Kai Xu

Personal Information

Position: Assistant Professor
Date of Birth: Oct. 26, 1982
Citizenship: P. R. China
Place of Birth: Hohhot, P. R. China

Contact Information

School of Computer Science
National University of Defense Technology
47 Yanwachi Street, Kaifu District
Changsha, Hunan 410073 P. R. CHINA

Cellphone: +86-186-7335-8686
Fax: +86-731-8457-5802
E-mail: kevin.kai.xu@gmail.com
WWW: www.kevinkaixu.net

Research Interests

Computer graphics, geometry processing and geometric modeling.

Education

National University of Defense Technology, Changsha, Hunan, China

Ph.D., School of Computer Science, June, 2011.

- Dissertation: "Semantics Driven 3D Shape Analysis and Modeling".
- Advisor: Yueshan Xiong.

Master, School of Computer Science, December, 2005.

- Master Thesis: "Research and Implementation of Virtual Arthroscopic Surgery System with Force Feedback".
- Advisor: Yueshan Xiong.

Bachelor, School of Computer Science, July, 2004.

Simon Fraser University, Vancouver, BC, Canada

Visiting Student, School of Computer Science, November, 2009 - October, 2010

- Advisor: Hao (Richard) Zhang.

Employment

National University of Defense Technology, Changsha, Hunan, CHINA

Assistant Professor, School of Computer Science **July, 2011 -**

Shenzhen Institutes of Advanced Technology, Shenzhen, Guangdong, CHINA

Postdoctoral Researcher, Visual Computing Center **September, 2011 -**

Professional Membership

ACM SIGGRAPH (2010-)

Honors and Grands

- Excellent Ph.D Dissertation Award, PLA of China, 2014.
- LU Zengyong High-tech Award on CAD&CG (2nd pleace), China, 2013
- Excellent Ph.D Dissertation Award, National University of Defense Technology (10/300+), 2011.
- Innovation Program for Excellent Graduate Students Grants, National University of Defense Technology ($< 5\%$), 2007.

Refereed Journal Publications

1. **K. Xu**, H. Huang, Y. Shi, H. Li, P. Long, J. Caichen, W. Sun and B. Chen, "Autoscanning for Coupled Scene Reconstruction and Proactive Object Analysis," *ACM Trans. on Graphics (SIGGRAPH Asia 2015)*, Vol. 34, No. 6, 2015.

2. I. Alhashim, **K. Xu**, Y. Zhuang, J. Cao, P. Simari and H. Zhang, "Deformation-Driven Topology-Varying 3D Shape Correspondence," *ACM Trans. on Graphics (SIGGRAPH Asia 2015)*, Vol. 34, No. 6, 2015.

3. **K. Xu**, R. Ma, H. Zhang, C. Zhu, A. Shamir, D. Cohen-Or and H. Huang, "Organizing Heterogeneous Scene Collections through Contextual Focal Points," *ACM Trans. on Graphics (SIGGRAPH 2014)*, Vol. 33, No. 4, 2014.

4. I. Alhashim, H. Li, **K. Xu**, J. Cao, R. Ma and H. Zhang, "Topology-Varying 3D Shape Creation via Structural Blending," *ACM Trans. on Graphics (SIGGRAPH 2014)*, Vol. 33, No. 4, 2014.

5. H. Zhang, **K. Xu**, W. Jiang, J. Lin, D. Cohen-Or, and B. Chen, "Layered Analysis of Irregular Facades via Symmetry Maximization," *ACM Trans. on Graphics (SIGGRAPH 2013)*, Vol. 32, No. 4, 2013. (**corresponding author**)

6. O. van Kaick, **K. Xu**, H. Zhang, Y. Wang, S. Sun, A. Shamir, and D. Cohen-Or, "Co-Hierarchical Analysis of Shape Structures," *ACM Trans. on Graphics (SIGGRAPH 2013)*, Vol. 32, No. 4, 2013.

7. **K. Xu**, H. Zhang, W. Jiang, R. Dyer, Z. Cheng, L. Liu and B. Chen, "Multi-Scale Partial Intrinsic Symmetry Detection," *ACM Trans. on Graphics (SIGGRAPH Asia 2012)*, Vol. 31, No. 6, 2012.

