

Dr. Wei Chen

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Dr. Wei Chen is an associate professor in State Key Lab of CAD&CG at Zhejiang University, P.R.China. From June 2000 to June 2002, he was a joint Ph.D student in Fraunhofer Institute for Graphics, Darmstadt, Germany and received his Ph.D degree in July 2002. From July. 2006 to September 2008, Dr. Wei Chen was a visiting scholar at Purdue University, working in PURPL with Professor David S. Ebert. He has performed research in computer graphics and visualization and published more than 60 peer-reviewed journal and conference papers in the last five years. His current research interests include scientific visualization, visual analytics and bio-medical image computing.

Education

06/2000-06/2002 **Joint Ph.D Education Student**

Advisors: Professor Qunsheng Peng and Professor Georgios Sakas

Fraunhofer-Institute for Computer Graphics, Darmstadt, Germany

State Key Lab of CAD&CG, Zhejiang University, P.R.China

09/1996-05/2000 **Ph.D Student**

Advisor: Professor Qunsheng Peng

State Key Lab of CAD&CG, Zhejiang University, P.R.China

09/1992-07/1996 **Undergraduate Student**

Department of Applied Mathematics, Zhejiang University, P.R.China

Work Experience

07/2006-09/2008

Visiting Professor

Purdue University, USA

12/2004-present

Associate Professor

State Key Lab of CAD&CG, Zhejiang University, P.R.China

09/2002-12/2004

Assistant Professor

State Key Lab of CAD&CG, Zhejiang University, P.R.China

Awards

- Excellent Paper Awards of Chinagraph 2008. Xi'an, September, 2008
- Excellent Supervisor of Challenging Cup, Zhejiang Province, 2007.
- Excellent Advisor for Undergraduate Students, Zhejiang University, 2006.
- The Second Prize of Lu Zengyong CAD&CG High-Tech Awards, 2005.
- Excellent Teacher Award of Zhejiang University, 2004
- Excellent Paper Awards of Chinagraph 2004. Xi'an, September, 2004
- Das Stipendium des Bundesministerium fuer Bildung und Forschung (The fellowship of the Federal Ministry for Education and Research, Germany), June, 2000 – June, 2002

Professional Activity

- PC Member, IEEE Visualization 2009
- PC Member, IEEE Pacific Visualization 2009,2010
- PC Member, The Visual Information Communications, International (VINCI) 2009
- PC Member, CGIM 2010
- PC Member, DEA 2009
- PC Member, CGIM 2008
- PC Member, Asia Pacific Symposium on Visualization 2007
- PC Member, Computer Graphics International 2006
- PC Member, CCVRV 2006
- PC Member, Pacific Graphics 2005
- Reviewers for ACM SIGGRAPH, IEEE Transactions on Image Processing, Computer Graphics Forum, IEEE Visualization, Eurographics, Pacific Graphics, Pacific Vis, The Visual Computer, NPAR, C&G, CGI, Chinagraph, JCAD, JOS

Books

Weidong Geng, **Wei Chen**. *Video Game Programming*. Publishing House of Electronics Industry. (In Chinese). March, 2005. ISBN 7-121-00982-X (380 pages)

Recent Selected Papers (since 2004)

1. **Wei Chen**, Zi'ang Ding, Song Zhang, Anna MacKay-Brandt, Stephen Correia, Huamin Qu, John Allen Crow, David F. Tate, Zhicheng Yan, Qunsheng Peng. A Novel Interface for Interactive Exploration of DTI Fibers. In *IEEE Transactions on Visualization and Computer Graphics (Proceedings Visualization / Information Visualization 2009)*, Vol. 15(6), Nov.-Dec. 2009.
2. **Wei Chen**, Zhicheng Yan, Song Zhang, John Allen Crow, David S. Ebert, R. McLaughlin, K. Mullins, R. Cooper, Zi'ang Ding, Jun Liao. Volume Illustration of Muscle from Diffusion Tensor Images. In *IEEE Transactions on Visualization and Computer Graphics. (Proceedings Visualization / Information Visualization 2009)*, Vol. 15(6), Nov.-Dec. 2009.
3. Ross Maciejewski, Insoo Wu, **Wei Chen**, David S. Ebert. Structuring Feature Space: A

