

# Cindy Marie Grimm

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## Professional experience

- 9/2012 – present     **Assistant Professor, Senior Research**, Oregon State University  
Department of Mechanical Engineering
- 6/2012 – 9/2012     **Research Associate**, Washington University in St. Louis  
Department of Computer Science and Engineering
- 7/2007 – 6/2012     **Associate Professor**, Washington University in St. Louis  
Department of Computer Science and Engineering
- 8/2000 – 7/2007     **Assistant Professor**, Washington University in St. Louis  
Department of Computer Science and Engineering
- 2/1999 – 7/2000     **Post-Doctoral Researcher**, Brown University  
*Research topic:* Surface reconstruction for biomedical visualization
- 10/1996 – 1/1999     **Post-Doctoral Researcher**, Microsoft Research  
*Research topic:* Capturing and modeling facial animation
- 5/1996 – 10/1996     **Post-Doctoral Research**, Brown University  
*Research topic:* Automatic surface fitting
- 9/1995 – 12/1995     **Lecturer**, Brown University  
*Course:* Advanced graphics research using splines, wavelets, and Fourier transforms
- 6/1993 – 9/1995     **Research assistant**, Brown University  
*Research topics:* Surface modeling, collaboration with the University of Utah on user interfaces for surface modeling
- 9/1990 – 5/1993     **Teaching assistant**, Brown University  
*Courses:* Beginning and advanced graphics, Intro to Computer Science
- Summers '85 – '88     **Programmer**, Apple Computer  
*Projects:* Researching and producing metrics for source code analysis

## Education

- Spring 1996     **Ph.D. Computer Science**     Brown University  
Thesis: *Modeling Surfaces of Arbitrary Topology using Manifolds*

*Advisor:* John Hughes, Brown University

*Committee:* Andries van Dam (Brown), Tony deRose (University of Washington, now at Pixar)

Spring 1992	<b>M.A. Computer Science</b>	Brown University
Fall 1990	<b>B.A. Computer Science</b>	University of California at Berkeley
	<b>B.A. Art</b>	University of California at Berkeley

## Recent awards

NSF Career Award (2002-2006)

## Professional activities

- **Associate editor**
  - ACM Transactions on Graphics, 2002-2011
  - ELSEVIER Computers and Graphics, 2007-2011
  - Journal of Graphics Tools, 2008-present (note, now [Journal of Computer Graphics Techniques](#))
  - IEEE Computers and Graphics Applications, 2010-present
- **Guest editor special issue**
  - Elsevier Computers and Graphics 34(5), 2010, Extended papers from the 2009 Sketch-Based Interfaces and Modeling Conference (with Joe Laviola)
  - IEEE Computers and Graphics Applications Biomedical Applications: From Data Editing to Modeling, Sept 2012 (to appear), (with G. Elizabeta Marai)
- **Chair**
  - Non-Photorealistic Animation and Rendering, 2012-2013
  - Sketch-Based Interfaces and Modeling, 2009
  - ACM Student Research Competition, 2005
- **Conference organizer**
  - Siggraph 2009, 2010 Conference Committee
  - Sketch-based Interfaces and Modeling (SBIM) 2009 co-papers chair
  - Midgraph [founder], (Mid-west graphics conference, co-chair Bobby Bodenheimer, Vanderbilt University, 2003), (co-chair Tao Ju), 2008)
- **Committee member**
  - Graphite 2005, 2006, 2007
  - Symposium on Geometry Processing, 2006-2012
  - Siggraph Sketches, 2003, 2004, 2007, 2008
  - ACM Student Research Competition, 2004
  - Computer Graphics International, 2005, 2006, 2009
  - Eurographics, 2010
  - Interactive 3D Graphics 2005-2009
  - CAD/Graphics 2005-2009
  - Pacific Graphics 2002, 2003, 2007, 2008
  - Non-photorealistic Animation and Rendering (NPAR) 2007-2012
  - 10th International Conference on CAD/Graphics, 2007

IEEE CVPR workshop “Beyond Multiview Geometry: Robust Estimation and Organization of Shapes from Multiple Cues”, 2007  
IEEE Conference on Visualization, 2007, 2008  
GRAPP, 2007-2008  
Shape Modeling International 2008-2012  
MICCAI MeshMed 2013

- **Reviewer [33]**

Siggraph papers (1993-present), Computer Aided Geometric Design, IEEE Transactions on Graphics and Visualization, ACM Transactions on Graphics, Journal of Computing and Information Science in Engineering, IEEE Visualization, IEEE Information Visualization, IEEE Computer Graphics and Applications, AI EDAM, Shape Modeling International, Eurographics Visualization, The Visual Computer, Graphics Interface, Siggraph courses, Siggraph posters, ACM student research competition, International Journal of Robotics Research, Eurographics, Grace Hopper fellowship, IEEE PAMI, Siggraph Asia papers, Sketch-based Interfaces and Modeling, IEEE Signal Processing, ACM SigChi, SPIE Journal of Electronic Imaging, IEEE Transactions on Image Processing, ACM Solid and Physical Modeling, Non-photorealistic Animation and Rendering (NPAR), Leonardo, Computer Graphics Forum, Tomorrow Project, Virtual Reality in Brazil, Differential Geometry

