

EDUCATION

September 2003–Present **Department of Computer Science, Tufts University
Medford, MA**

Ph.D. Student in Computer Graphics

- M.Sc in Computer Science. February 2005
- Ph.D in Computer Science. May 2008 (expected)

September 1998–October 1999 **University of Wisconsin, Madison
Madison, WI**

M.A. in Applied Mathematics

- Mathematics and Computation in Engineering program fellowship recipient

September 1994–May 1998 **Brown University
Providence, RI**

B.Sc. in Applied Mathematics

- Graduated with honors

RESEARCH AND WORK EXPERIENCE

May 2004–August 2004 **Mitsubishi Electric Research Laboratories
Cambridge, MA**

Research Intern (hosts Sarah Frisken and Ronald Perry)

- Researched methods for pruning objects from distance queries with application to the use of Adaptively Sampled Distance Fields for font rendering

March 2003–August 2003 **Mitsubishi Electric Research Laboratories
Cambridge, MA**

Research Intern (hosts Sarah Frisken and Ronald Perry)

- Constructed an application to generate three-dimensional Adaptively Sampled Distance Fields for modeling and carving using two-dimensional Adaptively Sampled Distance Fields lofted along B-Splines

January 2003–March 2003 **Mitsubishi Electric Research Laboratories
Cambridge, MA**

Research Intern (host Hanspeter Pfister)

- Researched EWA splatting and three-dimensional warping for two-dimensional height fields
- Investigated optimal reconstruction and filter kernels for image minification

September 2000–April 2002 **Intex Solutions
Needham, MA**

Software Developer

- Designed, implemented, and maintained robust interface to structured finance analysis subroutines
- Provided client support for building customized applications

January 2000-September 2000

SAIC
Sudbury, MA

Software Developer

- Participated in building and integrating Air Force segment of software for large warfare simulation to be utilized for battlestaff training
- Created drivers to integrate and test code

September 1997-May 1998

Brown University Division of Applied Mathematics
Providence, RI

Research Assistant

- Adapted ordinary differential equations (ODEs) modeling software to use discrete data sets generated by partial differential equations
- Simulated Gulf Stream mixing by examining the location of fixed points and their corresponding one and two-dimensional manifolds

June 1997-August 1997

Brown University Division of Applied Mathematics
Providence, RI

Research Assistant

- Constructed an interface for a series of programs to study lobe dynamics and fluid exchange of flows, using numerically generated data

HONORS AND AWARDS

- Best Poster Award. Richard Tapia Conference. Albuquerque, NM. Oct 2005
- Tufts University, School of Engineering's Graduate Education Award. May 2005
- Claire Booth Luce fellowship recipient. Tufts University. September 2003
- Mathematics and Computation in Engineering program fellowship recipient. University of Wisconsin, Madison. September 1998.

COMPUTER SKILLS

- Languages: C/C++, Fortran, Matlab, Java, Visual Basic
- API's: OpenGL
- Tools: CVS, DDD, Clear Case, GDB, Rational Rose, Microsoft Office, Visual Studio
- Platforms: Windows 95/98/2000/NT/XP, UNIX

ETC

- Extensive travel including Central America, Western & Eastern Europe, Turkey, Egypt, Thailand, Burma, Japan, Hong Kong.
- Basic French fluency

PERSONAL STATEMENT

I am second year M.S./Ph.D. student at Tufts University. I received a B.Sc. in Applied Mathematics in 1998 from Brown University and a M.A. in Mathematics in 1999 from the University of Wisconsin, Madison.

My research focuses on Computational Geometry and Computer Graphics. Under the guidance of scientists at Mitsubishi Electric Research Laboratories, I have been researching various topics related to Adaptively Sampled Distance Fields (ADFs).

For three-dimensional sculpting, I implemented a system using lofted two-dimensional ADFs. The two-dimensional ADFs allow users to define intricate shapes used to generate a three-dimensional ADF which can then be interactively sculpted in an intuitive manner.

Currently I am researching ways to prune objects in distance queries with application in the use of ADFs for font rendering. Using ADFs to render outline-based fonts provides many advantages over traditional font rendering methods. In order to make ADF-based font rendering faster, I investigated the use of bounding regions, Euclidean Distance Transforms and hierarchical spatial data structures with clustering algorithms to determine which would permit us to make the fewest exact distance computations.

As an undergraduate, I researched the mixing of fluids in the Gulf Stream with a three-dimensional simulation of Gulf Stream currents which generated models of the one and two-dimensional manifolds characterizing the fluid flow.