

# Guoning Chen

Scientific Computing and Imaging (SCI) Institute  
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- EDUCATION
- ◇ **Oregon State University**, Corvallis, OR (September 2004 – June 2009).  
Ph.D. in Computer Science, June 2009.
  - ◇ **Guangxi University**, Nanning, China (September 1999 – June, 2002).  
M.Sc. in Control Theory and Control Engineering, June 2002.
  - ◇ **Xi'an Jiaotong University**, Xi'an, China (September 1995 – July 1999).  
B.S. in Information and Communication Engineering, July 1999.

- WORK EXPERIENCE
- ◇ **Post-doctoral Research Associate**, Scientific Computing and Imaging (SCI) Institute, University of Utah (August 2009 – present)
  - ◇ **Mentor for SESEY and ASE programs**, Oregon State University (the summers of 2006, 2007, and 2008)
  - ◇ **Research Assistant**, Oregon State University (April 2005 – June 2009)
  - ◇ **Teaching Assistant**, Oregon State University (October 2004 – March 2005)  
Courses I was TA for: Introduction to Computer Graphics; Geometric Modelling; Computer Architecture and Assembly Language.
  - ◇ **Instructor**, Department of Computer Science and Technology, Guangxi University, Nanning, Guangxi, China (July 2002 – July 2004)  
Courses I have taught: Software Engineering; Fundamental Computer Graphics; Object-oriented Program and C++ Language; C programming; The Principle of Database; Java Programming.
  - ◇ **Research Assistant**, Guangxi University (July 1999 – June 2002)

- RESEARCH AND PUBLICATIONS
- ◇ **Research interests:** Scientific data visualization and analysis, topology method in visualization, geometric modeling and processing, and computer animation.

- ◇ Harsh Bhatia, Shreeraj Jadhav, Peer-Timo Bremer, **Guoning Chen**, Joshua A. Levine, Luis Gustavo Nonato, and Valerio Pascucci. Flow Visualization with Quantified Spatial and Temporal Errors using Edge Maps, IEEE Transactions on Visualization and Computer Graphics (minor revision), 2011.
- ◇ **Guoning Chen**, Darrel, Darrel Palke, Zhongzang Lin, Harry Yeh, Paul Vincent, Robert S. Laramee and Eugene Zhang. Asymmetric Tensor Field Visualization for Surfaces, IEEE Transactions on Visualization and Computer Graphics (Visualization 2011), Vol. 17, No. 11, 2011, to appear.
- ◇ Tony McLoughlin, Matthew Edmunds, Robert S. Laramee, Mark W. Jones, **Guoning Chen**, and Eugene Zhang, Using Integral Surfaces to Visualize CFD Simulation Results, NAFEMS World Congress (NWC) Conference Proceedings, The International Association for the Engineering Analysis Community, (full proceedings on CDROM), 23-26 May 2011.
- ◇ Wieland Reich, Dominic Schneider, Christian Heine, Alexander Wiebel, **Guoning Chen**, and Gerik Scheuermann. Combinatorial Vector Field Topology in 3 Dimensions. TopoInVis 2011.
- ◇ Allen R. Sanderson, **Guoning Chen**, Xavier Tricoche and Elaine Cohen. Understanding Quasi-Periodic Fieldlines and Their Topology in Toroidal Magnetic Fields. TopoInVis 2011.
- ◇ Matthew Edmunds, Tony McLoughlin, Robert S. Laramee, **Guoning Chen**, Nelson Max, Eugene Zhang, and Harry Yeh, Automatic Stream Surface Seeding, EUROGRAPHICS 2011 Short Papers (to appear).
- ◇ **Guoning Chen**, Qingqing Deng, Andrzej Szymczak, Robert S. Laramee, and Eugene Zhang. Morse Set Classification and Hierarchical Refinement using Conley Index. IEEE Transactions on Visualization and Computer Graphics (to appear), 2011.

