Curriculum Vita (June 2011)

Ching-Kuang Shene
Department of Computer Science
Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931, USA

Phone 906-487-2209
Fax 906-487-2283
E-mail shene@mtu.edu
Web www.cs.mtu.edu/~shene

Contents

1 Professional Preparation

Institution	*Department*	*Year*	*Major*	*Degree*
The Johns Hopkins University	Computer Science	1987–1990	Computer Science	M.S.E.
The Johns Hopkins University	Computer Science	1990–1992	Computer Science	PhD

2 Appointments

Year			*Position*	*Institution*
1992	–	1995	Assistant Professor	Northern Michigan University
1995	–	2001	Assistant Professor	Michigan Technological University
2001	–	2007	Associate Professor	Michigan Technological University
2007	–		Professor	Michigan Technological University

3 Research Interests

- Curve, surface and mesh modeling and processing
- Computer-Aided geometric design
- Computer graphics
- Threaded programming, program behavior visualization, and parallel and distributed algorithm visualization and animation
- Software visualization
- Computer Science Education

4 Courses Taught in Recent Years

- **CS 3331** Concurrent Computing
- **CS 3621** Introduction to Computing with Geometry
- **CS 3911** Introduction to Numerical Methods with Fortran
- **CS 4411** Introduction to Operating Systems
- **CS 5311** Computation Theory
- **CS 5611** Advanced Computer Graphics

5 Publications

Most of my conference papers were published in two international premier conferences, the *ACM Annual SIGCSE Technical Symposium* and *ACM ITiCSE Conference*. Acceptance rate varies from year to year; but, on average, it is about 30%. This list only includes publications in the period of 1987 and 2008; publications before 1987 are mainly in mathematics, econometrics, transportation demand analysis, and large scale simulation. A complete record is available on request.

5.1 Published and Accepted Papers and Books

- **2011**

  1. Jun Tao, Jun Ma, Melissa Keranan, Jean Mayo and Ching-Kuang Shene, DESvisual: A Visualization Tool for the DES Cipher, too appear in *Journal of Computing Sciences in College*, 2011.
  2. Ching-Kuang Shene, *DSLR: An Introduction*, Scholars Book Co., Taipei, Taiwan, 2011 (to appear in Chinese).

- **2010**

  1. Hongfeng Yu, Chaoli Wang, Ching-Kuang Shene, and Jacqueline H. Chen, Hierarchical Streamline Bundles for Visualizing 2D Flow Fields, *IEEE VisWeek Posters 2010*, Salt Lake City, UT, Oct 2010.
  2. Ching-Kuang Shene, *Selected Well-Known Problems*, third revised edition, Scholars Book Co., Taipei, Taiwan, 2010. ISBN 978-957-499-907-1 (in Chinese)

- **2008**

  1. Miklo Lysenko, Roshan D'Souza and Ching-Kuang Shene, Improved Binary Space Partition Merging, *CAD*, Vol. 40 (2008), No. 12 (December), pp. 1113–1120.

- **2007**

  1. Tin-Tin Yu, John Lowther and Ching-Kuang, A Tool for Demonstrating the Interaction among Lighting/Material Parameters and Potential Problems in Polygon-Based Rendering, *Journal of Computing Sciences in Colleges*, Vol. 23 (2007), No. 1, pp. 45–53.
  2. Bryan Neperud, John Lowther and Ching-Kuang Shene, Visualizing and Animating the Winged-Edge Data Structure, *Computers & Graphics*, Vol. 31 (2007), No. 6 (December), pp. 877-886.
  3. Ching-Kuang Shene, *Digital Cameras: Concept, Practice and Theory*, Scholar Books, Taipei, Taiwan, May 2007, ISBN 978-957-499-803-6 (in Chinese, 760 pages, nearly 2,000 images, and more than 100 diagrams)

- **2005**

  1. Tin-Tin Yu, John Lowther and Ching-Kuang Shene, Photon Mapping Made Easy, *ACM 36th Annual SIGCSE Technical Symposium*, St. Louis, Missouri, February 23-27, 2005, pp. 201–205.
  2. Ching-Kuang Shene, *Selected Well-Known Problems*, China Machine Press, Beijing, China, 2005.

- **2004**

  1. John Fisher, John Lowther and Ching-Kuang Shene, If You Know B-Splines Well, You Also Know NURBS! *ACM 35th Annual SIGCSE Technical Symposium*, Norfolk, Virginia, March 3-7, 2004, pp. 343-347.
  2. John Fisher, John Lowther and Ching-Kuang Shene, Curve and Surface Interpolation and Approximation: Knowledge Unit and Software Tool, *ACM 9th ITiCSE 2004 Conference*, University of Leeds, Leeds, UK, June 28-30, 2004, pp. 146-150.
  3. John Lowther and Ching-Kuang Shene, Toward an Intuitive and Interesting Theory Course: The First Step of a Road Map, *Journal of Computing Sciences in Colleges*, Vol. 20 (2004), No. 1 (October), pp. 124-135.
  4. Ching-Kuang Shene, Race Conditions and Semaphores, in William Stallings, *Operating Systems: Internals and Design Principles*, fifth edition, Pearson, 2004, pp.734–743, and sixth edition, Pearson, 2009, pp.51–758. This is a short version of a paper of mine published in 2001.

