

Natasha Gelfand

Gates Computer Science Building
Room 377, Wing 3B
Stanford University
Stanford, CA 94305

Phone: 408-910-1604
ngelfand@graphics.stanford.edu
<http://graphics.stanford.edu/~ngelfand>

Academic background

- Sep 2006 – current** **Post-doctoral research associate**, Stanford University, Guibas Laboratory
- 1999 – 2006** **Ph.D. in Computer Science**, Stanford University
Dissertation: Feature Analysis and Registration of Scanned Surfaces
Advisors: Leonidas J. Guibas and Marc Levoy
- 1994 – 1998** **B.S. in Computer Science, Summa cum Laude**, Brown University
Thesis: Algorithmic Patterns for Orthogonal Graph Drawing
Advisor: Roberto Tamassia

Research Interests

Digital geometry processing, 3D shape similarity and retrieval, range image registration
3D scanning, object recognition, CAD

Projects and Publications

3D shape matching and registration

Q.-X. Huang, S. Flory, N. Gelfand, M. Hofer, and H. Pottmann, "Reassembling Fractured Objects by Geometric Matching," *ACM Transactions on Graphics* (Proc. SIGGRAPH 2006), Vol 25, No. 3, 2006

N. Gelfand, N. J. Mitra, L. J. Guibas, and H. Pottmann, "Robust Global Registration," *Proc. Symposium on Geometry Processing*, 2005

N. J. Mitra, N. Gelfand, H. Pottmann and L. J. Guibas, "Registration of Point Cloud Data from Geometric Optimization Perspective," *Proc. Symposium on Geometry Processing*, 2004

N. Gelfand, L. Ikemoto, S. Rusinkiewicz and M. Levoy, "Geometrically Stable Sampling for the ICP Algorithm," *Proc. Fourth International Conference on 3D Imaging and Modeling*, 2003

L. Ikemoto, N. Gelfand, and M. Levoy, "A Hierarchical Method for Aligning Warped Meshes," *Proc. Fourth International Conference on 3D Imaging and Modeling*, 2003

Reverse engineering of scanned surfaces

N. Gelfand and L. J. Guibas, "Shape Segmentation Using Local Slippage Analysis," *Proc. Symposium on Geometry Processing*, 2004

Computers in Archeology

D. Koller, J. Trimble, T. Najbjerg, N. Gelfand, and M. Levoy, "Fragments of the City: Stanford's Digital Forma Urbis Romae Project," *Journal of Roman Architecture* (Proc. Third Williams Symposium on Classical Architecture), Suppl 2005

Forma Urbis Romae online database: <http://formaurbis.stanford.edu>

Software Engineering

R. Tamassia, M. T. Goodrich, L. Vismara, M. Handy, G. Shubina, R. Cohen, R. S. Baker, N. Gelfand, and U. Brandes, "JDSL: The Data Structures Library in Java," *Dr. Dobbs Journal*, Vol 323, April 2001

N. Gelfand and R. Tamassia, "Design Patterns for Orthogonal Graph Drawing," *Proc. Graph Drawing*, 1998

N. Gelfand, R. Tamassia, and M. T. Goodrich, "Teaching Data Structure Design Patterns," *Proc. ACM Symp. On Computer Science Education (SIGSCE)*, 1998

Software skills

Proficient with: C++, Open Inventor, Qt toolkit, Tcl/Tk

Familiar with: Perl, Java, Matlab, PHP, MySQL

Industry Experience

1998 – 1999 **Oracle**, Redwood Shores, CA
Software engineer, Oracle Tools Division

Teaching Experience

2002 – 2003 Broad Area Colloquium for AI, Robotics, Graphics, Geometry and Computer Vision (Stanford CS528), Coordinator

1997, 2002 Introduction to Algorithms (Brown CS16, Brown CS157, Stanford CS161)

1996 Discrete Mathematics (Brown CS22)

1995, 1996 Introduction to Computer Science (Brown CS15, Brown CS04)

Awards and Scholarships

2005 – 2006 Max Plank Institute Fellowship

1998 CRA Outstanding Undergraduate Award, Honorable Mention

1997 Microsoft Scholarship

References

Prof. Leonidas Guibas, Stanford University

Prof. Marc Levoy, Stanford University

Prof. Helmut Pottmann, Technical University of Vienna