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## Research Interests

Scientific and medical visualization; Computer graphics; Visual perception; Eye Tracking; Haptics; Human factors; Virtual reality; Computational geometry

## Education

**University of North Carolina** Chapel Hill, NC  
Ph.D. Computer Science, December 2006  
*Displays for exploration and comparison of nested or intersecting surfaces*  
Thesis advisor: Russell M. Taylor II

**Mississippi State University** Mississippi State, MS  
M.S. Computer Science, August 1997

**Mississippi State University** Mississippi State, MS  
B.S. Computer Engineering (Minor: Mathematics), December 1994

## Research Experience

**University of Tennessee/Oak Ridge National Laboratory** April 2007 – May 2008  
*Post-Doctoral Research Associate* Supervisor: David C. Banks

**University of North Carolina** May 1998 – August 2004  
*Research Assistant* Department of Computer Science

**Mississippi State University** May 1995 – August 1997  
*Research Assistant* Department of Computer Science

## Teaching Experience

**University of North Carolina** Fall 2000  
*Instructor - Introduction to Computer Graphics* Supervisor: Steven F. Weiss

**University of North Carolina** Spring 1998  
*Teaching Assistant - Computer Organization* Supervisor: Gyula A. Mago

**University of North Carolina** Fall 1997  
*Teaching Assistant - Foundations of Programming* Supervisor: Steven F. Weiss

**Mississippi State University** Fall 1994 – Spring 1995  
*Teaching Assistant - Programming Laboratory* Supervisor: Charles G. Petersen

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**Book Chapters**

R.M. Taylor II, D. Borland, F.P. Brooks Jr., M. Falvo, M. Guthold, T. Hudson, K. Jeffay, G. Jones, D. Marshburn, S.J. Papadakis, L.-C. Qin, A. Seeger, F.D. Smith, D.H. Sonnenwald, R. Superfine, S. Washburn, **C. Weigle**, M.C. Whitton, P. Williams, L. Vicci and W. Robinett (2004). *Visualization and natural control systems for microscopy*. Chapter 46: Visualization Handbook. C.J. a. C. Hansen, Harcourt Academic Press. pp. 893–918.

**Journal Publications**

**C. Weigle** and D.C. Banks (to appear). *A comparison of the perceptual benefits of linear perspective and physically-based illumination for display of dense 3D streamtubes*. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2008). October, 2008.

J.K. Fisher, J. Cummings, K.V. Desai, L. Vicci, B. Wilde, K. Keller, **C. Weigle**, G. Bishop, R.M. Taylor II, C.W. Davis, R. Boucher, E.T. O'Brien, and R. Superfine (2005). *Three-dimensional force microscope: a nanometric optical tracking and magnetic manipulation system for the biomedical sciences*. Review of Scientific Instruments 76(5): 053711–053722.

**Refereed Conference Publications**

I. Huff, **C. Weigle**, and D.C. Banks (2008). *Ensemble-space visualization improves perception of 3D state of molecular dynamics simulation*. Symposium on Applied Perception in Graphics and Visualization 2008. Los Angeles, CA. pp. 163–170

**C. Weigle** and D.C. Banks (2008). *Analysis of eye-tracking experiments performed on a Tobii T60*. Proceedings of IS&T/SPIE Electronic Imaging: Visualization and Data Analysis 2008. San Jose, CA. pp. 6809-03:1–12.

J.R. Crouch, **C. Weigle**, Y. Shen, and J.L. Gleason (2008). *Polar stratospheric cloud visualization: volume reconstruction from intersecting curvilinear cross sections*. Proceedings of IS&T/SPIE Electronic Imaging: Visualization and Data Analysis 2008. San Jose, CA. pp. 6809-01:1–12.

**C. Weigle** and R.M. Taylor II (2005). *Visualizing intersecting surfaces with nested-surface techniques*. Proceedings of IEEE Visualization 2005. Minneapolis, Minnesota. pp. 503–510.