- **2003**

1. Steve Carr, Jean Mayo and Ching-Kuang Shene, ThreadMentor: A Pedagogical Tool for Multithreaded Programming, *ACM Journal on Educational Recourses in Computing*, Vol. 3, Issue 1, March 2003.
2. Steve Carr, Changpeng Fang, Timothy R. Jozwowski, Jean Mayo, and Ching-Kuang Shene, ConcurrentMentor: A Visualization System for Distributed Programming Education, *The 2003 International Conference on Parallel and Distributed Processing Techniques and Applications*, Las Vegas, Nevada, June 23-26, 2003, pp. 1676-1682.
3. John Lowther and Ching-Kuang Shene, Teaching B-splines Is Not Difficult!, *ACM 34th Annual SIGCSE Technical Symposium*, Reno, Nevada, February 19-23, 2003, pp. 381-385.

- **2002**

1. Ching-Kuang Shene, Multithreaded Programming Can Strengthen an Operating Systems Course, *Computer Science Education Journal*, Vol. 12 (2002), No. 4 (December), pp. 275-299.
2. Ching-Kuang Shene, Raytracing as a Tool for Learning Computer Graphics, *ASEE/IEEE Frontiers in Education 2002*, Boston, November 6-9, 2002, Vol. III, pp. (S4G-7)-(S4G-13).
3. Steve Carr, Ping Chen, Timothy R. Jozwowski, Jean Mayo, and Ching-Kuang Shene, Channels, Visualization, and Topology Editor, *ACM 7th ITiCSE 2002 Conference*, University of Aarhus, Demark, June 24-26, 2002, pp. 106-110.
4. Ching-Kuang Shene, Teaching and Learning Computer Graphics Made Easy with GraphicsMentor, *Interactive Multimedia Electronic Journal of Computer-Enhanced Learning*, October, 2002.
5. Dejan Nikolic and Ching-Kuang Shene, GraphicsMentor: A Tool for Learning Graphics Fundamentals, *ACM 33rd Annual SIGCSE Technical Symposium*, Northern Kentucky, February 27 - March 3, 2002, pp. 242-246.
6. Steve Carr, Changpeng Fang, Tim Jozwowski, Jean Mayo and Ching-Kuang Shene, A Communication Library to Support Concurrent Programming Courses, *ACM 33rd Annual SIGCSE Technical Symposium*, Northern Kentucky, February 27 - March 3, 2002, pp. 360-364.
7. Ching-Kuang Shene, *100 Selected Well-Known Problems*, revised edition, Scholars Book Co., Taipei, Taiwan, 2002. ISBN 957-499-561-5 (in Chinese)
8. Ching-Kuang Shene, *Fortran Programming*, revised edition, Scholar Publication Co., Taipei, Taiwan, 2002. (in Chinese)

- **2001**

1. Steve Carr, Jean Mayo and Ching-Kuang Shene, Race Conditions: A Case Study, *The Journal of Computing in Small Colleges*, Vol. 17 (2001), No. 1 (October), pp. 88-102.
2. John L. Lowther and Ching-Kuang Shene, Computing with Geometry as an Undergraduate Course: A Three-Year Experience, *ACM 32nd Annual SIGCSE Technical Symposium*, February 21-25, 2001, pp. 119-123.

- **2000**

1. Ching-Kuang Shene, Do Blending and Offsetting Commute for Dupin Cyclides? *Computer-Aided Geometric Design*, Vol. 17 (2000), No. 9, pp. 891–910.
2. John Lowther and Ching-Kuang Shene, Rendering + Modeling + Animation + Postprocessing = Computer Graphics, *The Journal of Computing in Small Colleges*, Vol. 16 (2000), No. 1 (November), pp. 20–28. Also reprinted in *Computer Graphics*, Vol. 34 (2000), No. 4 (November).
3. A Portable Class Library for Teaching Multithreaded Programming, *ACM 5th ITiCSE Conference*, University Helsinki, Finland, July 11–13, 2000, pp. 124–127. (coauthor: Steve Carr)
4. Michael Bedy, Steve Carr, Xianglong Huang and Ching-Kuang Shene, A Visualization System for Multithreaded Programming, *ACM 31st Annual SIGCSE Technical Symposium*, Austin, Texas, March 8–12, 2000, pp. 1–5.