- ◇ Zhenmin Peng, Edward Grundy, Robert S. Laramee, **Guoning Chen**, and Nick Croft. Mesh-Driven Vector Field Clustering and Visualization: An Image-Based Approach. *IEEE Transactions on Visualization and Computer Graphics* (to appear), 2011.
- ◇ Harsh Bhatia, Shreeraj Jadhav, Peer-Timo Bremer, **Guoning Chen**, Joshua A. Levine, Luis Gustavo Nonato, and Valerio Pascucci. Edge Maps: Representing Flow with Bounded Error. *PacificVis 2011*, pp. 75-82, Hong Kong, China, 2011 (**Won Best Paper Award**).
- ◇ Allen R. Sanderson, **Guoning Chen**, Xavier Tricoche, David Pugmire, Scott Kruger, and Joshua Breslau. Analysis of Recurrent Patterns in Toroidal Magnetic Fields. *IEEE Transactions on Visualization and Computer Graphics* (Visualization 2010), Vol. 16, No. 4, 2010, pages 1431- 1440.
- ◇ Ben Spencer, Robert S. Laramee, **Guoning Chen**, and Eugene Zhang. Evenly-Spaced Streamlines for Surfaces: An Image-Based Approach. *Computer Graphics Forum*, Vol. 28, No. 6, 2009, pages 1618-1631.
- ◇ **Guoning Chen**, Konstantin Mischaikow, Vivek Kwatra, Li-Yi Wei, and Eugene Zhang. Time-varying Vector Field Design on Surfaces. Technical report (EECS), Oregon State University, May 2009. URL: <http://hdl.handle.net/1957/11507>. In preparation to submit to TVCG.
- ◇ Zhenmin Peng, Robert S. Laramee, **Guoning Chen**, and Eugene Zhang, Glyph and Streamline Placement Algorithms for CFD Simulation Data. *NAFEMS World Congress (NWC) Conference Proceedings, The International Association for the Engineering Analysis Community*, June 16-19, 2009, Crete, Greece.
- ◇ **Guoning Chen**, Greg Esch, Peter Wonka, Pascal Müller and Eugene Zhang. Interactive Procedural Street Modeling. *ACM Transactions on Graphics* 2008, 27 (3) (Siggraph 2008), Article 103.
- ◇ **Guoning Chen**, Konstantin Mischaikow, Robert S. Laramee and Eugene Zhang. Efficient Morse Decompositions of Vector Fields. *IEEE Transactions on Visualization and Computer Graphics*, Vol. 14, No. 4, 2008, pp. 848-862.
- ◇ **Guoning Chen**, Zhongzang Lin, Stephen Snider, Daniel Morse, Sourabh V. Apte, James A. Liburdy and Eugene Zhang. Multiscale Feature Detection in Unsteady Separated Flows. *International Journal of Numerical Analysis and Modeling*. Volume 5, Supp, Pages 17-35, 2008.
- ◇ Stephen Snider, Daniel Morse, **Guoning Chen**, Sourabh V. Apte, James A. Liburdy and Eugene Zhang. Detection and Analysis of Separated Flow Induced Vortical Structures. *46th AIAA Aerospace Sciences Meeting and Exhibit*, January 2008, Reno, Nevada, AIAA 2008-361,
- ◇ **Guoning Chen**, Konstantin Mischaikow, Robert S. Laramee, Paweł Pilarczyk and Eugene Zhang. Vector Field Editing and Periodic Orbit Extraction Using Morse Decomposition. *IEEE Transactions on Visualization and Computer Graphics*, Vol. 13, No. 4, pp. 769-785, 2007.
- ◇ Robert S. Laramee, **Guoning Chen**, Monika Jankun-Kelly, Eugene Zhang, and David Thompson. Bringing Topology-Based Flow Visualization Techniques to the Application Domain. (peer-reviewed book Chapter) in *Topology-Based Methods in Visualization* (Proceedings of Topo-In-Vis 2007), Visualization and Mathematics, H.-C. Hege, K. Polthier, G. Scheuermann editors, Springer-Verlag (*to appear*).
- ◇ **Guoning Chen**, Robert S. Laramee and Eugene Zhang. Advanced visualization of Engine Simulation Data Using Texture Synthesis and Topological Analysis. *NAFEMS World Congress*, Vancouver, Canada, May 2007.
- ◇ Tao-Shen Li, Ting Han, **Guo-Ning Chen**. XML Query Based on Ontology. *Journal of The IEEE Intelligent Informatics Bulletin*, Vol.6, No.2, 2005 Nov: 8-13.
- ◇ WU Yi-hui, **CHEN Guo-ning**, QIU Lu-wen, and LI Zhou-hua. A multi-version approach to solve conflict problem in distributed graphics collaborative editing systems. *Journal of Guangxi University( Natural Science Edition)*, 2005, S2 (in Chinese).
- ◇ **CHEN Guo-ning**, LI Tao-shen. Correctness Criterion for Execution Transactions in Hierarchical MDBS. *Journal of Computer Engineering*, Vol.31, No.6. 2005: 52-55 (in Chinese).
- ◇ **Chen Guoning** and Li Taoshen. An CBL Locking Mechanism Based on the Ordered Sharing Locks. *The Symposium on Global Manufacturing and Simulation Technology of the 21st Century*, Guiyang, Guizhou , China, 2004.
- ◇ **Chen Guoning**, Li Taoshen, Liao Guoqiong. A Multi-granularity Locking Protocol Based on Ordered Sharing Locks in Engineering Databases that Supports Cooperative Design. *2004 International Symposium on Distributed Computing and Applications to Business, Engineering and Science (DCABES)*, Wuhan, Hubei, China, September 12–16, 2004.
- ◇ **Guoning Chen**, Taoshen Li. Extended Chain-Conflicting Serializability for the Correct Schedule of Transactions in Hierarchical Multidatabase. *The Fifth International Conference on Web-Age Information Management*, pp: 658-663 15-17 July, 2004, Dalian, China.

