Linqiao Zhang

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Canadian citizen

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Education

Doctor of Philosophy, Aug. 2009
McGill University, Canada & INRIA Nancy, France
Thesis: On the 3D Visibility Skeleton: Implementation and Analysis
Supervisors: Prof. Sue Whitersides, Dr. Sylvain Lazard

Master of Computer Science, Aug. 2003
McGill University, Canada
Thesis: Rendering Falling Snow Using Fourier Transform
Supervisor: Prof. Michael Langer
• IT Scholarship, awarded by School of Computer Science, McGill University

Research Interests

• Computer Graphics and Visualization
• Modelling and Simulation
• Combinatorial and Computational Geometry

Publications

Journals

H. Everett, S. Lazard, B. Lenhart, L. Zhang. *On the Degree of Standard Geometric Predicates for Line Transversals in 3D.* In *Computational Geometry: Theory and Applications*, Vol.42, No.5 (2009) pp. 484-494

H. Everett, S. Lazard, S. Petitjean, L. Zhang. "On the expected size of the 2d visibility complex". In *International Journal of Computational Geometry and Applications*, Vol.17, No.4 (2007) pp. 361-381

Conference proceedings

S. Lazard, C. Weibel, S. Whitesides, L. Zhang. "On the Computation of the 3D Visibility Skeleton", to appear in the 16th Annual International Computing and Combinatorics Conference (COCOON 2010)

L. Zhang, H. Everett, S. Lazard, C. Weibel, S. Whitesides. "On the size of the 3D visibility skeleton: experimental results". In *Proceedings of the 16th Annual European Symposium on Algorithms (ESA 2008)* pp. 805-816

L. Zhang, H. Everett, S. Lazard, S. Whitesides. "Towards an Implementation of the 3D Visibility Skeleton". In *23rd Annual ACM Symposium on Computational Geometry (SoCG 2007)* pp. 131-132

H. Everett, S. Lazard, B. Lenhart, J. Redburn, L. Zhang. "Predicates for Line Transversals in 3D". In *18th Canadian Conference on Computational Geometry (2006)*, pp. 43-46

H. Everett, S. Lazard, S. Petitjean, L. Zhang. "An Experimental Assessment of the 2D Visibility Complex". In *17th Canadian Conference on Computational Geometry (2005)*, pp. 295-298

M. S. Langer, L. Zhang, A. W. Klein, A. Bhatia, J. Pereira, D. Rekhi. "A spectral-particle hybrid method for rendering falling snow". In *Eurographics Symposium on Rendering (2004)*, pp. 217-226

M. S. Langer and L. Zhang. "Rendering falling snow using an inverse Fourier transform". In *SIGGRAPH 2003*, Sketch & Applications (extended abstract - Full Conference DVD)

Software

visi-skeleton: *a C++ implementation of a sweep algorithm to compute the 3D visibility skeleton vertices*, available at: http://www.cs.mcgill.ca/~lzhang15/webpage/software/software.html

Talks

1. On the 3D Visibility Skeleton: Implementation and Analysis
   Invited talk at University of Victoria, Jan. 2009, Victoria, Canada

2. Towards an Implementation of the 3D Visibility Skeleton
   23rd Annual ACM Symposium on Computational Geometry June 2007, Gyeongju, South Korea

3. Predicates for Line Transversals in 3D
   Canadian Conference on Computational Geometry, August 2006, Kingston, Canada

4. An Experimental Assessment of the 2D Visibility Complex
   Canadian Conference on Computational Geometry, August 2005, Windsor, Canada

5. How to Make a Motion Parallax Stimulus Using an Inverse Fourier Transform
   European Conference on Visual Perception, Sep. 2003, Paris, France

6. Rendering Falling Snow Using an Inverse Fourier Transform
   SIGGRAPH 2003, Aug. 2003, San Diego, USA

Invited Research Workshops

- *January 2003, 2009 & 2010*: 2nd, 8th & 9th International INRIA-McGill Workshop on Problems in Computational Geometry, Bellairs Research Institute of McGill University, Barbados
- *May 2004*: 3rd International INRIA-McGill Workshop on Computational Geometry in Computer Graphics, CNRS, Oleron, France

Work Experience

McGill-Queen's University Press (MQUP) - Montreal, Canada
September 2009-March 2010

E-book marketing research intern working on researching e-book technology and its current market, assessing and recommending business model for MQUP.

McGill School of Computer Science - Montreal, Canada September 2006 to August 2009

Researcher and graduate student in McGill school of computer science, in the field of computational geometry and discrete mathematics. Specifically, I designed an algorithm to compute the 3D visibility skeleton more efficiently, using a discrete optimization approach; and investigated its applications in computing shadow boundaries and shortest paths.

INRIA (Institute National de Recherche en Informatique et en Automatique) - Nancy, France
October 2003 to July 2006

Researcher and graduate student in Vegas team, in the field of computational geometry. Specifically I designed an efficient and robust implementation of the 3D visibility skeleton data structure. This work involved software development and experimental analysis.

McGill School of Computer Science - Montreal, Canada
September 2001 to August 2003

Researcher and graduate student in McGill School of Computer Science in the field of computer graphics. Specifically, I designed and implemented an algorithm for rendering falling snow using the Fourier transform and produced videos to show computer rendered falling snow.

McGill School of Computer Science - Montreal, Canada
September 2001 to August 2003

Teaching assistant in courses of *Computer System and Organization* and *Introduction to Software System*. The responsibilities included preparing and delivering tutorials, preparing solutions for assignments and exams, and grading assignments.

Technical Skills

- Extensive programming experience in *C++ (CGAL, Boost libraries), Java, C, PHP, HTML*
- Proficient knowledge of technical packages *Maple, MATLAB, LaTeX*
- Strong theoretical and practical knowledge in the areas of computer graphics, geometric modeling, and computational geometry
- Thorough understanding of the fundamentals of robust geometric computation

Languages

English, Chinese: fluent

French: working knowledge