- **1999**

1. John L. Lowther and Ching-Kuang Shene, DesignMentor: An Interactive Environment for Learning the Fundamentals of Curve and Surface Design, *ASEE 54th Annual Engineering Design Graphics Mid-Year Conference*, November 6-9, Biloxi, Mississippi, 1999, pp. 193-199.
2. Mike Bedy, Xianglong Huang, Steve Carr and Ching-Kuang Shene, The Design and Construction of a User-Level Kernel for Teaching Multithreaded Programming, *IEEE Frontiers in Education 1999*, November 10–13, 1999, pp. (13a3-24)-(13a3-29).
3. Yuan Zhao, Yan Zhou, John L. Lowther and Ching-Kuang Shene, Cross-Sectional Design: A Tool for Computer Graphics and Computer-Aided Design Courses, *IEEE Frontiers in Education 1999*, November 10–13, 1999, pp. (12b3-1)-(12b3-6).
4. Yan Zhou, Yuan Zhao, John Lowther and Ching-Kuang Shene, Teaching Surface Design Made Easy, *ACM 30th Annual SIGCSE Technical Symposium*, New Orleans, March 24 – 28, 1999, pp. 222–226.

- **1998**

1. Steve Carr and Ching-Kuang Shene, The Design of a Multithreaded Programming Course and Its Accompanying Software Tools, *The Journal of Computing in Small Colleges*, Vol. 14 (1998), No. 1 (November), pp. 12–24.
2. Ching-Kuang Shene, Blending Two Cones with Dupin Cyclides, *Computer Aided Geometric Design*, Vol. 15 (1998), No. 7, pp. 643–673.
3. Yuan Zhao, John Lowther and Ching-Kuang Shene, A Tool for Teaching Curve Design, *ACM 29th Annual SIGCSE Technical Symposium*, Atlanta, Georgia, February 26 – March 1, 1998, pp. 97–101.
4. Ching-Kuang Shene, Multithreaded Programming in an Introduction to Operating Systems Course, *ACM 29th Annual SIGCSE Technical Symposium*, Atlanta, Georgia, February 26 – March 1, 1998, pp. 242–246.

- **1997**

1. Ching-Kuang Shene, An Analysis of Two In-Place Array Rotation Algorithms, *The Computer Journal*, Vol. 40 (1997), No. 9, pp. 541–546.
2. Ching-Kuang Shene, Blending with Affine and Projective Dupin Cyclides, *Special Issue on Computer Aided Geometric Design* of the journal *Neural, Parallel and Scientific Computation*, Vol. 5 (1997), No. 1 & 2 (March & June), pp. 121–152.
3. John Lowther and Ching-Kuang Shene, Geometric Computing in the Undergraduate Computer Science Curricula, *The Journal of Computing in Small Colleges*, Vol. 13 (1997), No. 2 (November), pp. 50–61.

- **1996**

1. Ching-Kuang Shene, A Comparative Study of Linked List Sorting Algorithms, *ACM SIG 3C Online*, Vol. 3 (1996), No. 2 (April), pp. 4–9. (non-refereed)

- **1995**

1. Julie Tillison and Ching-Kuang Shene, On Generating Worst-Cases for the Insertion Sort, *ACM SIGCSE Bulletin*, Vol. 27 (1995), No. 6 (June), pp. 57–58. (non-refereed)
2. Ching-Kuang Shene, Computing the Intersection of a Line and a Cone, *Graphics Gems V*, edited by Alan Paeth, Academic Press, 1995, pp. 227–231.

- **1994**

1. Ching-Kuang Shene and John K. Johnstone, On the Lower Degree Intersections of Two Natural Quadrics, *ACM Transactions on Graphics*, Vol. 13 (1994), No. 4, pp. 400–424. (coauthor: John K. Johnstone)

2. John K. Johnstone and Ching-Kuang Shene, Dupin Cyclides as Blending Surfaces for Cones, in *Mathematics of Surfaces V*, edited by R. B. Fisher, Oxford University Press, 1994, pp. 3–29.
3. Ching-Kuang Shene, Test for Intersection Between a Plane and a Connected Compact Polyhedron, *CAD*, Vol. 26 (1994), No. 7, pp. 585–588.
4. Ching-Kuang Shene, Equations of Cylinders and Cones, in *Graphics Gems IV*, edited by Paul Heckbert, Academic Press, Boston, 1994, pp. 321–323.
5. Ching-Kuang Shene, Computing the Intersection of a Line and a Cylinder, in *Graphics Gems IV*, edited by Paul Heckbert, Academic Press, Boston, 1994, pp. 353–355.
6. Ching-Kuang Shene and John K. Johnstone, Computing the Intersection of a Plane and a Revolute Quadric, *Computers & Graphics*, Vol. 18 (1994), No. 1, pp. 47–59.

- **1993**

1. Ching-Kuang Shene, A Fast and Robust Algorithm for Planar Intersection of Two Cones, *ASME 19th Design Automation Conference*, DE-Vol. 65-2 (1993), pp. 377–387.
2. Ching-Kuang Shene, Planar Intersection, Common Inscribed Sphere and Dupin Blending Cyclides (Extended Abstract), *2nd ACM/SIGGRAPH Symposium on Solid Modeling and Applications*, 1993, pp. 487–488.

- **1992**

1. Ching-Kuang Shene, On the Circles of Apollonius Associated with a Triangle, *Journal of Geometry*, Vol. 44 (1992), No. 1/2, pp. 171–176.
2. John K. Johnstone and Ching-Kuang Shene, Computing the Intersection of a Plane and a Natural Quadric, *Computers & Graphics*, Vol. 16 (1992), No. 2 (June), pp. 179–186.