- **Advisory board**

Computer Graphics Year in Review, AK Peters LTD, 2003-2005

- **Invited research presentations [22]**

Oregon State Mechanical Engineering (4/12), [Trimester program on computational manifolds](#), Impa, Rio de Janeiro, (10/11). [BIRS Workshop 11w5018 Geometry for Anatomy](#), Banff, (8/11), Dreamworks, (6/11), [2011 Bellairs Workshop on Computer Animation: GRAND Challenges, Animation and Geometry](#), Barbados, (3/11), University of Oregon (5/11), Oregon State (5/11), Adobe (1/11), Drexel College (4/10), BIRS workshop on Geometric modeling (5/09), University of Missouri (5/08), SIAM Conference on Geometric Design and Computing [plenary talk] (10/05), University of California at Berkeley (5/05), Northwestern University (10/04), Carnegie-Melon university (4/03), University of Utah (10/02), University of Wisconsin (4/00), George Washington University (4/00), University of Calgary (4/00), University of Toronto (3/00), Princeton University (9/00), Harvard University (9/99), University of Christchurch (2/96), Stanford University (4/95)

- **Conference courses**

Biomedical Applications: What You Need to Know, half-day course Siggraph 2010, Co-authors Rolf Mueller, Stephen Larson  
Manifolds and Modeling, half-day course Siggraph 2005, 2006, Co-author Denis Zorin, NYU [Acceptance rate 50%]

- **Guest class lectures**

Harvard University, Fall '99, Brown University, Fall '94

- **Ph.D. or M.S. committee member (external)**
  - Mihail Tudoreanu, Ds.C., Washington University, 7/02
  - Christine Julien, Ds.C., Washington University, 6/04
  - Dawei Gui, Ph.D., Washington University, 1/05
  - David Warner, M.S., Washington University, 5/03
  - Evan Kiebler, M.S., Washington University, 5/03
  - Tatdow Pansombut, M.S., Washington University, 5/03
  - Jianhua Ruan, M.S., Washington University, 5/04
  - Joel Brandt, M.S., Washington University, 5/05
  - Daniel Schoebel, M.S., Washington University, 5/04
  - Eric Baron Shobe, M.S., Washington University, 5/06
  - Sasakthi Abeysinghe, M.S., continuing on to PhD, Washington University, 5/07
  - Qilong Zhang, Ph.D., Washington University, 5/07
  - Manfred Georg, PhD., 8/10
  - Lu Liu, M.S., Washington University, 12/08
  - Lu Liu, Ph.D., Washington University, 12/11
  - Andrew Knutsen, Ph.D., Washington University, 5/10
  - Gazihan Alankus, Ph.D., Washington University, 12/11
  - Devorah Langsam, M.S., Washington University, 5/12
- **Membership**
  - Association for Computing Machinery (ACM), ACM Special Interest Group in Graphics (SIGGRAPH), Institute of Electrical and Electronics Engineers (IEEE)
- **Other**
  - NSF Panelist: CAREER, ITR, Computer Vision and Robotics, Graphics and Visualization
  - Organizer and Lecturer, SIGGRAPH 2005, 2006 Course: Manifolds and Modeling (course proposal was refereed)
  - Computer Research Association Distributor Mentor Program (2004-2006)

## Courses taught

- Engineering and Scientific Computing [Introductory Matlab] (CSE200), Fall 2008
- Software design and development studio ([CSE220/CSE320](#)) Fall 2006, Spring 2008, 2009
- Computer Graphics (CSE452, formerly CS453), Fall 2000, 2001, 2002, 2003, 2004, 2005
- Advanced Computer Graphics (CSE552, formerly CS552), Spring 2001, 2002, 2003, 2004, 2006, [Fall 2007](#)
- Mathematical Tools for Computer Science (CS402), Spring 2001, Fall 2001, 2002, 2003
- Video Game Programming I & II (CSE450, CSE451) Fall 2004, Spring 2005
- Research Seminar on Human Visual Perception (CSE7521), Fall 2004
- Algorithms and Data Structures (CSE241) Spring 2005, 2010
- Research Seminar on Mathematical Modeling (CSE7541) Spring 2005
- Special topics: Advanced mathematical tools for computer graphics (Brown University, CS295) Fall 1995

## Departmental and university service

- Reviewing for Olin fellowship (2006-2009)
- Undergraduate board (2001-2006)
- Association for Woman Faculty board member 2008-2009
- Director of Media and Machines lab 2000-2011
- Engineering school representative at the Faculty Assembly
- Leadership committee (department level)

## Ph.D students advised

- Timothy David Gatzke<sup>1</sup>, Fall 2000-2007. Graduation date: May 2007. Thesis proposal title: *Comparing Features of Three-Dimensional Object Models Using Registration Based on Surface Curvature Signatures Mapped to a Plane*
- Lei Wang, Spring 2001-2003 (Left for personal reasons)
- Reynold Bailey, Fall 2001-2007. Graduation date: August 2007. Thesis proposal title: *Techniques for perception-guided image editing*
- Nisha Sudarsanam, Fall 2003-fall 2006. Graduated August 2006 (Master's). Research topic: Camera control for linear and non-linear projection
- Amy Hawkins, Summer 2005-summer 2006. Graduated with a Master's. (Left for personal reasons)
- Ross Sowell, Fall 2005-2011 (expected graduation date July 2012).
- Ly Phan, Fall-2006-present.
- Ruosi Li, Fall 2009-2011. Graduated with a master's, 2011
- Michelle Vaughan, Fall 2010-present.

