

Ying He

CONTACT INFORMATION	School of Computer Engineering Nanyang Technological University Singapore, 639798	Phone: 6514 1008 E-mail: yhe@ntu.edu.sg Homepage: http://www.ntu.edu.sg/home/yhe
RESEARCH INTERESTS	Computer Graphics, Geometric Modeling, Computer-Aided Design, Scientific Visualization	
EDUCATION	Stony Brook University , Stony Brook, New York, USA Ph.D., Computer Science, May 2006 <ul style="list-style-type: none">• Dissertation title: Manifold Splines• Advisors: Professor Hong Qin, Professor Xianfeng Gu M.S., Computer Science, May 2004 Tsinghua University , Beijing, P.R. China M.S., Electrical Engineering, Jun. 2000 B.S., Electrical Engineering, Jun. 1997	
PROFESSIONAL EXPERIENCE	Jun. 2006 - present, Nanyang Technological University, Singapore Assistant Professor in School of Computer Engineering Jun. 2003 - May 2006, Stony Brook University, Stony Brook, USA Research Assistant in Department of Computer Science Aug. 2001 - May 2003, Stony Brook University, Stony Brook, USA Teaching Assistant in Department of Computer Science	
GRANTS	Principal Investigator. "Geometry video: exploring highly detailed motion data in co-space", <i>NRF2008IDM-IDM-004-006</i> , SGD\$1,464,000, 12/2008 - 12/2011. Co-Principal Investigator. "Towards the next level and the next generation of multimedia forensics", <i>A*STAR</i> , SGD\$550,000, 05/2007 - 05/2010 (PI: Qibin Sun, other co-PI: Tian-Tsong Ng) Co-Principal Investigator. "The protein binding hot spots are water free?", <i>AcRF T208B2203</i> , SGD\$730,020, 12/2008 - 12/2011 (PI: Jinyan Li, other co-PI: Chu-Hong Hoi) Principal Investigator. "Computational conformal geometry applied to new paradigm of geometric modeling", <i>AcRF RG 69/07</i> , SGD\$172,000 and one Research Student Scholarship (RSS), 03/2008 - 03/2011 Principal Investigator. "Geometric structures and manifold splines", <i>NTU-SUG 19/06</i> , SGD\$16,000, 02/2007 - 02/2009	
HONORS AND AWARDS	Best Paper Award, ACM Symposium on Solid Modeling and Applications, June 2004 Guanghua Scholarship (first prize), Tsinghua University, 1999 National Mathematical Competition in Modeling (first prize in Beijing), China, 1996 Beijing Undergraduate Mathematics Competition (second prize), Beijing, 1994	

TEACHING

Lectures

- DM6101 Advanced Computer Graphics, Semester 1, 2006/2007/2008/2009
- CSC106 Discrete Mathematics, Semester 2, 2008/2009

Tutorials

- CPE207 Software Engineering, Semester 2, 2007
- CPE206 Discrete Math & Algorithms, Semester 1, 2007/2008/2009
- CSC106 Discrete Mathematics, Semester 2, 2008/2009
- CSC204 Computer Graphics, Semester 2, 2008

Labs

- CPE207 Software Engineering, Semester 2, 2007
- CSC204 Computer Graphics, Semester 2, 2008/2009

PUBLICATIONS

Papers or preprints are available at <http://www.ntu.edu.sg/home/yhe> or upon request.

Journal papers

1. Yu-Kun Lai, Miao Jin, Xuexiang Xie, **Ying He**, Jonathan Palacios, Eugene Zhang, Shi-Min Hu and Xianfeng Gu. “Metric driven RoSy field design and remeshing”, *IEEE Transactions on Visualization and Computer Graphics*, accepted, 2009.
2. **Ying He**, Hongyu Wang, Chi-Wing Fu, and Hong Qin. “A divide-and-conquer approach For automatic polycube map construction”, *Computer & Graphics (Special Issue of IEEE International Conference on Shape Modeling '09)*, Vol. 33, No. 3, pp. 369-380, 2009.
3. Hongyu Wang, **Ying He**, Xin Li, Xianfeng Gu, and Hong Qin. “Geometry-aware domain decomposition for T-spline-based manifold modeling”, *Computer & Graphics (Special Issue of IEEE International Conference on Shape Modeling '09)*, Vol. 33, No. 3, pp. 359-368, 2009.
4. **Ying He**, Xian Xiao, and Hock-Soon Seah. “Harmonic 1-form based skeleton extraction from examples”, *Graphical Models*, Vol. 71, No. 2, pp. 49-62, 2009.
5. Hongyu Wang, **Ying He**, Xin Li, Xianfeng Gu, and Hong Qin. “Polycube splines”, *Computer-Aided Design*, Vol. 40, No. 6, pp. 721-733, 2008.
6. Xianfeng Gu, **Ying He**, Miao Jin, Feng Luo, Hong Qin, and Shing-Tung Yau. “Manifold splines with single extraordinary point”, *Computer-Aided Design*, Vol. 40, No. 6, pp. 676-690, 2008.
7. Xin Li, Xiaohu Guo, Hongyu Wang, **Ying He**, Xianfeng Gu, and Hong Qin. “ Meshless harmonic volumetric mapping using fundamental solution methods ”, *IEEE Transactions on Automation Science and Engineering*, in press, 2008.
8. Xuexiang Xie, **Ying He**, Feng Tian, Hock-Soon Seah, Xianfeng Gu and Hong Qin. “An effective illustrative visualization framework based on photic extremum lines (PELs)”, *IEEE Transactions on Visualization and Computer Graphics (Special Issue of IEEE Visualization '07)*, Vol. 13, No. 6, pp. 1328-1335, 2007.
9. Junfei Dai, Wei Luo, Miao Jin, Wei Zeng, **Ying He**, Shing-Tung Yau, Xianfeng Gu. “Geometric accuracy analysis for discrete surface approximation”, *Computer-Aided Geometric Design*, Vol. 24, No. 6, pp.323-338, 2007.
10. Xianfeng Gu, **Ying He**, and Hong Qin. “Manifold splines”, *Graphical Models*, Vol. 68, No. 3, pp. 237-254, 2006.
11. **Ying He**, Xianfeng Gu, and Hong Qin. “Automatic shape control of triangular *B*-splines of arbitrary topology”, *Journal of Computer Science and Technology*, Vol. 21, No. 2, pp. 232-237, 2006.