- **1991**

1. Ching-Kuang Shene and John K. Johnstone, On the Planar Intersection of Natural Quadrics, *ACM Symposium on Solid Modeling Foundations and CAD/CAM Applications*, June, 1991, pp. 233–242.

5.2 Unpublished Technical Reports

- **1998**

1. Yuan Zhao and Ching-Kuang Shene, An Efficient Intersection Detection Algorithm for Truncated Cylinders, Technical Report, CS-TR-9801, December, 1998.

- **1997**

1. Ching-Kuang Shene and George Paschos, A Fast Geometric Conic Reconstruction Algorithm, Technical Report, CS-TR-9703, April, 1997.

- **1996**

1. Ching-Kuang Shene, On Parametric Representations of Cubic Dupin Cyclides, Technical Report, CS-TR-9601, January, 1996.
2. Ching-Kuang Shene, Planar Intersection, Common Inscribed Sphere and Blending with Dupin Cyclides, Technical Report, CS-TR-9605, May 1996.

- **1995**

1. Ching-Kuang Shene, Dupin Cyclides as Blending Surfaces for CSG Primitives, Technical Report, CS-TR-9510, December, 1995.

- **1992**

  1. Ching-Kuang Shene and John K. Johnstone, On the Orthogonal Hyperboloid of One Sheet, Technical Report, JHU–92/22, Department of Computer Science, The Johns Hopkins University, 1992.

- **1991**

  1. Ching-Kuang Shene and John K. Johnstone, When Does a Quadrilateral Have an Inscribed Circle? Technical Report JHU–91/22, Department of Computer Science, The Johns Hopkins University, December 1991.
  2. John K. Johnstone and Ching-Kuang Shene, The Representation of All Hyperboloids of One Sheet by Two Lines, Technical Report, JHU–91/19 Department of Computer Science, The Johns Hopkins University, 1991.

- **1990**

  1. John K. Johnstone and Ching-Kuang Shene, The Distance Representation of Quadric Surfaces: Ruled Surfaces, Technical Report, JHU–90/19 Department of Computer Science, The Johns Hopkins University, 1990.

5.3 Web-Based Books and Software Development

The following web-based books, user guides and software are available at `http://www.cs.mtu.edu/~shene`.

- **Web-Based Electronic books**

  1. Introduction to Computing with Geometry Notes and the user guides of DesignMentor have been online for a couple of years. The former is a comprehensive and frequently cited lecture notes on the fundamentals of computing with geometry. It covers (Bézier, B-spline, rational Bézier and NURBS) curves and surfaces, and solid representations. The latter has two user guides of DesignMentor, a software tool designed to help instructors, students and professionals learn the materials covered in the former.
  2. Multithreaded Programming with ThreadMentor is a tutorial on multithreaded programming using a software tool ThreadMentor. Topics include thread management (*e.g.*, thread creation, termination, yield, suspension and resume), and various commonly used synchronization primitives (*e.g.*, mutex locks, semaphores, Hoare and Mesa monitors, barriers, reader-priority and writer-priority readers-writers locks, synchronous and asynchronous one-to-one, many-to-one and many-to-many channels). It also includes a section on pinpointing race conditions.
  3. Fortran 90 Tutorial is a set of tutorial pages that cover the most fundamental elements of Fortran 90.
  4. C-K Shene's Soapbox is a blog in Chinese dedicated to the technology side of photography, and is more educational than recreational. Major topics include camera and lens history and technology, photographic lens basics and design, camera and lens reviews, etc. This educational blog is available at `http://blog.dcview.com/ckshene` and is extremely popular among Chinese speaking regions (*e.g.*, China, Hong Kong and Taiwan). This blog has accumulated more than 25 million page hits since late 2007.

- **Software**

  1. DesignMentor is a software tool that can help instructors, students, and professionals to learn Bézier, B-Spline, rational Bézier and NURBS curves and surfaces. It provides the user with an environment for creating and editing curves and surfaces, and visualizing many important algorithms in curves and surfaces design (*e.g.*, de Casteljau's, de Boor's knot insertion, knot removal, curve and surface subdivision, and degree elevation). DesignMentor also supports the cross-sectional design techniques for creating ruled surfaces, surfaces of revolution, and swept, swung and skinned surfaces. A small subsystem NURBSvis helps the user visualize the connection between a 3-dimensional B-spline curve and its corresponding 2-dimensional NURBS curve.

