William B. Thompson

Education:

Ph.D., Computer Science, University of Southern California, Los Angeles, CA, January 1975.
M.S., Computer Science, University of Southern California, Los Angeles, CA, January 1972.
Sc.B., Physics, Brown University, Providence, RI, June 1970.

Professional experience:

Professor, Department of Computer Science, University of Utah, 1991 - .
Adjunct Professor, Department of Psychology, University of Utah, 2004 - .
Professor, Computer Science Department, University of Minnesota, 1990 - 1991.
Associate Professor, Department of Computer Science, University of Minnesota, 1982 - 1990.
Assistant Professor, Department of Computer Science, University of Minnesota, 1975 - 1982.

Research interests:

Prof. Thompson's current research lies at the intersection of computer graphics and visual perception, with the dual aims of making computer graphics more effective at conveying information and using computer graphics as an aid in investigating human perception. This is an intrinsically multi-disciplinary effort involving aspects of computer science, perceptual psychology, and computational vision. He has also made contributions in the areas of visual motion perception and the integration of vision and maps for navigation.

Selected professional activities:

Associate Editor, *ACM Transactions on Applied Perception*, 2003 – .

Program Committee, ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2005, 2004.

Program Co-Chair, ACM SIGGRAPH Symposium on Applied Perception in Graphics and Visualization, 2006.

Program Committee, IEEE Conference on Computer Vision and Pattern Recognition, 2000, 1994, 1991, 1988, 1986, and 1982.

Associate Editor, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 1985 – 1989.

Selected recent (and some not so recent) publications:

K. Rand, M.R. Tarampi, S.H. Creem-Regehr, and W.B. Thompson, "The influence of ground contact and visible horizon on perception of distance and size under severely degraded vision," *Seeing and Perceiving*, 25(5), 2012.

J.K. Stefanucci, D.A. Lessard, M.N. Geuss, S.H. Creem-Regehr, S.H., and W.B. Thompson, "Evaluating the Accuracy of Size Perception in Real and Virtual Environments," *Proc. ACM Symposium on Applied Perception*, 2012.

W.B. Thompson, R.W. Fleming, S.H. Creem-Regehr, and J.K. Stefanucci, *Visual Perception from a Computer Graphics Perspective*, CRC Press, 2011.

B.J Mohler, S.H Creem-Regehr, W.B. Thompson, and H.H. Bülthoff, "The Effect of Viewing a Self-Avatar on Distance Judgments in an HMD-Based Virtual Environment," *Presence: Teleoperators and Virtual Environments*, 19(3), 2010.

M. Bratkova, P. Shirley, and W.B. Thompson, "Artistic Rendering of Mountainous Terrain," *ACM Transactions on Graphics*, 28(4), 2009.

S.A. Kuhl, W.B. Thompson, and S.H. Creem-Regehr, "HMD calibration and its effects on distance judgments," *ACM Transactions on Applied Perception*, 6(3), 2009.

P. Willemsen, M.B. Colton, S.H. Creem-Regehr and W.B. Thompson, "The Effects of Head-Mounted Display Mechanical Properties and Field-of-View on Distance Judgments in Virtual Environments," *ACM Transactions on Applied Perception*, 6(2), 2009.

P. Willemsen, A.A. Gooch, W.B. Thompson, and S.H. Creem-Regehr, "Effects of Stereo Viewing Conditions on Distance Perception in Virtual Environments," *Presence: Teleoperators and Virtual Environments*, 17(1), 2008.

W.B. Thompson, V. Dilda and S.H. Creem-Regehr, "Absolute Distance Perception To Locations Off the Ground Plane," *Perception*, 36(11), 2007.

B.J. Mohler, W.B. Thompson, S.H. Creem-Regehr, H.L. Pick, Jr., and W.H. Warren, Jr., "Visual Flow Influences Gait Transition Speed and Preferred Walking Speed," *Experimental Brain Research*, 181(2), 2007.

B.J. Mohler, W.B. Thompson, S.H. Creem-Regehr, P. Willemsen, H.L. Pick, Jr., and J.J. Rieser, "Calibration of Locomotion due to Visual Motion in a Treadmill-based Virtual Environment," *ACM Transactions on Applied Perception*, 4(1), 2007.

B.J. Mohler, S.H. Creem-Regehr, and W.B. Thompson, "The Influence of Feedback on Egocenteric Distance Judgments in Real and Virtual Environments," *Proc. Third Symposium on Applied Perception in Graphics and Visualization*, July 2006.

S.H. Creem-Regehr, P. Willemsen, A.A. Gooch, and W.B. Thompson, "The Influence of Restricted Viewing Conditions on Egocentric Distance Perception: Implications for Real and Virtual Environments," *Perception*, 34(2), 2005.

Cynthia S. Sahm, Sarah H. Creem-Regehr, William B. Thompson, and Peter Willemsen, "Throwing versus walking as indicators of distance perception in real and virtual environments," *ACM Transactions on Applied Perception*, 2(1), 2005.

W.B. Thompson, P. Willemsen, A.A. Gooch, S.H. Creem-Regehr, J.M. Loomis, and A.C. Beall, "Does the Quality of the Computer Graphics Matter When Judging Distances in Visually Immersive Environments?," *Presence: Teleoperators and Virtual Environments*, October 2004.

H.H. Hu, A.A. Gooch, S.H. Creem-Regehr, and William B. Thompson, "Visual Cues for Perceiving Distances from Objects to Surfaces," *Presence: Teleoperators and Virtual Environments*, December 2002.

W.B. Thompson, P. Shirley, and J.A. Ferwerda, "A Spatial Post-Processing Algorithm for Images of Night Scenes," *Journal of Graphics Tools*, 7(1), 2002.

C. Madison, W.B. Thompson, D.J. Kersten, P. Shirley, and B.S. Smits, "Use of Interreflection and Shadow for Surface Contact," *Perception & Psychophysics*, 63(2), 2001.

W.B. Thompson, J.C. Owen, H.J. de St. Germain, Stevan R. Stark, and T.C. Henderson, "Feature-Based Reverse Engineering of Mechanical Parts," *IEEE Transactions on Robotics and Automation*, 15(1), 1999.

W.B. Thompson and T.C. Pong, "Detecting Moving Objects," *International Journal of Computer Vision*, January 1990.

A. Yonas, L.G. Craton, and W.B. Thompson, "Relative Motion – Kinetic Information for the Order of Depth at an Edge," *Perception & Psychophysics*, January 1987.

W.B. Thompson, K.M. Mutch, and V.A. Berzins, "Dynamic Occlusion Analysis in Optical Flow Fields," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, July 1985.

S.T. Barnard and W.B. Thompson, "Disparity Analysis of Images," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, July 1980.

C.L. Fennema and W.B. Thompson, "Velocity Determination in Scenes Containing Several Moving Objects," *Computer Graphics and Image Processing*, April 1979.