

## Dr. Wei Chen

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Dr. Wei Chen is a 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. In December 2009, Dr.Wei Chen was promoted as a full professor of Zhejiang University. 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.

## 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

- Best Poster Award, IEEE Pacific Visualization 2011
- Honorable Mention for Best Paper Award at IEEE Visualization 2009
- The third level of the outstanding scholars of Zhejiang Province, 2009
- 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

- Editorship, Journal of Computer Aided Design and Computer Graphics(2010-)
- Program Committee Member, IEEE Visualization 2009-2011
- Program Committee Member, Eurographics 2010-2011, Education Program
- Program Committee Member, IEEE Pacific Visualization 2009-2011
- Program Committee Member, Asia Pacific Symposium on Visualization 2007
- Program Committee Member, Pacific Graphics 2005
- Program Committee Member, Computer Graphics International 2006
- General Chair, The Visual Information Communications, International (VINCI) 2012
- Program Chair, The Visual Information Communications, International (VINCI) 2010
- Program Committee Member, The Visual Information Communications, International (VINCI) 2009
- Program Committee Member, IVAPP 2010
- Program Committee Member, CGIM 2008, 2010
- Program Committee Member, Chinagraph 2010
- Program Committee Member, National Conference of CADCG 2010
- Program Committee Member, EGVR 2010
- Program Committee Member, DEA 2009-2011
- Program Committee Member, CCVRV 2006Reviewers for ACM SIGGRAPH, IEEE Transactions on Image Processing, Computer Graphics Forum, IEEE Visualization, Eurographics,Pacific Graphics, Pacific Vis,The Visual Computer, C&G,NPAR, CGI, MICCAI, Chinagraph, JCST, JCAD, JOS

## Books & Book Chapters

- Weidong Geng, **Wei Chen**. *Video Game Programming*. Publishing House of Electronics Industry. (In Chinese). March, 2005. ISBN 7-121-00982-X (380 pages)
- Weidong Geng, **Wei Chen**. *Computer Game Programming*. Publishing House of Electronics Industry + Kings Information. (In Traditional Chinese). September .2009 . ISBN

978-986-6382-38-3

- Xiaoyong Yang, Ziang Ding, Wei Chen, Song Zhang. Visualizing DTI fibers as 2D/3D points. In Visualization and Image Processing of Tensor Fields: Advances and Perspectives. Springer. 2010.
- Aidong Lu, Wei Chen, William Ribarsky, David S.Ebert. Year-Long Time-Varying 3D Air Quality Data Visualization. Advances in Information and Intelligent Systems, ISSN 1860-949X (Print) 1860-9503 (Online), Volume 251, Springer. 2009 page 286-306

## Recent Selected Papers (since 2004)

### International Journal Papers

1. Weifeng Chen, Wei Chen, Hujun Bao. An Efficient Direct Volume Rendering Algorithm for Dichromats. In IEEE Transactions on Visualization and Computer Graphics (Proceedings Visualization / Information Visualization 2011), Vol. 17(6), Nov.-Dec. 2011.
2. Yunhai Wang, Wei Chen, Jian Zhang, Tingxing Dong, Guihua Shan, Xuebin Chi. Efficient Volume Exploration with Gaussian Mixture Model. IEEE Transactions on Visualization and Computer Graphics , 2011.
3. Yunhai Wang, Jian Zhang, Wei Chen, Huai Zhang, Xuebin Chi. Efficient opacity specification based on feature visibilities in direct volume rendering. In Journal of Computer Graphics Forum (Special issue of Proceedings of Pacific Graphics), 2011
4. Xin Zhang, Wei Chen, Zhonglei Yang, Chuan Zhu and Qunsheng Peng. A New Foveation Ray Casting Approach for Real-time Rendering of 3D Scenes. Recommended to The Visual Computer (Special issue of Proceedings of CAD&CG), 2011
5. Bin Pan, Wei Chen, Qunsheng Peng. Interactive Expressive Illustration of 3D City Scenes. Recommended to The Visual Computer (Special issue of Proceedings of CAD&CG), 2011
6. Xiao-hong MAO, Jing-hua FU, Wei CHEN, Qian YOU, Shiao-fen FANG, Qun sheng PENG. Structural visualization of sequential DNA data. In Journal of Zhejiang Univ-Sci C (Comput & Electron) ,12(4):263-272, 2011
7. Xin Zhang, Zi'ang Ding, Chuan Zhu, Wei Chen, and Qunsheng Peng. View-Dependent Line Drawings for 3D Scenes. LNCS Transactions on Edutainment ISSN: 1867-7207, 2011.
8. Long Zhang, Ying He, Jiazhi Xia, Xuexiang Xie, Wei Chen. Real-Time Shape Illustration Using Laplacian Lines. IEEE Transactions on Visualization and Computer Graphics , 2010.
9. Song Zhang, J. Allen Crow, Xiaoyong Yang, Joseph Chen, Ali Borazjani, Katie B Mullins, Wei Chen, Robert C Cooper, Ronald M McLaughlin, Jun Liao. The Correlation of 3D DT-MRI Fiber Disruption with Structural and Mechanical Degeneration in Porcine Myocardium. In Annals of Biomedical Engineering, 2010.
10. Li Yu, Aidong Lu, William Ribarsky, Wei Chen. Digital Storytelling: Automatic Animation for Time-Varying Data Visualization. In Journal of Computer Graphics Forum (Special Issue of Pacific Graphics 2010).
11. Xin Zhang, Wei Chen, Jing Fang, Rui Wang and Qunsheng Peng. Perceptually-motivated Shape Exaggeration. To appear The Visual Computer (Special issues on CGI 2010).
12. Xin Zhang, Zhangye Wang, Ran Wang, Zhonglei Yang, Wei Chen and Qunsheng Peng. Real-time Foveation Filtering Using Nonlinear Mipmap Interpolation. To appear The Visual Computer (Special issues on CGI 2010).

