Hanspeter Pfister (Mitsubishi Electric Research Laboratories)

#### ***Towards Real-time Space Carving with Graphics Hardware***

Anselmo A. Montenegro, Luiz Velho, Paulo C. P. Carvalho (IMPA), and  
Marcelo Gattass (Puc-Rio)

#### ***Understanding the Efficiency of GPU Algorithms for Matrix-Matrix Multiplication***

Kayvon Fatahalian, Jeremy Sugerman, and Pat Hanrahan (Stanford)