## M.S. students advised

- Ying Huang, 2001, Master's project: Bi-directional texture synthesis
- Nicholas Haddad, 2002, Master's project: Sound mosaicing
- Mark Schroering, May 2003, Master's thesis: [\*A Thesis on a 3D Input Device for Sketching Characters\*](#)
- Martin Hassett, 2003, Master's project: 3D Implicit surface interaction
- Andrew Schoewe, 2004, Master's project: Genetic textures on the GPU
- Nathan Dudley, 2005, Master's thesis: [\*Non-photorealistic rendering of algorithmically generated trees\*](#)
- Amy Hawkins, 2005, Master's project: Key frame interpolation using exponential matrices
- William Niebruegge, 2006, Master's project: Spherical texture mapping
- Rachael Bujans, 2006, Master's thesis: [\*Sketch-based techniques for mesh deformation and editing\*](#)
- Nisha Sudarsanam, Summer 2006, Master's thesis: [\*A Thesis on a View-based Deformation Tool-kit\*](#)
- Carol Brickman, Spring 2007, Master's project: [\*A Fingerspelling Sign Language Visualization\*](#)

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<sup>1</sup> Timothy worked full-time at Boeing.

- Mamta Datwami, Fall 2009, Master's project: Subtle Gaze Direction in Videos

## Research support

- National Science Foundation, Co-PI, "Collaborative Research: ImageQuest: Citizens Advancing Biology with Calibrated Imaging and Validated Analysis", (PI Robert Pless) DEB 1053554 \$518,332 9/10-9/13
- National Science Foundation, PI, "Collaborative Research: Biological Shape Spaces, Transforming Shape into Knowledge", DBI 1053171, \$213,923, 9/10-9/13
- National Science Foundation, Co-PI, "Geometric Modeling for Spatial Analysis of Bio-medical Data", (PI Tao Ju) CCF 0702662 \$95,280, 9/07-9/10 (12% funding rate), extended 10/10
- National Science Foundation, Co-PI 07-06/08, PI 07/08 "CPATH T: Active Learning for Transformation of the Undergraduate Experience", (PI 07-06/08 Ken Goldman, took over as PI July 2008) CNS 0722328, \$ 562,987, 8/07-8/11 (25% funding rate)
- National Science Foundation, PI, "Surface Construction and Comparison using Manifolds", CCF 0429856, \$402,053, 10/04-10/07, extended 10/08 (10% funding rate)
- National Science Foundation, PI, "CAREER: A Composition System for Computer Graphics", CCF 0238062, \$497,780, 3/03-3/08, extended 3/09
- National Science Foundation, Co-PI, "REU Sites: Summer Undergraduate Research Program", CNS 0139576, \$169,600, 4/02-4/04
- National Institute for Health, Sub-contract, "Normal and Abnormal in vivo carpal bone motion", PI Rhode Island Hospital, full grant \$498,287, Washington University subcontract \$14,585
- National Science Foundation, PI, "Manifolds and Lumigraphs", \$150,363, 8/99-8/01

## Supplements

- National Science Foundation, PI, "Surface Construction and Comparison using Manifolds", REU Supplement, \$6400, Summer 2006
- National Science Foundation, PI, "Surface Construction and Comparison using Manifolds", REU Supplement, \$6400, Summer 2005
- National Science Foundation, PI, "CAREER: A Composition System for Computer Graphics", REU Supplement, \$6400, Summer 2005
- National Science Foundation, PI, "CAREER: A Composition System for Computer Graphics", REU Supplement, \$12,000, Summer 2004

## Journal publications

- J1. Paul Heider, Alain Pierre-Pierre, Ruosi Li, Rolf Mueller, and Cindy Grimm, "Comparing Local Shape Descriptors", [The Visual Computer](#), special issue ([3DOR 2010](#)), 1-11, May 2012