8. **K. Xu**, H. Zhang, D. Cohen-Or, and B. Chen, "Fit and Diverse: Set Evolution for Inspiring 3D Shape Galleries," *ACM Trans. on Graphics (SIGGRAPH 2012)*, Vol. 31, No. 4, 2012.

9. **K. Xu**, H. Zheng, H. Zhang, D. Cohen-Or, L. Liu, and Y. Xiong, "Photo-Inspired Model-Driven 3D Object Modeling," *ACM Trans. on Graphics (SIGGRAPH 2011)*, Vol. 30, No. 4, 2011.

10. **K. Xu**, H. Li, H. Zhang, D. Cohen-Or, Y. Xiong, and Z.-Q. Cheng, "Style-Content Separation by Anisotropic Part Scales," *ACM Trans. on Graphics (SIGGRAPH Asia 2010)*, Vol. 29, No. 5, 2010.

11. **K. Xu**, H. Zhang, A. Tagliasacchi, L. Liu, G. Li, M. Meng, and Y. Xiong, "Partial Intrinsic Reflectional Symmetry of 3D Shapes," *ACM Trans. on Graphics (SIGGRAPH Asia 2009)*, Vol. 28, No. 5, 2009.

12. **K. Xu**, D. Cohen-Or, T. Ju, L. Liu, H. Zhang, and S. Zhou, "Feature-Aligned Shape Texturing," *ACM Trans. on Graphics (SIGGRAPH Asia 2009)*, Vol. 28, No. 5, 2009.

13. Z. Xie, **K. Xu**, W. Shan, L. Liu, Y. Xiong and H. Huang, "Projective Feature Learning for 3D Shapes with Multi-View Depth Images," *Computer Graphics Forum (Pacific Graphics 2015)*, Vol. 34, No. 6, 2015. (**corresponding author**)

14. Q. Zheng, Z. Hao, H. Huang, **K. Xu**, H. Zhang, D. Cohen-Or and B. Chen, "Skeleton-Intrinsic Symmetrization of Shapes," *Computer Graphics Forum (Eurographics 2015)*, Vol. 34, No. 2, 2015.

15. Z. Xie, **K. Xu**, L. Liu and Y. Xiong, "3D Shape Segmentation and Labeling via Extreme Learning Machine," *Computer Graphics Forum (SGP 2014)*, Vol. 33, No. 5, 2014. (**corresponding author**)

16. J. Wang, **K. Xu**, L. Liu, J. Cao, S. Liu and X. Gu, "Consolidation of Low-quality Point Clouds from Outdoor Scenes," *Computer Graphics Forum (SGP 2013)*, Vol. 32, No. 5, 2013.

17. X. Guo, J. Lin, **K. Xu** and X. Jin, "Creature Grammar for Creative Modeling of 3D Monsters," *Graphical Models (GMP 2014)*, Vol. 76, No. 5, 2014.

18. Z. Xie, Y. Xiong and **K. Xu**, "AB3D: Action-Based 3D Descriptor for Shape Analysis," *The Visual Computer (CGI 2014)*, Vol. 30, No. 6-8, 2014. (**corresponding author**)

19. J. Li, W. Xu, Z. Cheng, **K. Xu** and R. Klein, "Lightweight Wrinkle Synthesis for 3D Facial Modeling and Animation," *Computer-Aided Design (SPM 2014)*, to appear, 2014.

20. Y. Chen, G. Dang, Z. Cheng and **K. Xu**, "Fast capture of personalized avatar using two Kinects," *Journal of Manufacturing Systems*, Vol. 33, No. 1, 2014.

21. X. Xie, **K. Xu**, N. Mitra, D. Cohen-Or and B. Chen, "Sketch-to-Design: Context-based Part Assembly," *Computer Graphics Forum*, Vol. 32, No. 8, 2013.