2. ThreadMentor is designed for instructors who have limited resources and want to include multithreaded programming in an operating systems and/or related courses. ThreadMentor consists of three components: a class library, a visualization subsystem for visualizing thread execution and synchronization behavior, and mtuThread, a user-level kernel that supports non-preemptive multithreaded programming implemented using coroutine structures. This system is being used by many instructors recently.
3. ConcurrentMentor is the counterpart of ThreadMentor designed for distributed programming. It is channel-based and includes a communication library and a visualization system. A portion of ConcurrentMentor is modified to support message-passing based parallel programming. The visualization systems can help the user visualize all distributed events and activities in various windows. For example, the user can see the space-time diagram in real-time, and various communication-based statistics and activities.
4. GraphicsMentor is a system designed for resource-limited instructors to teach and students to learn the basic concepts in computer graphics. This system provides an environment for the user to performance limited modeling, visualize lighting, material and camera effects, and carry out simple keyframe animation. GraphicsMentor also helps its user understand local illumination models, the impact of mesh tessellation, Mach band, the impact of ambient, diffuse and specular lights and material, properties and various camera characteristics.
5. DESvisual and ECvisual are part of a larger development plan of pedagogical visualization tools for cryptography (CrytoMentor). DESvisual is for the DES cipher and ECvisual is for ciphers based on elliptic curves over finite fields.
6. MeshMentor is a research and pedagogical tool for mesh processing visualization. This tool is under construction; but, a component for visualizing the winged-edge and half-edge data structures and their algorithms are available.

5.4 Other Technical Writing: 1987 to 2004

The following publications all appeared in *PC Magazine – Chinese Edition* as a regular column. This is an authorized translation to Chinese of the popular *PC Magazine* in the US.

- **2004**

1. Digital Camera and Digital Imaging IX, Nikon Coolpix SQ: A User Report, *PC Magazine – Chinese Edition*, Vol. 23 (2004), No. 4 (April), pp. 175–196.
2. Digital Camera and Digital Imaging X, Nikon Rayfact TelescoMicro ED6×18D Lens: A User Report, *PC Magazine – Chinese Edition*, Vol. 23 (2004), No. 6 (June), pp. 163–176.

- **2003**

1. Digital Camera and Digital Imaging VI, Ring Lights and Slave Flashes, *PC Magazine – Chinese Edition*, Vol. 22 (2003), No. 1 (January), pp. 189–210.
2. Digital Camera and Digital Imaging VII, Samigon Macro Ring Light, *PC Magazine – Chinese Edition*, Vol. 22 (2003), No. 8 (August), pp. 196–202.
3. Digital Camera and Digital Imaging VIII, High Power Monoscopes, *PC Magazine – Chinese Edition*, Vol. 22 (2003), No. 10 (October), pp. 216–234.

- **2002**

1. Digital Camera and Digital Imaging III: Aperture, Shutter, Exposure Compensation and Depth-of-Field (Part II), *PC Magazine – Chinese Edition*, Vol. 21 (2002), No. 1 (January), pp. 205–218.
2. Digital Camera and Digital Imaging IV: Internal Flashes and Accessories, *PC Magazine – Chinese Edition*, Vol. 21 (2002), No. 3 (March), pp. 200-210; and Vol. 21 (2002), No. 4 (April), pp. 202–210.

3. Digital Camera and Digital Imaging V, Lens Converters, *PC Magazine – Chinese Edition*, Vol. 21 (2002), No. 10 (October), pp. 213–226; and Vol. 21 (2002), No. 11 (November), pp. 214–226.

- **2001**

1. Digital Camera and Digital Imaging I: Fundamentals and Equipment (Part II, III, IV), *PC Magazine – Chinese Edition*, Vol. 20 (2001), No. 1 (January), pp. 269–278; Vol. 20 (2001), No. 2 (February), pp. 213–217; and Vol. 20 (2001), No. 3 (March), pp. 304-311.
2. Digital Camera and Digital Imaging II: White Balance, *PC Magazine – Chinese Edition*, Vol. 20 (2001), No. 5 (May), pp. 152–162.
3. Digital Camera and Digital Imaging III: Aperture, Shutter, Exposure Compensation and Depth-of-Field (Part I), *PC Magazine – Chinese Edition*, Vol. 20 (2001), No. 11 (November), pp. 251–258.

- **2000**

1. An Introduction to Fortran 90/95 IV: Functions and Subroutines, *PC Magazine – Chinese Edition*, Vol. 19 (2000), No. 1 (January), pp. 274–288; and Vol. 19 (2000), No. 2 (February), pp. 237–253.
2. An Introduction to Fortran 90/95 V: Modules, *PC Magazine – Chinese Edition*, Vol. 19 (2000), No. 8 (August), pp. 301–304; Vol. 19 (2000), No. 9 (September), pp. 283–292; and Vol. 19 (2000), No. 10 (October), pp. 243–250.
3. Digital Camera and Digital Imaging I: Fundamentals and Equipment (Part I), *PC Magazine – Chinese Edition*, Vol. 19 (2000), No. 12 (December), pp. 295–301.

- **1999**

1. An Introduction to Fortran 90/95 I: Fundamentals, *PC Magazine – Chinese Edition*, Vol. 18 (1999), No. 8 (August), pp. 302–315.
2. An Introduction to Fortran 90/95 II: Control Structures, *PC Magazine – Chinese Edition*, Vol. 18 (1999), No. 9 (September), pp. 275–288.
3. An Introduction to Fortran 90/95 III: Array Processing, *PC Magazine – Chinese Edition*, Vol. 18 (1999), No. 10 (October), pp. 272–285; and Vol. 18 (1999), No. 11 (November), pp. 289–302.

