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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.

Principal areas of current research interest:

Computational models of perception, with an emphasis on spatial organization; Perception and computer graphics; Virtual environments; Computer vision;

Research accomplishments:

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. Prof. Thompson has also made contributions in the areas of visual motion perception and in the integration of vision and maps for navigation.

Selected professional activities:

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

Member, Scientific Advisory Board, Max-Planck Institute for Biological Cybernetics, 2014-2019.

Chair, organizing commitee, CRA/CCC Workshop on Quantication, Communication, and Interpretation of Uncertainty in Simulation and Data Science, 2014.

Program Committee, ACM SIGGRAPH Symposium on Applied Perception 2014, 2013, 2012.

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

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

Co-organizer, Vision Sciences Society workshop on Perception and Action in Immersive Virtual Environments, 2005.

Program Advisor, ACM SIGGRAPH / Eurographics Campfire on Perceptually Adaptive Graphics, 2001.

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

Program Committee, National Conference on Artificial Intelligence, 1997.

Program Committee, IEEE Conference on Robotics and Automation, 1997.

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

Publications:

R.L. Klatzky, W.B. Thompson, J.K. Stefanucci, D. Gill, and D.K. McGee, "The Perceptual Basis of Vast Space," *Psychonomic Bulletin & Review*, 24(6), 2017.

L. Liu, A. Boone, I. Ruginski, L. Padilla, M. Hegary, S.H. Creen-Regehr, W.B. Thompson, C. Yuksel, and D.H House, "Uncertainty visualization by representative sampling from prediction ensembles," *IEEE Transactions on Visualization and Computer Graphics*, 23(9), 2017.

W.B. Thompson, G.E. Legge, D.J. Kersten, R.A. Shakespeare, and Q. Lei, "Simulating visibility under reduced acuity and contrast sensitivity," *Journal of the Optical Society of America A*, 34(4), 2017.

B. Bodenheimer, S. Creem-Regehr, J. Stefanucci, E. Shemetova, and W. Thompson, "Prism Aftereffects for Throwing with a Self-Avatar in an Immersive Virtual Environment," *Proc. IEEE Virtual Reality*, 2017.

I.T. Ruginski, A.P. Boone, L.M. Padilla, L. Liu, N. Heydari, H.S. Kramer, M. Hegarty, W.B. Thompson, D.H. House, and S.H. Creem-Regehr, "Non-expert interpretations of hurricane forecast uncertainty visualizations," *Spatial Cognition & Computation*, 16(2), 2016.

S.H. Creem-Regehr, J.K. Stefanucci, W.B. Thompson, N. Nash, and M. McCardell, "Egocentric Distance Perception in the Oculus Rift (DK2)," *Proc. ACM Symposium on Applied Perception*, 2015.

M.N. Geuss, J.K. Stefanucci, S.H. Creem-Regehr, W.B. Thompson, and B.J. Mohler, "Effect of display technology on perceived scale of space," *Human Factors*, 57(7), 2015.

E. Jun, J.K. Stefanucci, S.H. Creem-Regehr, M. Geuss, and W.B. Thompson, "Big Foot: Using the size of a virtual foot to scale gap width," *ACM Transactions on Applied Perception*, 12(4). 2015.

G. Rauhoeft, M. Leyrer, W.B. Thompson, J.K. Stefanucci, R.L. Klatzky, and B.J. Mohler, "Evoking and Assessing Vastness in Virtual Environments," *Proc. ACM Symposium on Applied Perception*, 2015.

J.K. Stefanucci, S.H. Creem-Regehr, W.B. Thompson, D.A. Lessard, and M.N. Geuss , "Evaluating the accuracy of size perception on screen-based displays: Displayed objects appear smaller than real objects," *Journal of Experimental Psychology: Applied*, 21(3), 2015.

B.R. Kunz, S.H. Creem-Regehr, and W.B. Thompson, "Testing the Mechanisms Underlying Improved Distance Judgments in Virtual Environments," *Perception*, 44, 2015.

K.M. Rand, S.H. Creem-Regehr, and W.B. Thompson, "Spatial learning while navigating with severely degraded viewing: The role of attention and mobility monitoring," *Journal of Experimental Psychology: Human Perception and Performance*, 2015.

L.M. Padilla, G. Hansen, I.T. Ruginski, H.S. Kramer, W.B Thompson, and S.H Creem-Regehr, "The influence of different graphical displays on non-expert decision making under uncertainty," *Journal of Experimental Psychology: Applied*, 2015

S.H. Creem-Regehr, J.K. Stefanucci, and W.B. Thompson, "Perceiving Absolute Scale in Virtual Environments: How theory and application have mutually informed the role of body-based perception," in B. Ross (ed.), *The Psychology of Learning and Motivation*, vol. 63, 2015.

S.K. Satyavolu, S.H. Creem-Regehr, J.K. Stefanucci, and W.B. Thompson, "Pointing from a third person avatar location: does dynamic feedback help?" *Proc. ACM Symposium on Applied Perception*, 2014.

B.R. Kunz, S.H. Creem-Regehr, and W.B. Thompson, "Does perceptual-motor calibration generalize across two different forms of locomotion? Investigations of walking and wheelchairs," *PLoS ONE*, 8(2), 2013.

M.N. Geuss, J.K. Stefanucci, S.H. Creem-Regehr, and W.B. Thompson, "Effect of viewing plane on perceived distances in real and virtual environments," *Journal of Experimental Psychology: Human Perception and Performance*, 38(5), 2012.

M. Raj, S.H. Creem-Regehr, K.M. Rand, J.K. Stefanucci, and W.B. Thompson, "Kinect based 3D Object Manipulation on a desktop display," *Proc. ACM Symposium on Applied Perception*, 2012.

J.K. Stefanucci, D.A. Lessard, M.N Geuss, S.H. Creem-Regehr, and W.B. Thompson, "Evaluating the accuracy of size perception in real and virtual environments," *Proc. ACM Symposium on Applied Perception*, 2012.

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.

T. Ziemek, S.H. Creem-Regehr, W.B. Thompson, and R. Whitaker, "Evaluating the Effectiveness of Orientation Indicators with an Awareness of Individual Differences," *ACM Transactions on Applied Perception*, 9(2), 2012.

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M. Geuss, J. Stefanucci, S.H. Creem-Regehr, and W.B. Thompson, "Can I pass?: Using affordances to measure perceived size in virtual environments," *Proc. Symposium on Applied Perception in Graphics and Visualization*, 2010.

B.R. Kunz, S.H. Creem-Regehr, and W.B. Thompson, "Visual capture influences body-based indications of visual extent," *Experimental Brain Research*, 207(3-4), 2010.

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.

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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.

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S.A. Kuhl, W.B. Thompson, and S.H. Creem-Regehr, "Minification Influences Spatial Judgments in Virtual Environments," *Proc. Third Symposium on Applied Perception in Graphics and Visualization*, July 2006.

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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.

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R. Mills and J.M. Hollerbach and W.B. Thompson, "The Biomechanical Fidelity of Slope Simulation on the Sarcos Treadport Using Whole-Body Force Feedback," *Proc. Seventh International Symposium On Experimental Robotics (ISER '00)*, December 2000.

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S. Premože, W.B. Thompson, and P. Shirley, "Geospecific Rendering of Alpine Terrain," *Proceedings of the Eurographics Rendering Workshop*, June 1999.

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), February 1999.

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T.C. Henderson, M. Dekhil, Scott Morris, and W.B. Thompson, "Smart Sensor Snow," *IEEE International Conference on Intelligent Robotic Systems*, October 1998.

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