- J2. Rolf Mueller, Lyvin Cai, Cindy Grimm, and Washington Mio, "Shape Space Analysis of Structures in Bat Biosonar", [The Journal of the Acoustical Society of America](#), 129(4), 2507, April, 2011
- J3. Cindy Grimm and William D. Smart, "Shape Classification and Normal Estimation for Non-uniformly Sampled, Noisy Point Data", [Elsevier Computers and Graphics](#), 35(4), 904-915, March 2011,
- J4. Andrew Knutsen, Yulin Chang, Cindy Grimm, Ly Phan, Larry Taber, Philip Bayly, "A New Method to Measure Cortical Growth in the Developing Brain", [Journal of Biomechanical Engineering](#), 132(10), 101004-101015 Oct 2010, PMID 20887014
- J5. Ross Sowell, Christopher Gill, Roger D. Chaimberlain, Cindy Grimm, Kenneth J. Goldman, and Mark Tranel, "The active-learning transformation: a case study in software development and systems software courses", [Journal of Computing in Small Colleges](#), 25(5), 165-172, May 2010
- J6. Ross Sowell, Yixen Chen, Jeremy Buhler, Sally Goldman, Cindy Grimm and Kenneth J. Goldman, "Experiences with active learning in CS 3", [Journal of Computing in Small Colleges](#), 25(5), 173-179, May 2010
- J7. Reynold Bailey, Ann McNamara, and Cindy Grimm, "Improving Search Task Performance Using Subtle Gaze Direction", [Transactions on Applied Perception](#), 6(3), 1-19, August 2009
- J8. Reynold Bailey, Ann McNamara, Nisha Sudarsanam, and Cindy Grimm, "Subtle Gaze Direction", [Transactions on Graphics](#), 28(4), 1-14, August 2009
- J9. Cindy Grimm, Ly Phan, Tao Ju, and John Hughes, "Adaptive Smooth Surface Fitting with Manifolds", [The Visual Computer](#), special issue ([Computer Graphics International](#)), 25(5), 589-597, May 2009
- J10. Sangwon Lee, David Feng, Bruce Gooch, and Cindy Grimm, "A Perception-based User Interface for Reconstructing Architecture Drawings", [Computer Graphics Forum](#), 27(1), 81-90, Mar 2008
- J11. Fujian Qu, Crystal M. Ripplinger, Vladimir P. Nikolski, Cindy Grimm, and Igor R. Efimov, "Three Dimensional Panoramic Imaging of Cardiac Arrhythmias in the Rabbit Heart", [Journal of Biomedical Optics](#), 12(4), CID(044019) Jul-Aug 2007
- J12. Reynold Bailey and Cindy Grimm, "Perceptually Meaningful Image Editing: Manipulating Perceived Depth and Creating the Illusion of Motion in 2D Images", [The Visual Computer](#), 23(9), 813-821, Aug 2007
- J13. G. Elisabeta Marai, Cindy Grimm, and David Laidlaw, "Arthrodiol Joint Markerless Cross-Parameterization and Biomechanical Visualization", [IEEE Transactions on Graphics and Visualization](#), 13(5), 1095-1104, September 2007
- J14. Bill Niebruegge and Cindy Grimm, "Continuous Cube Mapping", [Journal of Graphics Tools](#), 12(4), 25-34, Apr 2007



- J15. Ankit Mohan, Reynold Bailey, Johathan Waite, Jack Tumblin, Cindy Grimm, and Bobby Bodenheimer, “Table-top Computed Lighting for Practical Digital Photography”, [IEEE Computer Graphics and Visualization](#), 13(4), 652-662, August 2007
- J16. Amy Hawkins and Cindy Grimm, “Keyframing using Linear interpolation of Matrices”, [Journal of Graphics Tools](#), 12(13), 55-69, Oct 2007
- J17. Ryan Schmidt, Cindy Grimm, and Brian Wyvill “Interactive Decal Compositing with Discrete Exponential Maps”, *ACM Transactions on Graphics* ([Siggraph](#)), 25(3), 605-613, July 2006
- J18. Timothy D. Gatzke and Cindy Grimm, “Estimating Curvature on Triangular Meshes”, *International Journal of Shape Modeling*, [International Journal of Shape Modeling](#), 12(1), 1-29, June 2006
- J19. Cindy Grimm, Karan Singh, “Implementing the IBar camera widget”, [Journal of Graphics Tools](#), 10(3), 51-64, September 2005
- J20. Cindy Grimm, “Parameterization using Manifolds”, [International Journal of Shape Modeling](#), 10(1), 51-80, June 2004
- J21. Georgeta Elizabeth Marai, David Laidlaw, Cagatay Demiralap, Stuart Andrews, Cindy Grimm, and Joseph Crisco, “Estimating Joint Contact Areas and Ligament Lengths from Bone Kinematics and Surfaces”, [IEEE Transactions on Biomechanical Engineering](#), 51(5), 790-799, May 2004
- J22. Zachary Byers, Michael Dixon, William Smart, and Cindy Grimm, “Say Cheese!: Experiences with a Robot Photographer”, [AAAI Magazine](#), 25(3), 37-46, Fall 2004 (Cover story)
- J23. Cindy Grimm, David Laidlaw, and Joseph Crisco, “Fitting Manifold Surfaces To 3D Point Clouds”, [Journal of Biomechanical Engineering](#), Vol. 124,(1) 136-140, Feb. 2002
- J24. Cindy Grimm and Matthew Ayers, “A Framework for Synchronized Editing of Multiple Curve Representations”, *Computer Graphics Forum*, 17(3), 31-40, September 1998 (acceptance rate 34.7%)

### **Journal publications under review**

- R1. Sebastian Kurtek, Cindy Grimm, Michelle Vaughan, Ross Sowell, Anuj Srivastava, “Statistical Analysis of Manual Segmentations of Structures in Medical Images”, *Computer Vision and Image Understanding*, Special issue on Shape Modeling in Medical Image Analysis (under review)