- Non-Parametric Method for Volumetric Transfer Function Generation. In *IEEE Transactions on Visualization and Computer Graphics*. (Proceedings Visualization / Information Visualization 2009), Vol. 15(6), Nov.-Dec. 2009.
4. Ming-Yuen Chan, Yingcai Wu, Wai-Ho Mak, **Wei Chen**, Huamin Qu. Perception-Based Transparency Optimization for Direct Volume Rendering. In *IEEE Transactions on Visualization and Computer Graphics* (Proceedings Visualization / Information Visualization 2009), Vol. 15(6), Nov.-Dec. 2009.
 5. Zhicheng Yan, **Wei Chen**, Aidong Lu, David S. Ebert. Context-Aware Volume Modeling of Skeletal Muscles. *Journal of Computer Graphics Forum (Proceedings of EuroVis 2009)*, May. 2009.
 6. Yuyan Song, **Wei Chen**, Ross Maciejewski, Kelly Gaither, David S. Ebert. Bivariate Transfer Functions on Unstructured Grids. *Journal of Computer Graphics Forum (Proceedings of EuroVis 2009)*, May. 2009.
 7. **Wei Chen**, Xiao Liang, Ross Maciejewski, David S. Ebert. Shape Context Preserving Deformation of 2D Anatomical Illustrations. *Journal of Computer Graphics Forum*, October, 2008.
 8. **Wei Chen**, Song Zhang, Stephan Correia, David S. Ebert. Abstractive Representation and Exploration of Hierarchically Clustered Diffusion Tensor Fiber Tracts. *Journal of Computer Graphics Forum*, May 2008.
 9. **Wei Chen**, Aidong Lu, David S. Ebert. Shape-aware Volume Illustration. *Journal of Computer Graphics Forum (Proceedings of Eurographics 2007)*, 26(3), September 2007, 705-714
 10. Yun Zeng, Dimitris Samaras, **Wei Chen**, Qunsheng Peng. Topology Cuts: A Novel Min-Cut/Max-Flow Algorithm for Topology Preserving Segmentation in N-D Images. *Journal of Computer Vision and Image Understanding*, 2008, 12(1), 81--90.
 11. Yi Gong, **Wei Chen**, Long Zhang, Yun Zeng, Qunsheng Peng. GPU-based rendering for deformable translucent objects. *The Visual Computer*. 24(2), 95-103, Feb.2008.
 12. Bill Andrews, Stefan Bruckner, **Wei Chen**, Carlos D. Correa, David S. Ebert, Mario Costa Sousa, Ivan Viola. Interactive Tools for Scientific and Medical Illustration Composition. In *Eurographics Tutorials*, 2008, Greece.
 13. Chunxiao Liu, Yingzhen Yang, Qunsheng Peng, Jin Wang, **Wei Chen**. Distortion Optimization based Image Completion from a Large Displacement View. *Journal Computer Graphics Forum (Proceedings of Pacific Graphics 2008)*, Vol 27 (7), 1055--1064.
 14. Ross Maciejewski, Tobias Isenberg, William Andrews, David Ebert, Mario Costa-Sousa, **Wei Chen**. Measuring Stipple Aesthetics in Hand-Drawn and Computer-Generated Images. *IEEE Computer Graphics and Applications*, 28(2), March/April, Vol28(2), 62-74.
 15. Hongwei Lin, **Wei Chen**, Hujun Bao. Adaptive Patch-based Mesh Fitting for Reverse Engineering. *Computer-Aided Design*. 39(12), 2007, 1134-1142.
 16. Yu Guan, **Wei Chen**, Xiao Liang, Zi'ang Ding, Qunsheng Peng. Easy matting: A Stroke Based Approach for Continuous Image Matting. In *Computer Graphics Forum (Proceedings of Eurographics 2006)*, 25(3):567-576.
 17. Long Zhang, **Wei Chen**, David S. Ebert, Qunsheng Peng. Conservative Voxelization. In *The Visual Computer (Special Issue of Proceedings of Computer Graphics International 2007)*, 23(9), 783-792.