- ◇ **Chen Guoning**, Li Taoshen. A Modeling Method for Cooperative Designing Procedure in CSCD Environment and its Application. Journal of Guangxi Academy of Science. 2004, Vol.20, No.2: 68-72 (in Chinese).
- ◇ **Chen Guoning**, Li Taoshen, Liao Guoqiong. A Recovery Method Based on Savepoint Mechanism and Log for Cooperative Design Transactions. Journal of Computer engineering, 2004, Vol.30, No.9: 58-60 (in Chinese).
- ◇ **Chen Guoning**, Li Taoshen, Liao Guoqiong. A Timeout-trigger Two-phase Commit Protocol of Engineering Design Transactions. Computer Engineering and Applications, 2004, Vol.40, No.14: 178-180, 195 (in Chinese).
- ◇ Huang Baixiong, Su Yidan, and **Chen Guoning**. An Implementation Methodology for Inheritance Relationships to Relational Tables. Computer Applications and Software, 2004, No.12.
- ◇ **Guoning Chen**, Taoshen Li and Guoqiong Liao. Commit Mechanism of Engineering Database Supporting Cooperative Design Transaction. International Symposium of Future Software Technology (ISFST'2002), Oct. 23-25, 2002, Wuhan, P.R.China.
- ◇ **Chen Guoning**, Chen Qiulian et al. The Design of a Graphic CAD System based on ObjectARX for Supporting System of Deep Excavations. Computer Engineering and Applications, vol.38, 2002(18): 229-230,241 (in Chinese).
- ◇ Li Taoshen, Liao Guoqiong and **Chen Guoning**. Transaction Management Mechanisms in Distributed Engineering Database System. Proceeding of the Seventh International Conference on Computer Aided Design and Computer Graphics. August 22-24, 2001, Kunming, China, pp.785-790.
- ◇ Li Taoshen, Liao Guoqiong and **Chen Guoning**. Research on Technology of Transaction Management mechanism in Distributed Engineering Database. Journal of Guangxi Science, 2001, 8(3): 172-176 (in Chinese).
- ◇ **Chen Guoning**, Chen Qiulian and Li Taoshen. The Design of Traditional Chinese Medical diagnosis for Cough Expert System. Journal of Guangxi University (Nat Sci Ed), Vol.26, 2001(2): 101-104 (in Chinese).
- ◇ **Book chapters:**
  - Object-oriented programming, editor: Taoshen Li, Jing Zhou (in Chinese).
  - Network databases, editor: Taoshen Li (in Chinese).

PREVIOUS  
FUNDINGS

- ◇ **Young Researcher funding of Guangxi University, PI**, Applying database transaction technology to the collaborative environment (September 2003 – September 2004).
- ◇ **Guangxi Nature Science Funding, Co-PI**, The supporting software of the engineering database for the parallel and distributed CAD system (March 2001 – April 2004).

PROFESSIONAL  
MEMBERSHIP

- ◇ **IEEE Member**
- ◇ **ACM Member**

ACADEMIC  
SERVICES

- ◇ **Paper Committee:**
  - Program Committee, SPIE Visualization and Data Analysis 2012
  - International Program Committee (IPC), PacificGraphics 2011
  - International Program Committee (IPC), EuroGraphics 2011 poster section

- ◇ **Paper Reviewer:**

- Paper reviewer for ACM SIGGRAPH Asia
- Paper reviewer for IEEE Visualization
- Paper reviewer for IEEE Transactions on Visualization and Computer Graphics
- Paper reviewer for IEEE Computer Graphics and Applications
- Paper reviewer for Computer Graphics Forum
- Paper reviewer for EuroGraphics
- Paper reviewer for EuroVis
- Paper reviewer for PacificVis
- Paper reviewer for Computer & Graphics (Elsevier)
- Paper reviewer for EURASIP Journal on Advances in Signal Processing
- Paper reviewer for the journal of Machine Vision and Applications (Springer)

- AWARDS
- ◇ The third prize of Guangxi provincial scientific and technological advances Award, project: *The supporting software of the engineering database for the parallel and distributed CAD system*, February 2005.
  - ◇ Best paper award from IEEE Pacific Visualization Symposium, March 2011.
  - ◇ The first prize in the young instructor teaching contest of Guangxi University, June 2004.
  - ◇ Excellent master degree thesis award of Guangxi University, June 2002.
  - ◇ Outstanding graduate student award of Guangxi University, June 2002.
  - ◇ Outstanding graduate student award of Guangxi Province, December 2001.
  - ◇ Outstanding graduate student award of Guangxi University, December 2001.
  - ◇ Outstanding graduate student award of Guangxi University, December 2000.
  - ◇ Outstanding student award of Xi'an Jiaotong University, December 1998.
- SKILLS
- ◇ **Programming Languages:** C, C++, Java, Matlab, C#, OpenGL shader language, Assembly language, SQL language, Pascal, FORTRAN, HTML.
  - ◇ **OS Platform:** MS-Windows, MS-DOS, Macintosh, Linux.
  - ◇ **Technologies/API:** Visual Studio, Visual Studio.NET, Matlab, OPENGL, nvidia Shader API, RenderMan, SQL, Delphi.
  - ◇ **Languages:** Fluent spoken/written Chinese(Mandarin) , Fluent spoken Cantonese, English.