### **Refereed conference publications**

- C1. Shahriar Hossain, Praveen Kumar Reddy Ojili, Cindy Grimm, Rolf Mueller, Layne Watson, Naren Ramakrishnan, “Scatter/Gather Clustering: Flexibly Incorporating User Feedback to Steer Clustering Results”, [IEEE Conference on Visual Analytics Science and Technology \(VAST\)](#), October, 2012



- C2. Ann McNamara, Stephen Caffey, Thomas booth, Cindy Grimm, Srinivas Sridharan, and Reynold Bailey, “Directing Gaze in Narrative Art”, [Symposium on Applied Perception](#), August 2012
- C3. Cindy Grimm and Pushkar Joshi, “JustDrawIt: A 3D Sketching System”, [Sketched-based Interfaces and Modeling \(SBIM\)](#), 121-130, July 2012
- C4. Reynold Bailey, Aaron Costello, Ann McNamara, Srinivas Sridharan, and Cindy Grimm “Impact of Subtle Gaze Direction on Short-Term Spatial Information Recall”, [Symposium: Eye Tracking Research and Applications](#), 67-74, March, 2012
- C5. Srinivas Sridharan, Reynold Bailey, Ann McNamara, and Cindy Grimm “Subtle Gaze Manipulation for Improved Mammography Training”, [Symposium: Eye Tracking Research and Applications](#), 112, March, 2012
- C6. Rolf Mueller, Jianguo Ma, Zhen Yan, Washington Mio, and Cindy Grimm, “Bioinspiration from Biodiversity in Sensor Design”, [ASME 2011 International Mechanical Engineering Congress and Exposition](#), November 2011, IMECE2011-64487
- C7. Paul Heider, Alain Pierre-Pierre, Ruosi Li, and Cindy Grimm, “Local Shape Descriptors, A Survey and Evaluation”, [Eurographics Workshop on 3D Object Retrieval](#), April 2011, pp 49-57
- C8. Ly Phan, Andrew Knutsen, Philip Bayly, Sandra Rugonyi, and Cindy Grimm, “Refining Shape Correspondence for Similar Objects using Strain”, [Eurographics Workshop on 3D Object Retrieval](#), April 2011, pp 17-24
- C9. Rolf Mueller, Lyvain Cai, Cindy Grimm, and Washington Mio, “Shape Space Analysis of Structures in bat Biosonar”, *Journal of the Acoustical Society of America*, 2011, 129(4), 2507
- C10. Ruosi Li, Liu Lu, Ly Phan, Sasakthi Abeysinghe, Cindy Grimm and Tao Ju, “Polygonizing Extremal Surfaces with Manifold Guarantees”, [Symposium on Solid and physical Modeling](#), Sep 2010, pp 189-194
- C11. Christopher Abraham, Ross Sowell, Lu Liu, Tao Ju, Cindy Grimm, Garima Gokhroo, and Daniel Low, “Volume Viewer: A Tool for Examining the Use of Non-Axial Image Planes in Treatment Planning”, [XVth International Conference on the Use of Computers in Radiation Therapy](#), June 2010
- C12. Manolya Eyiurekli, Cindy Grimm, and David Breen, “Editing Level-Set Models with Sketched Curves”, [Sketch-based Interfaces and Modeling](#), Aug 2009, pp 45-52
- C13. Ross Sowell, Lu Liu, Tao Ju, Cindy Grimm, Christopher Abraham, Garima Gokhroo, and Daniel Low, “Volume Viewer: an Interactive Tool for Fitting Surfaces to Volume Data”, [Sketch-based Interfaces and Modeling](#), Aug 2009, pp 141-148
- C14. Cindy Grimm, “Adding Lighting and Viewing Effects to Digital Images”, [Computational Aesthetics](#), May 2009, pp 99-105

- C15. Nisha Sudarsanam, Cindy Grimm, and Karan Singh, “CubeCam: A Screen-Space Camera Manipulation Tool”, [Computational Aesthetics](#), May 2009, pp 65-71
- C16. Reynold Bailey, Ann McNamara, and Cindy Grimm, “Improving Search Task Performance Using Subtle Gaze Direction”, [Symposium on Applied Perception in Graphics and Visualization](#), Aug 2008, pp 51-56
- C17. Nisha Sudarsanam, Karan Singh, and Cindy Grimm, “Non-linear Perspective Widgets for Creating Multiple-View Images”, [Symposium on Non-photorealistic Animation and Rendering](#), June 9-11, 2008, pp 69-79
- C18. Nathan Dudley and Cindy Grimm, “Non-Photorealistic Rendering of Algorithmically Generated Trees”, [GRAPP 2007](#), March 2007, pp 197-204
- C19. Michael Kowalski and Cindy Grimm, “Painting Lighting and Viewing Effects”, [GRAPP 2007](#), March 2007, pp 204-212
- C20. Tim Gatzke and Cindy Grimm, “Feature Detection using Curvature Maps and the Min-cut/Max-flow Algorithm”, [Geometric Modeling and Processing](#), 2006, pp 578-584 [Winner best poster award]
- C21. Leon Barrett, Patrick Coleman, Nisha Sudarsanam, Karan Singh and Cindy Grimm, “3D Screen-space Widgets for Non-linear Projection”, [Graphite 2005](#), Nov 2005, pp 221-228
- C22. Cindy Grimm, “Spherical Manifolds for Adaptive Resolution Surface Modeling”, [Graphite 2005](#), Nov 2005, pp 161-168
- C23. Nisha Sudarsanam, Cindy Grimm and Karan Singh, “Interactive Manipulation of Projections with a Curved Perspective”, [Eurographics](#) Short papers, 24(3), 105-108, September 2005
- C24. Timothy Gatzke, Steve Zelinka, Cindy Grimm and Michael Garland, “Curvature Maps for Local Shape Comparison”, [Shape Modeling International](#), 244-256, June 2005
- C25. Karan Singh, Cindy Grimm, and Nisha Sudarsanam, “The IBar: A Perspective-based Camera Widget”, [User Interfaces Science and Technology \(UIST\)](#), October 2004, pp 95-98
- C26. Christopher Kulla, James Tucek, Reynold Bailey, and Cindy Grimm, “Using Texture Synthesis for Non-Photorealistic Shading from Paint Samples”, [Pacific Graphics](#), 477-481, October 2003 (acceptance rate 19.8%)
- C27. Zachary Byers, Michael Dixon, Kevin Goodier, William Smart, and Cindy Grimm, “An Autonomous Robot Photographer”, Proceedings of the 2003 (IEEE/RSJ) International Conference on Robots and Systems ([IROS 2003](#)), Vol. 3, 2636-2641, October 2003
- C28. Cindy Grimm and John Hughes, “Parameterizing N-holed Tori”, [Mathematics of Surfaces X](#), Leeds, UK, 14-29, September 2003, re-published in “Mathematics of Surfaces”, ISBN 3540200533, Springer, Nov 1, 2003, pp 14-30