- **1998**

1. Multiprocess and Multithreaded Programming IV: Coroutines and Threads, *PC Magazine – Chinese Edition*, Vol. 17 (1998), No. 10 (October), pp. 334–346.

- **1997**

1. Multiprocess and Multithreaded Programming I: Fundamentals, *PC Magazine – Chinese Edition*, Vol. 16 (1997), No. 4 (April), pp. 211–226.
2. Multiprocess and Multithreaded Programming II: Shared Memory, *PC Magazine – Chinese Edition*, Vol. 16 (1997), No. 5 (May), pp. 303–316.
3. Multiprocess and Multithreaded Programming III: Synchronization - Software Solutions, *PC Magazine – Chinese Edition*, Vol. 16 (1997), No. 9 (September), pp. 334–343; and Vol. 16 (1997), No. 10 (October), pp. 319–326.

- **1996**

1. Topics in Raytracing VI: Differences between POV-Ray 1.0 and 2.0, *PC Magazine – Chinese Edition*, Vol. 15 (1996), No. 3 (March), pp. 253–265; Vol. 15 (1996), No. 5 (May), pp. 311–333; Vol. 15 (1996), No. 6 (June), pp. 291–308; and Vol. 15 (1996), No. 8 (August), pp. 245–262.

- **1995**

1. Topics in Raytracing IV: Lights, Shadows, and Surface Materials, *PC Magazine – Chinese Edition*, Vol. 14 (1995), No. 3 (March), pp. 297–310; and Vol. 14 (1995), No. 4 (April), pp. 296–306.
2. Topics in Raytracing V: Constructive Solid Geometry, *PC Magazine – Chinese Edition*, Vol. 14 (1995), No. 7 (July), pp. 293–298, pp. 315–327; and Vol. 14 (1995), No. 8 (August), pp. 266–287.

- **1994**

1. Topics in Raytracing I: Fundamentals with POV-Ray, *PC Magazine – Chinese Edition*, Vol. 13 (1994), No. 8 (August), pp. 255–294.
2. Topics in Raytracing II: Geometric Objects and Transformations, *PC Magazine – Chinese Edition*, Vol. 13 (1994), No. 9 (September), pp. 279–306.
3. Topics in Raytracing III: Textures, *PC Magazine – Chinese Edition*, Vol. 13 (1994), No. 10 (October), pp. 263–281; and Vol. 13 (1994), No. 11 (November), pp. 271–308.

- **1993**

1. Concurrent Programming, *PC Magazine – Chinese Edition*, Vol. 12 (1993), No. 7 (July), pp. 276–291; Vol. 12 (1993), No. 9 (September), pp. 267–282; and Vol. 12 (1993), No. (October), pp. 275–294.

- **1992**

1. Data Structures Topics: I, Stacks, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 3 (March), pp. 200–214; and Vol. 11 (1992), No. 4 (April), pp. 217–228.
2. Data Structures Topics: II, Trees, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 5 (May), pp. 217–228; Vol. 11 (1992), No. 6 (June), pp. 243–254; and Vol. 11 (1992), No. 7 (July), pp. 197–209.
3. Data Structures Topics: III, Search and Search Trees, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 8 (August), pp. 195–203; and Vol. 11 (1992), No. 9 (September), pp. 209–216.
4. Data Structures Topics: IV, Balanced Trees, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 10 (October), pp. 201–208.
5. Data Structures Topics: V, Balanced Tree Insertion and Deletion, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 11 (November), pp. 219–228.
6. Data Structures Topics: V, On Hashing, *PC Magazine – Chinese Edition*, Vol. 11 (1992), No. 12 (December), pp. 233–240; and Vol. 12 (1993), No. 2 (February), pp. 188–201.

- **1991**

1. Solving Problems Efficiently: VII, Linked Lists vs. Arrays, *PC Magazine – Chinese Edition*, Vol. 10 (1991), No. 1 (January), pp. 157–168.
2. Solving Problems Efficiently: IX, On Dynamic Programming Techniques, *PC Magazine – Chinese Edition*, Vol. 10 (1991), No. 3 (March), pp. 162–170; Vol. 10 (1991), No. 4 (April), pp. 184–193; and Vol. 10 (1991), No. 5 (May), pp. 151–158.
3. Solving Problems Efficiently: X, On Sorting, *PC Magazine – Chinese Edition*, Vol. 10 (1991), No. 7 (July), pp. 171–203.
4. Interesting Programming Problems: I, The 8-Queen Problem, *PC Magazine – Chinese Edition*, Vol. 10 (1991), No. 6 (June), pp. 175–190.
5. Interesting Programming Problems: II, The Tower of Hanoi and Its Variations, *PC Magazine – Chinese Edition*, Vol. 10 (1991), No. 9 (September), pp. 151–166; and Vol. 10 (1991), No. 11 (November), pp. 160–168.

- **1990**

1. There is Universal Anti-Virus Program, *PC Magazine – Chinese Edition*, Vol. 9 (1990), No. 9 (September), pp. 213–216.

