Linh K. Ha

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Research Interests: Parallel Computing; High-Performance Computing on GPUs; Scientific Visualization; Geometry Processing; Robotics and Computer Vision

Education

- Ph.D, Computer Science — Aug 2005 - May 2011
  University of Utah
  Advisor: Prof. Cláudio Silva, GPA: 3.974
- M.E, Electronics and Telecommunications — Sep 2002- May 2005
  Vietnam National University, Hanoi, Vietnam
  GPA 9.1/10.0, Grade **Outstanding**
- B.E, Electronics and Telecommunications — Sep 1997- May 2002
  University of Technology, Hanoi, Vietnam
  GPA 8.72/10.0, Grade **Excellent**

Fellowship and Awards

EGPGV Best Paper Award, 2011
MICCAI Travel Grant Award, 2010
Best paper finalist, Shape Modeling International, 2007
Vietnam Education Foundation (VEF) Fellowship,[1], 2005
Vietnam National University Award for Excellent Youth Candidate, Dec 2004
Scholarships: Odon Vallet (Sep 2004), Trust Scholarship (Dec 2001), Samsung Scholarship (Nov 1999)
Member of University Dean's List for Academic Excellence, Jun 2002
Won a 2^{nd} place at the school programming contest, Feb 1999

Professional Experience

- I successfully defense my PhD thesis *High Performance Multi-scale image processing framework on multi-GPUs with applications to unbiased diffeomorphic atlas construction* on Feb 25th.
- *Research assistant, Visualization and Geometric Computing (VGC) group, SCI Institute, University of Utah*. Research topics: high performance computing on CUDA; medical image processing; data flow architectures to exploit the parallel computing power; GPU sorting, out-of-core iso-surface extraction; volume rendering; point-based graphics. Feb 2006 – Present. Supervisor: Professor Claudio Silva.

[1] Special program of US government to assist Vietnamese young outstanding scholars to pursue graduate study in top US universities. Only 50 students are selected each year in the whole country.

- *Summer intern, Quantitative Visualization Group, ExxonMobil Upstream Research Company, Houston, Texas*. Research topics: Quantitative Volume Interpretation on GPUs, optimizing regularity computation on multi-CPUs and GPUs; exploring regularity to improve understanding of seismic data; UI design for multi-attribute computation. Mentors: Dr. Dominique Gillard and Dr. Mark Dobin, Summer 2009.

- *Summer intern, Deep Computing Group, IBM T.J. Watson Research Center*. Research topics: High performance out-of-core rendering; rendering optimizations for OpenGL and ray tracing. Supervisors: Dr. Wagner Correa and Dr. James Klosowski. Summer 2007.

- *Research and teaching assistant at Robotic&Automation Lab, College of Technology, Hanoi*. Research topics: vision-guided robot navigation for mobile robot, developing robot control systems on microcontrollers. Instructor for the college robot team in Vietnam Robot Contest, May 2005. Supervisor: Dr. Vinh Q. Tran, Sep 2002 – Jul 2005.

- *Research assistant at DSP group, NWAVE R&D Tel Communication Device Company, Hanoi*. Research topics: software coding in DSP TMS 6200 for slow bit rate channel vocoder, system programming, developing interface and communication protocols for Mobiles and Handsets, working on project "Analog to Digital Mobile System". Supervisor Prof. Trung Q. Nguyen, Sep 2001 - Sep 2002.

Skills

- Programming: C, C++, Assembly (x86), Pascal, OpenGL, Pthreads, MPIs, TBB, GPU: CG, GLSL, CUDA.

- Systems: Windows, Linux, Embedded, SoC.

- Digital Signal Processing, Telecommunications, Real-time Systems, Computer Hardware, software & hardware design for small control systems, Computer Vision, Robotics, and Computer Graphics

- Applications: ParaView, VTK, QT4, AutoCAD, Protel, Matlab, Labview.