- C29. Zachary Byers, Michael Dixon, Cindy Grimm, and William Smart, "Say Cheese!: Experiences with a Robot Photographer", Innovative Applications of Artificial Intelligence ([IAAI '03](#)), Acapulco, Mexico, 65-70, August 2003
- C30. Mark Schroering, Cindy Grimm, and Robert Pless, "A New Input Device for 3D Sketching", [Vision Interface](#), Halifax, Canada, 311-318, June 2003
- C31. Lei Wang, Cindy Grimm, and Robert Pless, "A 3D Pattern for Pose Estimation for Object Capture", [Vision Interface](#), Halifax, Canada, 395-401, June 2003
- C32. G. Elisabeta Marai, David H. Laidlaw, Cagatay Demiralp, Cindy Grimm, Joseph J. Crisco, Douglas Moore, and E. Akelman. "Contact Areas and Ligament Lengths are Abnormal in Patients with Malunited Distal Radius Fracture Despite Normal Radioulnar Kinematics", [World Congress Biomechanics](#), August 2002
- C33. Cindy Grimm, "Simple Manifolds for Surface Modeling and Parameterization", [Shape Modeling International](#), Banff, Canada, 237-245, May 2002
- C34. Cagatay Demiralp, Georgeta Marai, Stu Andrews, David Laidlaw, Joseph Crisco, and Cindy Grimm, "Modeling and Visualization of Inter-Bone Distances in Joints", [Proceedings of IEEE Visualization 2001](#), 21-26, October 2001
- C35. Cindy Grimm, "Post-rendering Composition for 3D Scenes", [Eurographics](#) Short Papers, Manchester, United Kingdom, 20(3), 19-23, September 2001
- C36. Cindy Grimm, "Implicit Generalized Cylinders using Profile Curves", [Proceedings Implicit Surfaces](#), Bordeaux, Fr, 33-41, September 1999
- C37. Brian Guenter, Cindy Grimm, Daniel Wood, Henrique Malvar and Frédéric Pighin, "Making Faces", Computer Graphics, Annual Conference Series 1998 ([SIGGRAPH '98](#)), Orlando, FL, 51-66, July 1998 (acceptance rate 14.9%, 221 citations) [Note: Siggraph is now published as an issue of ACM Transactions on Graphics]
- C38. Cindy Grimm, David Pugmire, John Hughes, Mark Bloomenthal, and Elaine Cohen, "Visual Interfaces for Solids Modeling", [Proceedings User Interface Software and Technology \(UIST '95\)](#), 51-61, October 1995
- C39. Cindy Grimm and John Hughes, "Modeling Surfaces of Arbitrary Topology", Computer Graphics, Annual Conference Series 1995 (SIGGRAPH '95), Los Angeles, CA, 359-369, August, 1995 (acceptance rate 21.8%, citations 67)
- C40. Cindy Grimm and John Hughes, "Smooth Iso-Surface Approximation", [Implicit Surfaces](#), 57-77, June 1995

### **Refereed workshop publications**

- W1. Ly Phan and Cindy Grimm, "Sketching Reaction Diffusion Texture", [Eurographics Symposium on Sketch Based interfaces and Modeling](#), September 2006, pp 107-114

- W2. Reynold Bailey, Cindy Grimm, and Christopher Davoli, “The Effect of Warm and Cool Colors on Depth Ordering”, [Applied Perception in Graphics and Visualization](#), p 161, July 2006
- W3. Ankit Mohan, Jack Tumblin, Bobby Bodenheimer, Cindy Grimm and Reynold Bailey, “Table-top Computed Lighting for Practical Digital Photography”, [Eurographics Symposium on Rendering](#), 165-172, June 2005 (acceptance rate 33.3%)
- W4. William Smart and Cindy Grimm, “(Not) Interacting with a Robotic Photographer”, [AAAI Spring Symposium](#), Stanford, CA, 181-186, April 2003