18. Long Zhang, Yubo Zhang, Zhongding Jiang, Luyin Li, **Wei Chen**, Qunsheng Peng. Precomputing Data-driven Tree Animation. *Journal of Computer Animation and Virtual Worlds*, 18(4-5), 371-382
19. Yu Guan, **Wei Chen**, Lincan Zou, Long Zhang, Qunsheng Peng. Modelling and Rendering of Realistic Waterfall Scenes with Dynamic Texture Sprites. *Journal of Computer Animation and Virtual Worlds*, 2006, 17(5): 573 - 583.
20. Guofeng Zhang, Xueying Qin, Xiaobo An, **Wei Chen**, Hujun Bao. As-Consistent-As-Possible Compositing of Virtual Objects And Video Sequences. In *Journal of Computer Animation and Virtual Worlds*, 2006, 17(3-4):305-314
21. Dong Xu, **Wei Chen**, Hongxin Zhang and Hujun Bao. Multi-level Differential Surface Representation Based on Local Transformations. In *The Visual Computer*, 2006, 22(1-2):493-505.
22. Hongwei Lin, **Wei Chen** and Guojin Wang. Curve Reconstruction Based on Interval B-spline Curve. In *The Visual Computer*, Volume 21, Number 6, July 2005. pp.418 - 427.
23. Xiang Zeng , **Wei Chen**, Qunsheng Peng. A Novel Unified Variational Image Editing Model. In *Journal of Computer Science and Technology (JCST)*, 2006.
24. Yueqi Hu, Shuangyuan Wu, Shihong Xia, Jinghua Fu, **Wei Chen**. Motion Track: Visualizaing Motion Variation of Human Motion Data. In Proceedings of IEEE Pacific Visualization Symposium, March 2010, Taipei.
25. Yunhai Wang, **Wei Chen**, Guihua Shang, Xuebin Chi. Volume Exploration using Elliptical Gaussian Functions. In Proceedings of IEEE Pacific Visualization Symposium, March 2010, Taipei.
26. SungYe Kim, Ross Maciejewski, Tobias Isenberg, William M. Andrews, **Wei Chen**, Mario Costa Sousa, David S. Ebert, Stippling by Example. In *Proceedings of the 7th international symposium on Non-photorealistic animation and rendering (NPAR)*, 2009.
27. **Wei Chen**, Song Zhang, Steve Correia, David F. Tate. Visualizing Diffusion Tensor Imaging Data with merging ellipsoids. To appear *Proceedings of IEEE Pacific Visualization Symposium 2009*.
28. Long Zhang, Ying He, Xuexiang Xie, **Wei Chen**. Laplacian Line for Real-time Shape Depiction. *ACM Interactive 3D Graphics and Games (I3D)*, March, 2009. , pp.129-136
29. **Wei Chen**, Liu Ren, Matthias Zwicker and Hanspeter Pfister. Hardware-Accelerated Adaptive EWA Volume Splatting. In *Proceedings of IEEE Visualization 2004*, October.2004, Austin, USA. pp.67-74.
30. Zhao Dong, **Wei Chen**, Hujun Bao, Hongxin Zhang and Qunsheng Peng. Real-time Voxelization for Complex Polygonal Models. In *Proceedings of Pacific Graphics 2004*, October 2004, Seoul, Korea. pp.73-78.
31. Xiang Zeng, **Wei Chen**, Qunsheng Peng. A Novel Unified Variational Image Editing Model. In *Proceedings of Pacific Graphics 2005*. (Short paper)
32. Guanghua Tan, **Wei Chen**, Ligang Liu. Image Driven Shape Deformation with Styles. *Proceedings of Pacific Graphics 2008*.
33. Yi Gong, Yubo Zhang, **Wei Chen**, Qunsheng Peng. Dynamic Anisotropic Occlusion. In *Proceedings of Eurographics 2006* (Short Presentation).

34. Yi Gong, **Wei Chen**, Long Zhang, Yun Zeng, Qunsheng Peng. An Approximate Image-Space Approach for Real-Time Rendering of Deformable Translucent Objects. In *Proc. of Computer Graphics International (CGI) 2006, Hangzhou, China*.
35. Min Hu, **Wei Chen**, Tao Zhang, Qunsheng Peng. Direct Volume Rendering of Volumetric Data of Proteins. *Proc. of Computer Graphics International 2006, Hangzhou, China*.
36. Long Zhang, Songfang Song, Qifeng Tan, **Wei Chen**, Qunsheng Peng. Quasi-physical Simulation of Large-scale Dynamic Forest Scenes. In *Proc. of Computer Graphics International 2006, Hangzhou, China*.
37. Dong Xu, **Wei Chen**, Hujun Bao. Layer-based Surface Editing. In *Third Eurographics Symposium on Geometry Processing (SGP)*, 2005. (Poster)
38. Ling Zhuang, Huafeng Liu, **Wei Chen**, Hujun Bao, Pengcheng Shi. Simultaneous Segmentation and Motion Recovery in 3D Cardiac Image Analysis. In *ICCV 2005 Workshop: Computer Vision for Biomedical Image Applications*, pp.499-507, Beijing, 2005.
39. **Wei Chen**, Huagen Wan, Hongxin Zhang, Hujun Bao and Qunsheng Peng. Interactive Collision Detection for Complex and Deformable Models Using Programmable Graphics Hardware. In *Proceedings of the ACM symposium on Virtual Reality Software and Technology* 2004, Hongkong, October 2004. Pp.10-15.