Publications

[1] *Efficient Probabilistic and Geometric Anatomical Mapping using Particle Mesh Approximation on GPUs*, Linh Ha, Marcel Prastawa, Guido Gerig, John H. Gilmore, Claudio T. Silva and Sarang Joshi, submitted to Special issue on Parallel Computation in Medical Imaging Applications

[2] *Optimal Multi-Image Processing Streaming Framework on Parallel Heterogeneous Systems Eurographic Symposium on Parallel Graphic and Visualization*, Linh Ha, Jens Krüger, Joao Comba, Sarang Joshi and Claudio T. Silva, EGPGV 2011, (**Best paper award**, invited for publication at IEEE TVCG.)

[3] *Image Registration Driven by Combined Probabilistic and Geometric Descriptors*, Linh Ha, Marcel Prastawa, Guido Gerig, John H. Gilmore, Claudio T. Silva and Sarang Joshi, MICCAI 2010

[4] *Multivariate Statistical Analysis of Deformation Momenta Relating Anatomical Shape to Neuropsychological Measures*, Nikhil Singh, P. Thomas Fletcher, J. Samuel Preston, Linh Ha, Richard King, J. Stephen Marron, Michael Wiener and Sarang Joshi, MICCAI 2010

[5] *Multi-scale Unbiased Diffeomorphic Atlas Construction on Multi-GPUs*, L. Ha, Jens Krüger, Sarang Joshi and C. Silva, GPU Computing Gems, Volume 1

[6] *Fast Parallel Unbiased Diffeomorphic Atlas Construction on Multi-Graphics Processing Units*, L. Ha, Jens Krüger, Thomas Fletcher, Sarang Joshi and C. Silva, EGPGV 2009

[7] *Fast 4-way parallel radix sorting on GPUs*, L. Ha, Jens Krüger, C. Silva, Computer Graphic Forum, Sep 2009

[8] *Spline-based feature curves from point-sampled geometry*, J. Daniels II, T. Ochotta, L. Ha, C. Silva, Visual Computer, volume 24, pages 449-462, Springer-Verlag, 2008.

[9] *Robust Smooth Edge Extraction from Point Clouds*, J. Daniels II, L. Ha, T. Ochotta, C. Silva, IEEE International Conference on Shape Modeling and Applications 2007 (SMI '07), 2007. (**Best paper finalist**, invited for publication at The Visual Computer.)

[10] *Interactive Transfer Function Specification for Direct Volume Rendering of Disparate Volumes*, F. Bernardon, L. Ha, S. Callahan, J. Comba, and C. Silva. SCI Institute Technical Report, No. UUSCI-2007-007, University of Utah, 2007.

[11] *From Mobile Robots to Industrial Automation*, Ha L. Vu, Hung D. Pham, L. K. Ha, V. Q. Tran, International Conference on Mechatronics Technology, ICMT 2004.

[12] *Computer Vision Implementation in Robot Control*, L. K. Ha, H L. Vu, V. Q. Tran, Vietnam Conference on Some Specific Issue of Information Technology, Aug 2004.

[13] *Implementation of ACELP in full rate speech channel at 7.2 kbps*, L. K Ha, T. Q. Nguyen, Vietnam Conference on Radio and Electronics, Nov 2002.

References

- Prof. Cláudio T Silva, *associate professor at Computer Science Department and faculty member of Scientific Computing and Imaging Institute, University of Utah*, email: csilva@sci.utah.edu
- Prof. Sarang Joshi,*associate professor at Bioengineering Department and faculty member of Scientific Computing and Imaging Institute, University of Utah*, email: sjoshi@sci.utah.edu
- Prof. Jens Krüger, *assistant professor, head of Interactive Visualization and Data Analysis group, Saarland University, Germany* , email: krueger@mmci.uni-saarland.de
- Dr. Dominique Gillard, *Research Associate at ExxonMobil Upstream Research Company*,email: dominique.g.gillard@exxonmobil.com