### **Book chapters**

1. Dr. Beverly Browning, "Winning Strategies for Developing Grant Proposals", chapter “Why proposals aren’t funded” (Published 2005)
2. Bruce Gooch, Amy Gooch, Mario Costa Sousa (editors), "Non-photorealistic rendering II” (Published 2006)

### **Thesis**

- Cindy Grimm, “Modeling Surfaces of Arbitrary Topology using Manifolds”, 1996, Ph. D. Thesis Brown University
- Cindy Grimm, “Converting Solid Objects to Surface Objects”, Master’s thesis, Brown University 1992

### **Technical reports**

- T1. Cindy Grimm, “JustDrawIt! A 3D Sketching System”, Tech report WUCSE-2012-02, Washington University in St. Louis, 2012
- T2. Cindy Grimm, “[Results of an Observational Study on Sketching](#)”, Tech report WUCSE-2011-57, Washington University in St. Louis, 2011
- T3. Ross Sowell, Lu Liu, Tao Ju, Cindy Grimm, Christopher Abraham, Garima Gokhroo, and Daniel Low, “[VolumeViewer: An Interactive Tool for Fitting Surfaces to Volume Data](#)”, Tech report WUCSE-2009-13, Washington University in St. Louis, 2009
- T4. Cindy Grimm and William Smart, “[Local Neighborhoods for Shape Classification and Normal Estimation](#)”, Tech report WUCSE-2008-15, Washington University in St. Louis, 2008
- T5. Reynold Bailey and Cindy Grimm and Christopher Davoli and Richard Adams, “[The Effect of Object Color on Depth Ordering](#)”, Tech report WUCSE-2007-18, Washington University in St. Louis, 2007
- T6. Cindy Grimm and Tao Ju, “[Smooth Surface Reconstruction using Charts for Medical Data](#)”, Tech report WUCSE-2006-29, Washington University in St. Louis, 2006
- T7. Leon Barrett and Cindy Grimm, “[Smooth Key-framing using the Image Plane](#)”, Tech report WUCSE-2006-28, Washington University in St. Louis, 2006

- T8. Timothy Gatzke and Cindy Grimm, “[Feature Detection using Curvature Maps and the Min-Cut/Max-Flow Graph Cut Algorithm](#)”, Tech report WUCSE-2006-22, Washington University in St. Louis, 2006
- T9. Fujian Qu, Nikolski Vladimir, Cindy Grimm, and Igor Efimov, “[Three Dimensional Panoramic Fast Fluorescence Imaging of Cardiac Arrhythmias in the Rabbit Heart](#)”, Tech report WUCSE-2006-44, Washington University in St. Louis, 2006
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- T13. Nisha Sudarsanam, Cindy Grimm and Karan Singh, “[Intuitive tools for camera manipulation](#)”, Tech report WUCSE-2004-84, Washington University in St. Louis, 2004
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- T18. Cindy Grimm, “[Painting Lighting and Viewing Effects](#)”, Tech report WUCSE-2003-53, Washington University in St. Louis, 2003
- T19. Michael Dixon, William Smart, and Cindy Grimm, “[Picture Composition for a Robot Photographer](#)”, Tech report WUCSE-2003-52, Washington University in St. Louis, 2003
- T20. Cindy Grimm, John Hughes, and William Smart, “[View-dependent texture maps](#)”, Tech report WUCSE-2002-10, Washington University in St. Louis, 2002
- T21. Cindy Grimm and Michael Kowalski, “[Creating View-dependent Texture Maps](#)”, Tech report WUCSE-2002-9, Washington University in St. Louis, 2002

## **Refereed events**

- E1. William D. Smart, Zachary Byer, Michael Dixon, Jacob Cynamon, Hui Zhang, and Cindy Grimm, “Lewis the Robotic Photographer”, [Siggraph 2002 Emerging technologies](#)