12. Jing Hua, **Ying He**, and Hong Qin. "Trivariate simplex splines for inhomogeneous solid modeling in engineering design", *ASME Transactions: Journal of Computing and Information Science in Engineering*, Vol. 5, No. 2, pp. 279-288, 2005.
13. Youman Deng, **Ying He**, and Boming Zhang, "A branch-estimation-based state estimation method for radial distribution systems", *IEEE Transactions on Power Delivery*, Vol. 17, No. 4, pp. 1057-1062, 2002.

Referred conference papers

1. **Ying He**, Boon-Seng Chew, Dayong Wang, Chu-Hong Hoi, and Lap-Pui Chau. "Streaming polygonal meshes using spectral geometry image", *Proceedings of ACM Multimedia (MM '09)*, to appear, 2009.
2. Wei Zeng, **Ying He**, Jiazhi Xia, Xianfeng Gu, and Hong Qin. " C^∞ smooth freeform surfaces over hyperbolic domains", *Proceedings of SIAM/ACM Joint Conference on Geometric and Physical Modeling (SPM '09)*, to appear, 2009.
3. Long Zhang, **Ying He**, Xuexiang Xie, and Wei Chen. "Laplacian lines for real time shape illustration", *Proceedings of ACM Symposium on Interactive 3D Graphics and Games (I3D '09)*, pp. 129-136, 2009.
4. **Ying He**, Xian Xiao, and Hock-Soon Seah. "Example based skeletonization using harmonic one-forms", *Proceedings of IEEE International Conference on Shape Modeling (SMI '08)*, pp.53-61, 2008.
5. Xian Xiao, Hock-Soon Seah, Feng Tian, and **Ying He**. "Pose space deformation on progressive decimated example meshes", *Proceedings of Computer Graphics International Conference (CGI '08)*, pp. 188-195, 2008.
6. Hongyu Wang, Miao Jin, **Ying He**, Xianfeng Gu, and Hong Qin. "User-controllable polycube maps for manifold construction", *Proceedings of ACM Symposium on Solid and Physical Modeling (SPM '08)*, pp.397-404, 2008.
7. Hongyu Wang, **Ying He**, Xin Li, Xianfeng Gu, and Hong Qin. "Polycube splines", *ACM Symposium on Solid and Physical Modeling (SPM '07)*, pp. 241-251, 2007.
8. Xianfeng Gu, **Ying He**, Miao Jin, Feng Luo, Hong Qin, and Shing-Tung Yau. "Manifold splines with single extraordinary point", *ACM Symposium on Solid and Physical Modeling (SPM '07)*, pp. 61-72, 2007.
9. Xin Li, Xiaohu Guo, Hongyu Wang, **Ying He**, Xianfeng Gu, and Hong Qin. "Harmonic Volumetric Mapping for Solid Modeling Applications", *ACM Symposium on Solid and Physical Modeling (SPM '07)*, pp. 109-120, 2007.
10. **Ying He**, Kexiang Wang, Hongyu Wang, Xianfeng Gu and Hong Qin. "Manifold T-spline", in *Lecture Notes in Computer Science*, Volume 4077, pp. 409-422, July, 2006.
11. Kexiang Wang, **Ying He**, Xiaohu Guo, Xianfeng Gu, and Hong Qin. "Spline thin-shell simulation of manifold surfaces", in *Lecture Notes in Computer Science*, Volume 4035, pp. 570-577, June, 2006.
12. Xin Li, **Ying He**, Xianfeng Gu, and Hong Qin. "Curves-on-Surfaces: a general shape comparison framework", in *Proceedings of IEEE International Conference on Shape Modeling and Applications (SMI '06)*, pp. 352-357, June, 2006.
13. Kexiang Wang, **Ying He**, Hong Qin, Paul R. Fisher, and Wei Zhao, "Temporal registration of 2D x-ray mammogram using triangular B -splines finite element method (TBFEM)", in *Proceedings of SPIE on Medical Imaging 2006*, Volume 6144, pp. 1020-1027, February 2006.
14. **Ying He**, Xin Li, Xianfeng Gu, and Hong Qin. "Brain image analysis using spherical splines", in *Lecture Notes in Computer Science*, Volume 3757, pp. 633-644, November 2005.
15. **Ying He**, Xianfeng Gu, and Hong Qin. "A C^1 globally interpolatory spline of arbitrary topology", in *Lecture Notes in Computer Science*, Volume 3752, pp. 295-306, October 2005.