2. Solving Problems Efficiently: V, Use the Given Conditions Properly, *PC Magazine – Chinese Edition*, Vol. 9 (1990), No. 1 (January), pp. 130–138.
3. Solving Problems Efficiently: VI, The Power of Binary Search, *PC Magazine – Chinese Edition*, Vol. 9 (1990), No. 5 (May), pp. 200–210; and Vol. 9 (1990), No. 6 (June), pp. 190–193.
4. Solving Problems Efficiently: VII, Quicksort and Its Variations, *PC Magazine – Chinese Edition*, Vol. 9 (1990), No. 7 (July), pp. 191–200; and Vol. 9 (1990), No. 8 (August), pp. 203–211.

- **1989**

1. Graph Theory and Its Applications: Hamilton Circuits, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 3 (March), pp. 151–166.
2. Graph Theory and Its Applications: Map Coloring, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 4 (April), pp. 149–157; and Vol. 8 (1989), No. 5 (May), pp. 150–159.
3. Graph Theory and Its Applications: Euler Trails, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 8 (August), pp. 168–176; and Vol. 8 (1989), No. 9 (September), pp. 160–166.
4. Graph Theory and Its Applications: Optimal Order for Matrix Multiplication, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 9 (September), pp. 131–150.
5. Graph Theory and Its Applications: Minimum Spanning Trees, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 10 (October), pp. 152–159; and Vol. 8 (1989), No. 11 (November), pp. 167–178.
6. Graph Theory and Its Applications: Shortest Paths, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 11 (November), pp. 146–168.
7. Solving Problems Efficiently: I, Complexity Issues, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 5 (May), pp. 182–189.
8. Solving Problems Efficiently: II, Computing Power, Combinatorial Coefficients and Factorial, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 6 (June), pp. 141–153.
9. Solving Problems Efficiently: III, Computing Fibonacci Numbers, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 12 (December), pp. 146–163.
10. Solving Problems Efficiently: IV, Bucket Sort and Fast Insertion Sort, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 12 (December), pp. 133–147.
11. Dynamic Array in ANSI C, *PC Magazine – Chinese Edition*, Vol. 8 (1989), No. 10 (October), pp. 146–150.

- **1988**

1. On Recursion, *PC Magazine – Chinese Edition*, Vol. 7 (1988), No. 3 (March), pp. 58–65; Vol. 7 (1988), No. 4 (April), pp. 126–134; Vol. 7 (1988), No. 6 (June), pp. 130–142; and Vol. 7 (1988), No. 7 (July), pp. 95–106.
2. ANSI C Overview, *PC Magazine – Chinese Edition*, Vol. 7 (1988), No. 8 (August), pp. 160–171; Vol. 7 (1988), No. 9 (September), pp. 161–171; Vol. 7 (1988), No. 11 (November), pp. 143–155; and Vol. 8 (1989), No. 1 (January), pp. 155–166.

- **1987**

1. Compiler Optimizations, *PC Magazine – Chinese Edition*, Vol. 6 (1987), No. 12 (December), pp. 45–50; and Vol. 7 (1988), No. 2 (February), pp. 51–60.

5.5 Presentations

The list below only includes presentations without full papers published in conference proceedings.

- **1999**

  1. Intersection Detection of CSG Primitives, *Sixth SIAM Conference on Geometric Design*, November 2–5, 1999, Albuquerque, New Mexico.
  2. Do Blending and Offsetting Commute for Dupin Cyclides? *Sixth SIAM Conference on Geometric Design*, November 2–5, 1999, Albuquerque, New Mexico.
  3. DesignMentor: An Interactive Environment for Teaching Curve and Surface Design, *Sixth SIAM Conference on Geometric Design*, November 2–5, 1999, Albuquerque, New Mexico.

- **1997**

  1. A Curve Design Tool, *MAA Upper Peninsula Zonal Meeting*, Marquette, October, 1997.
  2. Constructing Tubular Surfaces from Dupin Cyclides, *Fifth SIAM Geometric Design Conference*, Nashville, November, 1997.
  3. Computing the Degenerate Intersections of Two Quadric Cones, *Fifth SIAM Geometric Design Conference*, Nashville, November, 1997.

- **1995**

  1. On Piecewise Dupin Cyclides, *MCAD 1995*, May, Oakland, Michigan, 1995.

- **1994**

  1. Computing $n!$ in $\alpha \log_2 \alpha$ steps, *MAA Zonal Meeting*, Northern Michigan University, Marquette, October 1994.

- **1993**

  1. Blending Dupin Cyclides for Tori, *Third SIAM Conference on Geometric Design*, November 1–5, 1993.
  2. Computing the Intersection of a Plane and a Torus, *Third SIAM Conference on Geometric Design*, November 1–5, 1993.
  3. Cyclides Blending, *Third SIAM Conference on Geometric Design*, November 1–5, 1993. (with John K. Johnstone)
  4. Blending an Axial Natural Quadric and a Revolutionary Surface with Dupin Cyclides, *MCAD 1993*, May 24-25, Ann Arbor, Michigan, 1993.