### **Refereed abstracts**

- A1. Cindy Grimm, “Results of an observational study on sketching”, [SBIM 2011 posters](#), July 2011
- A2. Reynold Bailey, Aaron Costello, Ann McNamara, Cindy Grimm, “Impact of Subtle Gaze Direction on Short-Term Spatial Information Recall”, [Siggraph 2011 talks](#), August 2011 (Acceptance rate: 20%)
- A3. Srivnivas Sridharan, Ann McNamara, Reynold Bailey, Cindy Grimm, “Subtle Gaze Manipulation for Improved Mammography Training”, [Applied Perception and Graphics](#), August 2011
- A4. Paul Heider, Alain Pierre-Pierre, Ruosi Li, Rolf Mueller, and Cindy Grimm, “Poster: A Comparison of Local Shape Descriptors for Biological Applications”, [1<sup>st</sup> IEEE International Conference on Computational Advances in Bio and Medical Sciences \(ICCABS\)](#), Feb 2011
- A5. Rolf Mueller, Washington Mio, and Cindy Grimm, “Shape Space Analysis of Structures in Bat Biosonar”, [Meeting of the Acoustical Society of America](#), April 2010
- A6. Ross Sowell, Tom Erez, Emily Feder, Jianqi Xing, Leon Barret, and Cindy Grimm, “Image-space Constraints for Controlling Camera Interpolation”, [Symposium on Interactive 3D Graphics and Games](#), March 2011, p 205
- A7. Ross Sowell, Lu Liu, Tao Ju, Cindy Grimm, Christopher Abraham, Garima Gokhroo, and Daniel Low, “User Studies on the Feasibility of Oblique Contouring”, [Siggraph 2009](#) posters
- A8. Ross Sowell, Lu Liu, Tao Ju, Cindy Grimm, Christopher Abraham, Garima Gokhroo, and Dan Low, “VolumeViewer: an Interactive Tool for Fitting Surfaces to Volume Data”, [Symposium on Interactive 3D Graphics and Games](#), Feb 2009
- A9. Christopher Abraham, Dan Low, Ross Sowell, Garima Gokhroo, M. Michaletz-Lorenz, J. Olsen, and K. Creach, “Inter-observer Variability in Non-transverse Segmentation”, *Radiotherapy and Oncology*, 92(1), 2009 S186
- A10. Christopher Abraham, Dan Low, Ross Sowell, Garima Gokhroo, Tao Ju, Liu Lu, “VolumeVewer: A Segmentation and Surface Reconstruction Toolset for Non-transverse Image Planes”, [Medical Physics](#), 26, 2009 p 2459
- A11. Ly Phan, Lu Liu, Sasakthi Abyesinghe, Tao Ju and Cindy Grimm, “Surface Reconstruction from Point Set using Projection Operator”, [Siggraph 2008](#) posters and informal talks, second place in the ACM Student Programming Competition
- A12. Ross Sowell, Lu Liu, Tao Ju, and Cindy Grimm, “An Interactive Tool for Fitting Surfaces to Volume Data”, [SIGGRAPH 2008](#) poster. Selected for the ACM Student Programming Competition



- A13. Ross Sowell and Cindy Grimm, “Smooth Key Framing Using the Image Plane”, [Siggraph 2007](#) posters. Selected for the ACM Student Programming Competition.
- A14. Reynold Bailey, Ann McNamara, and Cindy Grimm, “Subtle Gaze Direction”, [Siggraph 2007](#) sketches. Selected for the ACM Student Programming Competition.
- A15. Ross Sowell and Cindy Grimm, “A Tool for Fitting Surfaces to Medical Image Data”, [Siggraph 2006](#) posters
- A16. Reynold Bailey and Cindy Grimm, “Creating the Illusion of Motion in 2D Images”, [Siggraph 2006](#) posters
- A17. Ankit Mohan, Jack Tumblin, Bobby Bodenheimer, Reynold Bailey, and Cindy Grimm, “Tabletop Computed Lighting for Practical Digital Photography”, Siggraph 2005 sketches (acceptance rate: 25%)
- A18. Amy Hawkins and Cindy Grimm, “Keyframing Using Linear Interpolation of Matrices”, Siggraph 2005 posters
- A19. Nisha Sudarsanam and Cindy Grimm, “CubeCam: A Screen-Space Camera Manipulation Tool”, Siggraph 2005 posters
- A20. Reynold J. Bailey and Cindy M. Grimm, “Using Value Images to Adjust Intensity in 3D Renderings and Photographs”, Siggraph 2004 posters
- A21. Nisha Sudarsanam, Leon Barrett, Patrick Coleman, Karan Singh, and Cindy Grimm, “Sketching Non-Linear Projections”, Siggraph 2004 posters
- A22. Cindy Grimm, “Painting Lighting and Viewing effects”, Graphics Interface 2003 posters
- A23. William D. Smart, Zachary Byer, Michael Dixon, Jacob Cynamon, Hui Zhang, and Cindy Grimm, “Lewis the Robotic Photographer”, Siggraph 2002 sketch (invited)

### **Other publications**

- O1. Pushkar Joshi, Cindy Grimm, “Methods and Apparatus for Three-Dimensional (3D) Sketching”, Patent 6067-71801 B1404, full filing 5/27/2012, Provisional Application Serial No. 61/491,078 applied for May 27, 2011, Adobe Corporation
- O2. Cindy Grimm, Rolf Mueller, Stephen Larson, “Biomedical applications: what you need to know”, Siggraph course notes 2010
- O3. Seeing the Future with Imaging Science, The National Academies and the Keck Futures Initiative joint publication, 2011.
- O4. Open Problems in Topology 2, Tom Peters and Denis Blackmore
- O5. Cindy Grimm and Denis Zorin, “Manifolds and Modeling”, Siggraph course notes 2005, 2006
- O6. Emerging Challenges in Computational Topology, Marshall Bern, David Eppstein, et. Al, Workshop sponsored by the NSF, available at: <http://xxx.lanl.gov/abs/cs/9909001>

- O7. Brian Guenter, Cindy Grimm, and Henrique Malvar, “Method and System for Capturing and Representing 3D Geometry, Color and Shading of Facial Expressions and other Animated Objects”, Patent 3382-49676