Tomáš DAVIDOVIČ

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Education

Saarland University
09/2008 – spring 2012 (*expected*)
PhD candidate
Research area: Global illumination, GPU acceleration
Advisor: Philipp Slusallek

Czech Technical University in Prague
Faculty of Electrical Engineering
09/2006 – 09/2008
MSc Electrical Engineering and Computer Science
Area: Computer Science, Digital circuit design
Master thesis: Cryptographic coprocessor
Graduated *summa cum laude*

Czech Technical University in Prague
Faculty of Electrical Engineering
09/2001 – 09/2006
BSc Electrical Engineering and Computer Science
Area: Computer Science
Bachelor thesis: testLab – ProfiNet Network Tester
Graduated *cum laude*

Research Interests & Publications

Realistic Global Illumination, Ray Tracing, GPU algorithms, Monte Carlo methods, Graphics Hardware design, Offline rendering

Peer-reviewed papers

[1] **T. Davidovic**, L. Marsalek, and P. Slusallek
Performance Considerations When Using a Dedicated Ray Traversal Engine
19th WSCG Conference on Computer Graphics, Visualization and Computer Vision 2011

[2] **T. Davidovic**, J. Krivanek, M. Hasan, P. Slusallek, and K. Bala
Combining Global and Local Virtual Lights for Detailed Glossy Illumination
ACM Transactions on Graphics (in proceedings of SIGGRAPH Asia 2010)

Technical reports

[3] C. Dachsbacher, P. Slusallek, **T. Davidovic**, T. Engelhart, M. Philipps, and I. Georgiev
3D Rasterization – Unifying Rasterization and Ray Casting
VISUS/Saarland University, 2009

Other publications

[4] J. Krivanek, **T. Davidovic**
Local and global lights for high gloss
Talk at *Graphics Seminar of Charles University in Prague 2010*

[5] **T. Davidovic**, L. Marsalek, N. Maeding, M. Kaltenbach, P.H. Roth, and P. Slusallek
Ray Tracing Element for Cell/B.E.™
Poster at *High Performance Graphics 2009*

[6] **T. Davidovic**
Interactive Ray Tracing of Dynamic Scenes
Workshop paper at *Central European Seminar on Computer Graphics for students (2008)*

[7] **T. Davidovic**, M. Havlan, M. Novotny, J. Schmidt, and P. Bezpalec
Framework for Reasearch of ECDSA
Workshop paper at *Digital Technologies 2007, Žilina*

[8] **T. Davidovic**, M. Havlan, M. Novotny, and J. Schmidt
Implementation of ECDSA in Combo6X Card
Workshop paper at *Digital Technologies 2006, Žilina*

Work experience

Intel Visual and Computing Institute
04/2011 – present

Junior researcher
Research in 3D Graphics and Special Hardware
Knowledge: C++, Parallel programming, Advanced ray tracing and rasterization
Contribution: Independent research experience

DFKI GmbH
09/2008 – 03/2011

Junior researcher (Agents and Simulated Reality)
Research in 3D Graphics and Special Hardware
Knowledge: C++, CUDA, VHDL, Parallel programming, Advanced ray tracing and rasterization
Contribution: Independent research experience

Honeywell Aerospace s.r.o.
01/2007 – 09/2007

ASIC/FPGA Engineering Aide
VHDL coding and verification of commercial aircraft FPGA hardware
Knowledge: VHDL, ModelSim, Practical digital design workflow, modern hardware verification methods.
Contribution: One of two verification engineers on Epic/NG NIC project.

ANF Data s.r.o. (a Siemens company)
01/2005 – 06/2006

C++/Python programmer, VHDL designer
Project: testLab – ProfiNet Network Tester
Knowledge: MFC, Python, Altera CPLD, Common Object Model (COM)
Contribution: USB communication with the device, COM library for it, MFC GUI and Python wrapper; VHDL code for the contained CPLD

Academic experience

Saarland University
09/2008 – 2/2009

Teaching assistant
Courses: Computer Graphics 1

Czech Technical University in Prague
04/2006 – 06/2008

Assistant lecturer
Teaching courses, advisor-specialist for several bachelor theses.
Courses: Digital Design, Graph Theory and Algorithms
Cooperation: Liberouter project (with Masaryk University and CESNET).

Awards

Czech Technical University in Prague
Faculty of Information Technologies
11/2009

Certificate of merit
Awarded for contribution in establishing the new faculty of informatics

Czech Technical University in Prague
Faculty of Electrical Engineering
11/2006 and 11/2008

Dean's award
Award for exceptional Master Thesis (Cryptographic coprocessor)

Czech Technical University in Prague
Faculty of Electrical Engineering
09/2001 – 09/2008

Excellence scholarship
Granted repeatedly by the faculty for excellent study results

ABRA Software s.r.o and CISCO
Faculty of Electrical Engineering
09/2008

Diploma thesis of the year
Second place in category: Communication and measurement systems, data transfers

Computer skills

General	Modern CPU and GPU architectures to very low level; Ray tracing, rasterization, photorealistic image synthesis, many-lights methods, acceleration structures, modern hardware
Programming languages	C, C++, CUDA, HLSL, Java, VHDL, Verilog Assembler (many), Python, Smalltalk
Development tools	Microsoft Visual Studio, Eclipse, Emacs, Xilinx ISE, Quartus (Altera), ModelSim, Synplify, Precision

Language skills

Czech	Native speaker
English	Proficient *Certificate*: CPE level B
German	Beginner

Other skills and interests

- Literature, RC airplanes, bowling, collectible card and tabletop miniature games
- Judge and organization of large tournaments
- Team player and team leader, self-reliant, both corporate and academic experience

References

- Prof. Philipp Slusallek – Saarland University, Germany
- Jaroslav Krivanek, Ph.D. – Charles University, Czech Republic
- Vlastimil Havran, Ph.D. – Czech Technical University in Prague, Czech Republic
- Prof. Pavel Tvrdik – Czech Technical University in Prague, Czech Republic
- Ing. Peter Kakos – Honeywell Aerospace s.r.o., Czech Republic
- Ing. Jan Hvozdovic – ANF Data s.r.o. (a Siemens Company), Czech Republic