13. Guanghai Tan, Wei Chen, Ligang Liu. Image Driven Shape Deformation using Styles. *Journal of Zhejiang University (SCIENCE C)*, 11(1): 27-35, 2010.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. 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.
20. Wei Chen, Xiao Liang, Ross Maciejewski, David S. Ebert. Shape Context Preserving Deformation of 2D Anatomical Illustrations. *Journal of Computer Graphics Forum*, October, 2008.
21. 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. (Cover Image)
22. 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.
23. 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.
24. 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.
25. 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.
26. Chunxiao Liu, Yingzhen Yang, Qunsheng Peng, Jin Wang, Wei Chen. Distortion Optimization based Image Completion from a Large Displacement View. *Journal of Computer Graphics Forum (Proceedings of Pacific Graphics 2008)*, Vol 27 (7), 1055--1064.

27. 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.
28. Hongwei Lin, Wei Chen, Hujun Bao. Adaptive Patch-based Mesh Fitting for Reverse Engineering. *Computer-Aided Design*. 39(12), 2007, 1134-1142.
29. Yu Guan, Wei Chen, Xiao Liang, Zi'ang Ding, Qunsheng Peng. Easy matting: A Stroke Based Approach for Continuous Image Matting. In *Journal of Computer Graphics Forum (Proceedings of Eurographics 2006)*, 25(3):567-576.
30. 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.
31. 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
32. 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.
33. 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
34. 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.
35. Xiang Zeng , Wei Chen, Qunsheng Peng. A Novel Unified Variational Image Editing Model. In *Journal of Computer Science and Technology (JCST)*, 2006.
36. 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.
37. Min Hu, Wei Chen, Tao Zhang, Qunsheng Peng, Liguang Xie. A New Approach for Examining the Similarity of Protein 3D Shape. *International Journal of Information Technology*, Vol. 11, No. 8, 2005. pp.9-16
38. Wei Chen, Wei Hua, Hujun Bao, Qunsheng Peng. "Real-time Ray Casting Rendering of Volume Clipping in Medical Visualization". *Journal of Computer Science and Technology*, Vol.18(6), Nov.2003, pp.804-814.

### **International Conference Papers**

1. Philip Livengood, Ross Maciejewski, Wei Chen, David S. Ebert. A Visual Analysis System for Metabolomics Data. In *Proceedings of the 1st IEEE Symposium on Biological Data Visualization (IEEE VisWeek)*. Providence, USA, 2011
2. Guizhen Wang, Chaokai Wen, Binghui Yan, Jing Xia, Zhen Liu, Wei Chen. Topic Hypergraph: Hierarchical Visualization of Thematic Structures in Long Documents. In *Proceedings of IEEE Information Visualization 2011 (Poster)*
3. Yueqi Hu, Guizhen Wang, Ronghua Liang, Guangyu Chen, Dichao Peng and Wei Chen.

- Visual Analysis of People's Calling Network from CDR data. In Proceedings of IEEE Pacific Visualization 2010 (Poster, Best Poster Award)
4. Guizhen Wang, Haidong Chen, Xiaoyong Yang, Shuang Ye, Guangyu Chen, Wei Chen, Song Zhang. Visualizing Differences of DTI Fiber Models Using 2D Normalized Embeddings. In Proceedings of IEEE Visualization 2010 (Poster)
  5. 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, Taibei.
  6. Yunhai Wang, **Wei Chen**, Guihua Shang, Xuebin Chi. Volume Exploration using Elliptical Gaussian Functions. In Proceedings of IEEE Pacific Visualization Symposium, March 2010, Taibei.
  7. 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.
  8. **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*.
  9. 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
  10. **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.
  11. 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.
  12. Xiang Zeng, **Wei Chen**, Qunsheng Peng. A Novel Unified Variational Image Editing Model. In *Proceedings of Pacific Graphics 2005*. (Short paper)
  13. Guanghua Tan, **Wei Chen**, Ligang Liu. Image Driven Shape Deformation with Styles. *Proceedings of Pacific Graphics 2008*.
  14. Yi Gong, Yubo Zhang, **Wei Chen**, Qunsheng Peng. Dynamic Anisotropic Occlusion. In *Proceedings of Eurographics 2006* (Short Presentation).
  15. 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*.
  16. Min Hu, **Wei Chen**, Tao Zhang, Qunsheng Peng. Direct Volume Rendering of Volumetric Data of Proteins. *Proc. of Computer Graphics International 2006, Hangzhou, China*.
  17. 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*.
  18. Dong Xu, **Wei Chen**, Hujun Bao. Layer-based Surface Editting. In *Third Eurographics Symposium on Geometry Processing (SGP)*, 2005. (Poster)
  19. 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.

20. **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.

## 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. "Modeling of Digital Liver". Supported by Zhejiang Public Funding (2011.01-2012.12)
2. Principal Investigator. "Computer Aided Illustrative Visualization". Supported by Natural Science Foundations of China No. 60873123 (2009.01-2011.12) .
3. Principal Investigator. "Visual Analysis of Mass Spectrum Datasets". Supported by Natural Science Foundations of Zhejiang Province (2009.01-2011.12) .
4. 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)
5. Major participant. "Molecular Field Representation and Modeling", supported by Key Project of Natural Science Foundations China, under Grant No.60533050 (01/06 – 12/09).
6. 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)
7. 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)
8. 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)
9. 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
10. 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)