Talks

1. Video game and its education in China, Zhejiang University of Science and Technology, Hangzhou, May.20, 2009 (Invited talk)
2. Visualization challenges for China, Key speaker in the visualization panel (with Baoquan Chen, Huamin Qu, Xiaoru Yuan, and Guihua Shan) National Workshop on CAD/CG/VR, Hangzhou, May.16, 2009
3. Visualization Research Summary, Zhejiang University of Technology, Hangzhou, Dec.24, 2008
4. Visualization challenges for China, Academic Committee Meeting, State Key Lab of CAD&CG, Zhejiang University, Nov, 2008
5. Visual analytics of metabolomics datasets for early cancer detection, Changsha, Chinagraph 2008. (Special Visualization Session)
6. Example based illustrative visualization, HKUST, Sep.2008
7. Visual analytics in cancer detection, PURVAC summer education course, Purdue university, July. 2008
8. Recent research summary, Mississippi State University, May.2008
9. Visual analytics of GCxGC-TOF MS datasets, CCE retreat, Dayton, Indiana, USA, June. 2008
10. Example based illustrative modeling and rendering, Crete, Greece, April. 2008 (Eurographics 2008 Tutorial)

11. GPGPU and its application, Xi'an, Chinagraph 2004, Sep. 2004 (Panelist of Special Session on GPGPU)
12. Virtual reality and its application, Wenzhou, China, October. 2002 (Invited talk)

Patents & Software

1. Hanspeter Pfister, Matthias Zwicker, **Wei Chen**, Liu Ren. Sample Rate Adaptive Filtering for Volume Rendering, U.S. Patent 7298372, Nov.2007. (Filed)
2. **Wei Chen** (With Yu Guan, Jiazhi Xia, et al). "A Stroke-based Image Matting Algorithm". China Software Register 2007SR13587, Nov.2007. (Filed)
3. **Wei Chen** (With Yu Guan, Jiazhi Xia, et al). "A Stroke-based Image Matting System". China Patent ZL200710069970.7, Nov.2007. (Filed)

Funding Projects

1. Principal Investigator. "Computer Aided Illustrative Visualization". Supported by Natural Science Foundations of China No. 60873123 (2009.01-2010.12) .
2. Principal Investigator. "Visual Analysis of Mass Spectrum Datasets". Supported by Natural Science Foundations of Zhejiang Province (2009.01-2011.12) .
3. Principal Investigator. "Feature Extraction and Dynamic Visualization of Meshless Volumetric Data Sets". Supported by Natural Science Foundations China, under Grant No. 60503056 (01/06-12/08)
4. Major participant. "Molecular Field Representation and Modeling", supported by Key Project of Natural Science Foundations China, under Grant No.60533050 (01/06 – 12/09).
5. Principal Investigator. "Key Techniques of Special Effects in 3D Outdoor Video Games". Supported by Natural Science Foundations of Zhejiang Province under Grant No. Y105269 (2006.01-2007.12)
6. Major Participant. "Comprehensive Representation and Efficient Modeling of Virtual Environments", supported by the Projects of Development Plan of State Key Fundamental Research (973 Project) under Grant No. 2002CB312101 (1/02 – 12/06)
7. Major Participant. "Study on Motion Estimation of Medical Images and their Three Dimension Segmentation and Visualization", supported by the Projects of Development Plan of the State Key Fundamental Research (973 Project) under Grant No.2003CB716104 (1/03 - 12/07)
8. Principal Investigator. "Study on Image Based Modeling and Seamless Integration of Image, Video and Graphics Techniques", supported by National 863 High Technology Plan Foundation of China (09/04–09/05) under Grant No. 2003AA135100
9. Principal Investigator. "Computer Aided Urinary Cancer Treatment", supported by the Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry (1/04 - 12/05)

10. Principal Investigator. “Key Study on Computer Aided Cancer Treatment”, supported by the Scientific Research Foundation for the Returned Overseas Chinese Scholars, Zhejiang Province (1/04 - 12/05)
11. Principal Investigator. “Multi-modality Volume Visualization”, supported by the Scientific Research Foundation for young scholars, Zhejiang Province (1/04- 12/05)

Courses Taught

1. Introduction to PDE in Computer Science. Graduate course, 2005,2006,2007
2. Computer Game Programming. Undergraduate course, 2004, 2005, 2006, 2009