Attila Gyulassy

Institute for Data Analysis and Visualization
Department of Computer Science
One Shields Avenue, UC Davis
Davis, CA 95616

Phone: (914) 406-5731
Email: aggyulassy [AT] ucdavis.edu
http://graphics.idav.ucdavis.edu/~jediati

Educational Background

Graduate

Ph.D. *in progress (qualifying exam passed September 2007)* Computer Science, University of California, Davis. 2003-*present, Advisor*: Prof. Bernd Hamann

Undergraduate

B.A. Computer Science and Applied Mathematics, University of California, Berkeley. 1999-2003 GPA: 3.68

Research Interests

Scientific visualization, computer graphics, computational geometry, computational topology, meshing, geometric modeling, Morse theory, applications of topology-based analysis, and algorithms.

Work Experience

Graduate

Institute for Data Analysis and Visualization, University of California, Davis
Graduate Student Researcher in the graphics and visualization group with Prof. Bernd Hamann (Fall 2003-present.) Working on topological methods for visualization, in particular the identification and simplification of Morse-Smale complexes.

Center for Applied and Scientific Computing, Lawrence Livermore National Laboratory
Student Researcher with Dr. Valerio Pascucci (Summer 2004.) Worked on 3D Morse-Smale complexes - computation, visualization, and simplification.

Dept. of Computer Science, University of California, Davis, **Reader** for CS122A *Algorithms*, by Prof. Chip Martel

Undergraduate

Dept. of Computer Science, University of California, Berkeley, **Research Assistant** to Prof. James Demmel (Summer 2002 to Spring 2003.) Worked on optimizing AtA matrix multiply for large sparse matrices.

Dept. of Computer Science, University of California, Berkeley, **Research Assistant**: to Prof. Dan Garcia (Fall 2001-Spring 2003.) Worked on solving combinatorial games using the GAMESMAN engine.

Other Work Experience

UC Printing Services, Berkeley, CA **Intern**: Fall 1999 - Spring 2003 Tech support and in-house database designer.

Microdental Laboratories, Dublin, CA **Summer Intern**: Summer 1999 Computer tech support for microdental lab.

Publications – Refereed Papers

Graduate

- Attila Gyulassy, Peer-Timo Bermer, Valerio Pascucci, Bernd Hamann: **A Practical Approach to Morse Smale Complex Computation: Scalability and Generality**. Under Review for *IEEE Visualization 2008.*

- Attila Gyulassy, Mark A. Duchaineau, Vijay Natarajan, Valerio Pascucci, Eduardo Bringa, Andrew Higginbotham, Bernd Hamann: **Topologically Clean Distance Fields**. *IEEE Trans. Vis. Comput. Graph.* 13(6): 1432-1439 (2007)

- Attila Gyulassy, Vijay Natarajan, Valerio Pascucci, Bernd Hamann: **Efficient Computation of Morse-Smale Complexes for Three-dimensional Scalar Functions**. *IEEE Trans. Vis. Comput. Graph.* 13(6): 1440-1447 (2007)

- Attila Gyulassy, Vijay Natarajan, Valerio Pascucci, Peer-Timo Bremer, Bernd Hamann: **A Topological Approach to Simplification of Three-Dimensional Scalar Functions**. *IEEE Trans. Vis. Comput. Graph.* 12(4): 474-484 (2006)

- Attila Gyulassy, Vijay Natarajan, Valerio Pascucci, Peer-Timo Bremer, Bernd Hamann: **Topology-based Simplification for Feature Extraction from 3D Scalar Fields**. *IEEE Visualization* 2005: 68

- Attila G. Gyulassy, Lars Linsen, and Bernd Hamann: **Time- and Space-efficient Error Calculation for Multiresolution Direct Volume Rendering.** In: Torsten Möller, Bernd Hamann, and Robert D. Russell, editors; *Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration*, Springer-Verlag, Heidelberg, Germany, in press 2007.

Undergraduate

- Rich Vuduc, Attila Gyulassy, James Demmel, and Katherine A. Yelick: **Memory Hierarchy Optimizations and Performance Bounds for Sparse AtA Matrix Multiply** *International Conference on Computational Science* 2003: 705-514

Presentations

Talks

Topologically Clean Distance Fields, *IEEE Visualization 2007*

Efficient Computation of Morse-Smale Complexes for Three-dimensional Scalar Functions, *IEEE Visualization 2007*

Topology-based Simplification for Feature Extraction from 3D Scalar Fields, *IEEE Visualization 2007*

Hierarchical Morse-Smale Complex, 3D *Student Workshop on Computing*, UC Davis, October, 2004.

Topology-based Feature Extraction, *Research Symposium*, UC Davis, February 2008

Posters

Simplification of 3D Morse-Smale Complexes, *Summer Scholar Poster Session*, Lawrence Livermore National Laboratory, September 2005.

Topology-based Filtering for Feature Extraction, *Student Employee Graduate Research Poster Session*, Lawrence Livermore National Laboratory, September 2006.

Topology-based Analysis of Porous Media, *Student Employee Graduate Research Poster Session*, Lawrence Livermore National Laboratory, September 2007.

Service

Reviewer IEEE Visualization (2006-present).

Reviewer IEEE Transactions of Visualization and Computer Graphics (2006).

Presented in talk series: *How to be a Successful Graduate Student*, UC Davis, February 2008.

Awards

- GANN Fellowship, UC Davis (2003 - 2004)
- Lawrence Scholar Program, Lawrence Livermore National Lab (2005-end of studies)