D. Marshburn, **C. Weigle**, B. Wilde, R.M. Taylor II, K.V. Desai, J.K. Fisher, J. Cribb, E.T. O'Brien, and R. Superfine (2005). *The software interface to the 3D-force microscope*. Proceedings of IEEE Visualization 2005. Minneapolis, Minnesota. pp. 455–462.

D. Jen, P. Parente, J. Robbins, **C. Weigle**, R.M. Taylor II, A. Burette and R. Weinberg (2004). *Investigating dendritic spines using computer visualization techniques*. Proceedings of IEEE Visualization 2004. Austin, Texas. pp. 529–536.

R. Superfine, G. Bishop, J. Cummings, J.K. Fisher, K. Keller, G. Matthews, D. Sill, R.M. Taylor II, L. Vicci, **C. Weigle**, G. Welch and B. Wilde (2002). *Touching in biological systems: A 3D force microscope*. Proceedings of Microscopy and Microanalysis. Quebec City, Canada. pp. 174–175.

J. Cummings, **C. Weigle**, L. Vicci, K. Keller, B. Wilde, J.K. Fisher, D. Sill, G. Bishop, G. Welch, J.Y. Jeong, R.M. Taylor II and R. Superfine (February 20-23, 2002). *A 3D force microscope*. 46th Annual Meeting of the Biophysical Society, San Francisco, CA. Biophysical Journal (Annual Meeting Abstracts) 82(1): 2494.

**C. Weigle**, W.G. Emigh, G. Liu, R.M. Taylor II, J.T. Enns and C.G. Healey (2000). *Oriented texture slivers: A technique for local value estimation of multiple scalar fields*. Proceedings of Graphics Interface 2000. Montreal, Canada. pp. 163–170.

**C. Weigle** and D.C. Banks (1998). *Extracting iso-valued features in 4-dimensional scalar fields*. IEEE Symposium on Volume Visualization 1998. Research Triangle Park, NC. pp. 103–110.

**C. Weigle** and D.C. Banks (1996). *Complex-valued contour meshing*. Proceedings of IEEE Visualization 1996. San Francisco, CA. pp. 173–180.

### Invited Talks

**C. Weigle** (April 2008). *Multi-scale data visualization: Illumination and perception*. Old Dominion University. Norfolk, VA.

**C. Weigle** (January 2008). *Evaluating an eye-tracker for visualization studies*. Lawrence Berkeley National Laboratory. Berkeley, CA.

**C. Weigle** (October 2006). *Visualizing overlapping 3D data: Tools and Techniques*. Joint Institute for Computational Sciences, University of Tennessee and Oak Ridge National Laboratory. Oak Ridge, TN.

**C. Weigle** (March 2006). *End-user informed evaluation of layered-surface visualization*. Department of Computer Science, University of Georgia. Athens, GA.

**C. Weigle** (February 2005). *Displays for exploring and comparing intersecting surfaces*. Department of Computer Science, Clemson University. Clemson, SC.

**C. Weigle** (May 1997). *Complex-valued contour meshing*. ICASE, NASA Langley Research Center. Hampton, VA.

D.C. Banks, **C. Weigle**, and T. Jarvis (June 1996). *Interacting with complex algebraic curves*. DIMACS Research and Education Institute, Workshop on Visualizing Mathematics. Princeton, NJ.

### Contributed Talks

J.K. Fisher, J. Cummings, **C. Weigle**, G. Bishop and R. Superfine (November 4–6, 2001). *Axial calibration for 3D tracking using an optical trap*. Southeastern Section of the American Physical Society Annual Meeting. Charlottesville, VA.

### Professional Service

**Referee** – ACM SIGGRAPH (2006), ACM/IEEE Supercomputing (2008), Graphics Interface (2005), IEEE Visualization (2004 – 2008), SIAM Journal on Scientific Computing (2007 – 2008)