22. W. Jiang, **K. Xu**, Z. Cheng, and H. Zhang, "Skeleton-Based Intrinsic Symmetry Detection on Point Clouds," *Graphical Models*, Vol. 75, No. 4, 2013. (**corresponding author**)

23. W. Jiang, **K. Xu**, Z. Cheng, R. Martin, and G. Dang, "Curve Skeleton Extraction by Coupled Graph Contraction and Surface Clustering," *Graphical Models*, Vol. 75, No. 3, 2013. (**corresponding author**)

24. Y. Wang, Y. Xiong, **K. Xu**, and D. Liu, "vKASS: A Surgical Procedure Simulation System for Arthroscopic Anterior Cruciate Ligament Reconstruction", *Computer Animation and Virtual Worlds*, vol. 24, No. 1, 2013.

25. Y. Wang, **K. Xu**, J. Li, H. Zhang, A. Shamir, L. Liu, Z. Cheng and Y. Xiong, "Symmetry Hierarchy of Man-Made Objects", *Computer Graphics Forum (Eurographics 2011)*, Vol. 30, No. 2, 2011.

26. **K. Xu**, H. Zhang, D. Cohen-Or and Y. Xiong, "Dynamic Harmonic Fields for Surface Processing," *Computers and Graphics (SMI 2009)*, Vol. 33, No. 3, 2009.

27. **K. Xu**, Z. Cheng, Y. Z. Wang, Y. Xiong and H. Zhang, "Quality Encoding for Tetrahedral Mesh Optimization," *Computers and Graphics (SMI 2009)*, Vol. 33, No. 3, 2009.

28. Y. Wang, **K. Xu**, Y. Xiong and Z. Cheng, "2D Shape Deformation Based on As-Rigid-As-Possible Squares Matching", *Computer Animation and Virtual Worlds (CASA 2008)*, Vol. 19, No. 3-4, 2009.

Refereed Conference Publications

1. K. Lu, Y. Zhang, **K. Xu**, Y. Gao and R. Wilson, "Approximate Maximum Common Sub-graph Isomorphism Based on Discrete-Time Quantum Walk," in *Proc. of ICPR*, 2014.

2. W. Jiang, **K. Xu**, Z. Cheng, R. Martin and G. Dang, "Curve Skeleton Extraction by Coupled Graph Contraction and Surface Clustering," in *Computational Visual Media Conference*, 2012

3. **K. Xu**, Y. Xiong, Y. Wang, K. Tan, G. Guo, "A Simple and Stable Feature-Preserving Smoothing Method for Contours-Based Reconstructed Meshes," in *Proc. of ACM GRAPHITE*, 2006.

4. **K. Xu**, Y. Wang, Y. Xiong, Z.-Q. Cheng, "Interactive Shape Manipulation Based on Space Deformation with Harmonic-Guided Clustering," in *Proc. of International Conference on Computer Animation and Social Agent (CASA)*, short paper, 2008.

5. Z.-Q. Cheng, **K. Xu**, B. Li, Y. Wang, S.-Y. Jin, G. Dang, "A Mesh Meaningful Segmentation Algorithm Using Skeleton and Minima-Rule," in *Proc. of International Symposium on Visual Computing (ISVC)*, 2007.

6. Y. Wang, Y. Xiong, **K. Xu**, K. Tan, G. Guo, "A Mass-Spring Model for Surface Mesh Deformation Based on Shape Matching," in *Proc. of ACM GRAPHITE*, 2006.

7. Z.-Q. Cheng, B. Li, **K. Xu**, Y. Wang, G. Dang, S.-Y. Jin, "Error-Resilient Arithmetic Coding Algorithm for Compressed Meshes," in *Proc. of CyberWorld (CW)*, 2008.

8. Z.-Q. Cheng, Y. Wang, B. Li, **K. Xu**, G. Dang, S.-Y. Jin, "A Survey of Methods for Moving Least Squares Surfaces," in *IEEE/Eurographics Symposium on Point Based Graphics (PBG)*, 2008.