16. Kexiang Wang, **Ying He**, and Hong Qin. “Incorporating rigid structures in non-rigid registration using triangular B -splines”, in *Lecture Notes in Computer Science*, Volume 3752, pp. 235-246, October 2005.
17. **Ying He**, Xianfeng Gu, and Hong Qin. “Fairing triangular B -splines of arbitrary topolog”, in *Proceedings of Pacific Graphics (PG '05, short paper)*, pp. 153-156, October 2005.
18. Zhe Fan, Ye Zhao, Arie Kaufman, and **Ying He**. “Adapted unstructured LBM for flow simulation on curved surfaces”, in *Proceedings of ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA '05)*, pp. 245-254, July 2005.
19. Xianfeng Gu, **Ying He**, and Hong Qin. “Manifold splines”, in *Proceedings of ACM Symposium on Solid and Physical Modeling (SPM '05)*, pp. 27-38, June 2005.
20. **Ying He**, Xianfeng Gu, and Hong Qin. “Rational spherical splines for genus zero shape modeling”, in *Proceedings of IEEE International Conference on Shape Modeling and Applications (SMI '05)*, pp. 82-91, June 2005.
21. Jing Hua, **Ying He**, and Hong Qin. “Multiresolution heterogeneous solid modeling and visualization using trivariate simplex splines”, in *Proceedings of ACM Symposium on Solid Modeling and Applications (SM '04)*, pp. 47-58, June 2004. (**Best paper award**)
22. **Ying He**, and Hong Qin. “Surface reconstruction with triangular B -splines”, in *Proceedings of Geometric Modeling and Processing (GMP '04)*, pp. 279-287, April 2004.

PRESENTATIONS

- “Polycube map and its applications”, *State Key Lab of CAD&CG, Zhejiang University*, Hangzhou, China, Jul 2, 2009.
- “A divide-and-conquer approach for automatic polycube map construction”, *IEEE Shape Modeling and Applications (SMI '09)*, Beijing, China, Jun 27, 2009.
- “Laplacian lines for real-time shape illustration”, *ACM Symposium on Interactive 3D Graphics and Games (I3D '09)*, Boston, MA, Feb 28, 2009.
- “Example based skeletonization using harmonic one-forms”, *IEEE Shape Modeling and Applications (SMI '08)*, Stony Brook, NY, Jun 5, 2008.
- “An effective illustrative visualization framework based on photic extremum lines (PELs)”, *IEEE Visualization (VIS '07)*, Sacramento, CA, Oct 30, 2007.
- “Manifold splines with single extraordinary point”, *ACM Symposium on Solid and Physical Modeling (SPM '07)*, Beijing, China, June 3, 2007.
- “Geometric structures and their applications in computer graphics”, *Institute of Infocomm Research (I²R)*, Singapore, August 14, 2006.
- “Manifold splines: theoretical foundation and applications”, *Department of Computer Science, The University of Texas at Dallas*, Richardson, TX, April 6, 2006.
- “Manifold splines: theoretical foundation and applications”, *Department of Mathematical and Computer Sciences, Colorado School of Mines*, Golden, CO, March 31, 2006.
- “Manifold splines: theoretical foundation and applications”, *Department of Computer Science, Lehigh University*, Bethlehem, PA, February 27, 2006.
- “Manifold splines”, *SIAM Geometric Design and Computing (GD '05)*, Phoenix, AZ, October 30, 2005.
- “Automatic shape control and analysis of triangular B -splines of arbitrary topology”, *SIAM Geometric Design and Computing (GD '05)*, Phoenix, AZ, October 30, 2005.
- “Rational spherical splines for genus zero shape modeling”, *IEEE International Conference on Shape Modeling and Applications (SMI '05)*, Boston, MA, June 16, 2005.

UNIVERSITY
SERVICE

- Coordinator of Undergraduate Research Opportunities Program (UROP) 2009
- Coordinator of Undergraduate Research Experience on Campus (URECA) 2009

PROFESSIONAL
ACTIVITIES

Program committee member:

- IEEE International Conference on Shape Modeling and Applications (SMI) 2010
- IEEE International Conference on Shape Modeling and Applications (SMI) 2009
- IEEE International Conference on Shape Modeling and Applications (SMI) 2008
- Computer Animation and Social Agents (CASA) 2008
- CAD/Graphics 2007

Member of IEEE and ACM Siggraph.