- **1992**

  1. Solid/Geometric Modeling and Geometry, *MAA Zonal Meeting*, Michigan Technical University, Houghton, Oct 15–16, 1992

- **1991**

  1. New Algorithms for Conic Intersection of Natural Quadrics, *Second SIAM Conference on Geometric Design*, November 4–8, 1991.

6 Major Grants

- *Porting* ThreadMentor*, a Pedagogical Tool for Threaded Programming, to Eclipse*, IBM Eclipse Innovation Award, 2003.
- *Integrating Computing with Geometry into an Upper-Level Computer Science Curriculum*, National Science Foundation, 2002–2005. (with John Lowther)
- *Rendering + Modeling + Animation + Postprocessing = Computer Graphics*, National Science Foundation, 2000–2001.
- *Concurrent Computing in an Upper-Level Computer Science Curriculum*, National Science Foundation 2000–2001. (with Steve Carr and Jean Mayo)
- *Teaching Multithreaded Programming to Computer Science Undergraduate*, National Science Foundation, 1998–1999. (with Steve Carr)
- *Building an Interactive System and Kernel Library for Curve and Surface Design*, Michigan Research Excellent Fund, 1998–1999.
- *Geometric Computing in Undergraduate Computer Science Curricula*, National Science Foundation, 1997–1998. (with John Lowther)
- *Cyclides as Blending Surfaces in Geometric Modeling*, National Science Foundation Research Initiation Award, 1994–1997.
- Peter White Research Initiation Award, Northern Michigan University, 1994–1995.

7 Professional Services

- **Journals and Conferences Reviews**
  In the following, journal and conference names are only listed once.
  - **Journals**: *ACM Transactions on Graphics*, *Computer-Aided Design*, *Computer-Aided Geometric Design*, *Computers & Graphics*, *The Computer Journal*, *CVGIP: Graphical Models and Image Processing*, *IEEE Transactions on Education*, *IEEE Transactions on Medical Imaging*, *International Journal of Computational Geometry and Applications*, *International Journal of Computer Mathematics*, *Journal of Computing Sciences in Colleges*, *Journal of Zhejiang University*, *Journal of Mechanical Design*, *Journal of Naval Architecture and Marine Engineering*, *Scientific Programming*, *Software–Practice & Experience*.
  - **Conferences** *ACM/SIGGRAPH Symposium on Solid Modeling and Applications*, *ACM Joint SIGCSE and SIGCUE International Conference*, *ACM South-East Conference*, *ACM SIGCSE Technical Symposium*, *ACM ITiCSE Conference*, *ASME Design Automation Conference*, *Journal of Computing Sciences in College*, *Eurographics*, *Eurographics Symposium on Geometric Processing*, *ASEE/IEEE Frontiers in Education*.
- **Book Review** John Wiley and Sons, Jones and Bartlett, McGraw Hill, Oxford University Press, Prentice Hall, Thomson.
- **Proposal review** for NSF (*i.e.*, NSF DUE and ITR programs)
- One of the two **guest editors** of a special issue on Graphics, Visualization and Geometric Computing for *Computer Science Education Journal*, Vol. 13 (2003), No. 1.
- External reviewer for three promotion cases.

8 Professional Visiting Trip

1. A short summer research visit to Tamkang University, Taipei, Taiwan, Republic of China, in 2004. Met with the President and Vice President of Tamkang University to discussion possible international student programs, and people in Department of Mathematics and Department of Computer Science and Information Engineering for research topics. Delivered two research lectures.
2. Two invited lectures were presented at two universities in Taiwan (Tamkang University and Nan-Jua University) 2011.
3. A long public lecture of more than two hours on photography was presented in Taipei, Taiwan 2011.

9 Professional Memberships

1. Association for Computing Machinery (ACM)
2. American Mathematical Society (AMS)
3. Eurographics Association
4. The Institute of Electrical and Electronic Engineers (IEEE)
5. The Mathematical Association of America (MAA)
6. Society for Industrial and Applied Mathematics (SIAM)

10 Student Honors

1. **MICS 2005 Best Graduate Student Paper:** Bryan Neperud, Visualizing the Winged-Edge Data Structure, *The 38th Midwest Instruction and Computing Symposium*, 2005.
2. **CCSC:MW 2004 Best Undergraduate Student Paper:** Tin-Tin Yu, Depth of Field Implementation with OpenGL, *Journal of Computing Sciences in Colleges*, Vol. 20 (2004), No. 1 (October), pp. 136-146.
3. **MICS 2004 Best Graduate Student Paper:** John Fisher, Visualizing the Connection Among Convex Hull, Voronoi Diagram and Delaunay Triangulation, *The 37th Midwest Instruction and Computing Symposium*, University of Minnesota, Morris, April 16-17, 2004.
4. **CCSC:MW 2003 Best Undergraduate Student Paper:** John Fisher, Advanced Features of DesignMentor.
5. **SIGCSE 1999 Undergraduate Student Poster Competition (Runner Up):** Dejan Nikolic, A Physical Model for Cloth Movement Animation, *30th Annual SIGCSE Technical Symposium*, March 24 - March 28, 1999