9. Z.-Q. Cheng, W. Jiang, G. Dang, R. Martin, J. Li, H. Li, Y. Chen, Y. Wang, B. Li, **K. Xu**, S. Jin, "Non-rigid Registration in 3D Implicit Vector Space," in *Proc. of IEEE Int. Conf. on Shape Modeling and Applications (SMI)*, 2010.

Courses, Tutorials, and Invited Talks

- SIGGRAPH Asia Course, "Data-Driven Visual Computing", Organizer, with Leonidas Guibas, Alexei Efros, Shi-Min Hu, Ariel Shamir, Siddhartha Chaudhuri and Jun-Yan Zhu, SIGGRAPH Asia 2014, Shenzhen, China, Dec 4, 2014.
- Invited talk, "Robot-Operated Indoor Scene Reconstruction with Proactive Object Analysis", Shandong University Summer School 2015, Shandong University, Qingdao, China, July 23, 2015.
- Invited talk, "Intelligent 3D Sensing and Modeling", USTC Summer School 2015 on "Advances in Computer Graphics", University of Science and Technology of China, Hefei, China, July 29, 2015.
- Invited talk, "2D-3D Fusion for Data-Driven Visual Computing", International Forum on 2D-3D Fusion and HCI, CCF YOCSEL Hangzhou & Hangzhou Normal University, Hangzhou, China, July 5-6, 2014.
- Course, "Symmetry Analysis: Towards High-level Geometry Processing", Summer Seminar 2013 on Computer Graphics, State Key Lab of CAD&CG, Zhejiang University, Hangzhou, China, June 15, 2013.
- Invited talk, "Multi-scale Symmetry and Application, School of Computer", School of Computer, Shandong University, Jinan, China, Sep. 30, 2013.
- Invited talk, "Symmetry Detection: Approach and Applications", School of Computer, South China University of Technology, Guangzhou, China, June 13, 2013.
- Invited talk, "Symmetry Detection: Approach and Applications", School of Information Science and Technology, Sun Yat-Sen University, Guangzhou, China, April 17, 2013.
- Invited talk, "Symmetry Detection: Approach and Applications", CCF YOCSEF Changsha Seminar 2013 on Visual Computing, Central South University, Changsha, China, March 28, 2013.
- Invited talk, "Multiscale Partial Intrinsic Symmetry Detection", Changchun Workshop on Computer Graphics 2012, Mathematics School, Jilin University, Changchun, China, September 21, 2012.
- Invited talk, "Multiscale Partial Intrinsic Symmetry Detection", Workshop on City Modeling and Visualization 2012, Visual Computing Research Center, SIAT, Shenzhen, China, September 11, 2012.
- Course, "Symmetries in 3D Shapes: Analysis and Applications", USTC Summer School 2012 on "Advances in Computer Graphics", University of Science and Technology of China, Hefei, China, July 3, 2012.
- Course, "Data-Driven 3D Shape Modeling", USTC Summer School 2012 on "Advances in Computer Graphics", University of Science and Technology of China, Hefei, China, July 4, 2012.

Professional Services

Journal Editorial Board

- Computers and Graphics (Elsevier), Associate Editor (2014–present).

International Program Committee

- SIGGRAPH Asia Technical Briefs & Posters 2013–2015.
- Eurographics Short Papers 2013–2015.
- Eurographics Symposium on Geometry Processing (SGP) 2013–2015.
- Pacific Graphics 2013–2015.
- Geometric Modeling and Processing (GMP) 2014.
- IEEE CAD/Graphics 2013, 2015.
- Chinagraph 2014.

Paper Review for International Conferences

- SIGGRAPH 2011–2015;
- SIGGRAPH Asia 2009, 2011–2015.
- Eurographics 2010–2015;

Paper Reviewer of International Journals

- ACM Transactions on Graphics (TOG) (ACM);
- IEEE Transactions on Visualization and Computer Graphics (TVCG) (IEEE);
- Computer Graphics Forum (Eurographics Association and Wiley-Blackwell);
- Graphical Models (Elsevier);
- The Visual Computer (Springer);
- Computers and Graphics (Elsevier);
- Journal of Graphics Tools (A. K. Peters);
- Journal of Visualization (Springer);
- Neurocomputing (Elsevier).