

Miloš Hašan

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Education

Ph.D. candidate, Cornell University
Computer Science (minor: Applied Mathematics)
Advisor: Kavita Bala
August 2003 – May 2009 (expected)

Undergraduate: Comenius University, Bratislava, Slovakia
Computer Science
August 1998 – August 2003

Interests

- Rendering
 - GPU-based algorithms for physically-based rendering
 - global illumination, many lights, precomputed transfer techniques
 - subsurface scattering, motion blur
- Scientific Computing
 - matrix computations
 - clustering algorithms
- Programming languages
 - functional programming, type systems
 - program transformations, meta-programming

Research & Publications

- Tensor Clustering for Rendering Many-Light Animations. *Miloš Hašan, Edgar Velazquez-Armendáriz, Fabio Pellacini, Kavita Bala*. **Appears in Eurographics Symposium on Rendering 2008**. (Computer Graphics Forum, Volume 27, Issue 4)
- Matrix Row-Column Sampling for the Many-Light Problem. *Miloš Hašan, Fabio Pellacini, Kavita Bala*. **Appears in SIGGRAPH 2007**. (ACM Transactions on Graphics, Volume 26, Issue 3)
- Direct-to-Indirect Transfer for Cinematic Relighting. *Miloš Hašan, Fabio Pellacini, Kavita Bala*. **Appears in SIGGRAPH 2006**. (ACM Transactions on Graphics, Volume 25, Issue 3)
- Interactive Cinematic Relighting with Global Illumination. *Fabio Pellacini, Miloš Hašan, Kavita Bala*. **Appears in GPU Gems 3**.
- An Efficient F-rep Visualization Framework. *Miloš Hašan (advised by Alexander Pasko, Andrej Ferko)*. Undergraduate thesis, Comenius University.

Ongoing Projects

- With *Jaroslav Krivánek, Bruce Walter, Kavita Bala*: Making many-light algorithms into true global illumination solutions, by minimizing the effect of introduced approximations.

- With *Edgar Velázquez-Armendáriz, Bruce Walter, Kavita Bala*: Extending multi-dimensional lightcuts and path-tracing algorithms to support arbitrary procedural shaders.

Work Experience

NVIDIA Research, Santa Clara, CA

- July-October 2008 (Internship)
- Worked on nearest neighbor search, novel shadow algorithms on the GPU
- Used C++, CUDA

Industrial Light + Magic, San Francisco, CA

- June-August 2007 (R&D Internship)
- Worked on a real-time relighting preview system
- Used C++, OpenGL, Cg, RenderMan

InterWay, Bratislava, Slovakia

- April 2002 – April 2003 (part-time)
- Worked on a web application
- Used Java, SQL, JSP servlets, HTML, Javascript, etc.

Programming Skills

- My publications are based on large, complex C++ and Java applications (created with help from co-authors, but key components by me)
- Significant GPU rendering component, using both OpenGL and DirectX
- Used Matlab for prototyping and idea exploration, comfortable with matrix and tensor approaches to problems
- Used Haskell for program transformation tasks (translating shaders and implicit surface definitions)
- Used CUDA for general-purpose GPU programming, including more advanced features – atomic operations, thread cooperation, data-parallel primitives
- Also some experience with: RenderMan, Python, Mathematica, ML, x86 assembly

Awards

- **2008 NVIDIA fellowship**
- 2003 McMullen fellowship
- Outstanding TA award in 2006 (CS 414 Operating Systems)

Recommendations

Available upon request from:

- Kavita Bala: kb@cs.cornell.edu
- Fabio Pellacini: fabio@cs.dartmouth.edu
- Bruce Walter: bjw@graphics.cornell.edu
- Jaroslav Krivánek: jkrivanek@gmail.com