JOHANNES BURGE

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Work Experience

2014-present	Assistant Professor	University of Pennsylvania
2009-2014	Post-doctoral fellow	University of Texas at Austin
2008-2009	Post-doctoral researcher	University of California, Berkeley

Education

2008	Vision Science, PhD	University of California, Berkeley
2000	BA: Psychology	Stanford University
	Minor: Mathematics	

Research Experience

2009-2014	Center for Perceptual Systems	University of Texas at Austin
2002-2009	Vision Science Program	University of California, Berkeley
2003-2004	Institute of Biological Cybernetics	Max Planck Institute, Tuebingen
2002	Psychology Department	University of California, Los Angeles
1999-2000	Psychophysiology Research Lab	NASA Ames, Moffit Field

Professional Service

Organizer	Cosyne 2014, Program Committee Member
Reviewer	Journal of Neuroscience
	Journal of Vision
	Journal of Neurophysiology
	IEEE
	PLoS Computational Biology
	Frontiers in Perception Science
	Frontiers in Psychology
	Investigative Ophthalmology and Visual Science
	Transactions on Haptics
	Vision Research

Awards

2012 -2014	NIH Institutional Training Grant Post-doctoral Awardee, CPS, UT Austin
2012	SPIE, Digital Photography VIII Best Paper Award, sponsored by Canon USA, Inc.
2012	Computational and Systems Neuroscience (Cosyne) Travel Award
2006	American Optometric Foundation (AOF) William C. Ezell Fellowship
2002-2004	NIH Institutional Training Grant Graduate Student Awardee, UC Berkeley

Patents

Burge J, Geisler WS. "An image-based method for the optimal estimation of defocus in individual natural images." Provisional Patent 22084-P069V1.

Publications

Burge J, Geisler WS (2014). "Optimal disparity estimation in natural stereo-images". *Journal of Vision*. 14:2(1), 1-18.

Geisler WS, Burge J, D'Antona A, Michel MM (in press). "Characterizing the effects of stimulus and neural variability on perceptual performance". In: *The Cognitive Neurosciences V*. Ed: DiCarlo J.

Scholl B, Burge J, Priebe NJ (2013). "Binocular integration and disparity selectivity in mouse primary visual cortex". *Journal of Neurophysiology*, 109, 3013-3024.

Burge J, Geisler WS (2012). "Optimal defocus estimates from individual images for autofocusing a digital camera". *Proceedings of the SPIE*, January: Burlingame, CA. (Best Paper Award)

Burge J, Geisler WS (2011). "Optimal defocus estimation in individual natural images". *Proceedings of the National Academy of Sciences,* 108 (40): 16849-16854.

Banks MS, Burge J, & Held R (2011). "The statistical relationship between depth, visual cues, and human perception". In: *Sensory Cue Integration*. Ed: Landy, M. Oxford University Press.

Burge J, Geisler WS (2011). "Optimal image-based defocus estimates from individual natural images". *Proceedings of the Optical Society of America: Imaging Systems and Applications*, July: Toronto, Canada.

Cooper E, Burge J, Banks MS (2011). "The vertical horopter is not adaptable but it may be adaptive". *Journal of Vision*, 11(3) 20: 1-19.

Burge J, Fowlkes CC, Banks MS (2010). "Natural scene statistics predict how the figure-ground cue of convexity affects human depth perception". *Journal of Neuroscience*, 30(21): 7269-7280.

Burge J, Girshick AR, Banks MS (2010). "Visual-haptic adaptation is determined by relative reliability". *Journal of Neuroscience*, 30(22): 7714-7721.

Burge J, Ernst MO, Banks MS (2008). "The statistical determinants of adaptation rate in human reaching". *Journal of Vision*, 8(4) 20: 1-19.

Gepshtein S, Burge J, Ernst MO, & Banks MS (2005). "The combination of vision and touch depends on spatial proximity." *Journal of Vision*, *5*(11), 1013-1023.

Burge J, Peterson MA, & Palmer SE (2005). "Ordinal configural cues combine with metric disparity in depth perception." *Journal of Vision*, *5*(6), 534-542.

Cowings PS, Toscano WB, Keller MA, Burge J (2001). "Autogenic-feedback training exercise improves pilot performance: enhanced functioning under search and rescue flying conditions" *The International Journal of Aviation Psychology*. 11(3), 305-315.

Submitted Manuscripts
Burge J, Geisler WS (submitted). "Optimal speed estimation in natural image movies predicts human performance".

Manuscripts in Preparation
Sebastian S, Burge J, Geisler WS (in preparation). "Human discrimination of defocus blur in natural images".

Talks
2014, November	Rutgers University	New Brunswick, NJ
2014, May	Vision Sciences Society	St. Petersburg, FL
2014, February	Annual Interdisciplinary Conference	Jackson Hole, WY
2013, May	Vision Sciences Society	Naples, FL
2013, January	University of Pennsylvania	Philadelphia, PA

2012, June	Perception, Representation, and Objectivity: Themes from Tyler Burge	St. Petersburg, Russia
2012, February	Cosyne	Salt Lake City, UT
2012, January	IS&T/SPIE Conference on Electronic Imaging	Burlingame, CA
2012, January	Stanford University	Stanford, CA
2011, July	Optical Society of America, Imaging Systems	Toronto, Canada
2011, May	Vision Sciences Society	Naples, Florida
2011, February	Ohio State University	Columbus, Ohio
2010, September	Redwood Center for Theoretical Neuroscience	Berkeley, CA
2010, May	Vision Sciences Society	Naples, Florida
2010, March	Italian Institute of Technology	Genoa, Italy
2010, March	Cosyne	Salt Lake City, Utah
2008, May	Vision Sciences Society	Naples, Florida
2007, August	European Conference on Visual Perception	Arezzo, Italy
2005, August	European Conference on Visual Perception	La Coruna, Spain
2005, July	MPI for Biological Cybernetics	Tubingen, Germany
2004, May	Vision Sciences Society	Sarasota, Florida

Teaching

2011, July	Workshop: Natural scene statistics	Ludwig Maximilian Universität
2003	Perception & Psychophysics	UC, Berkeley
2003	Perception & Psychophysics	UC, Berkeley

Conference Abstracts

Burge J, Geisler WS (2014). "3D surface tilt estimation in natural scenes from image cue gradients". *Vision Sciences Society*, St. Petersburg, FL.

Burge J, Geisler WS (2014). "Optimal speed estimation in natural image movies predicts human performance". *Natural Environments, Tasks, and Intelligence*, UT Austin, Austin, TX.

Burge J, Geisler WS (2014). "3D surface tilt estimation in natural scenes from image cue gradients". *COSYNE*, Salt Lake City, UT

Burge J, Geisler WS (2014). "Using natural image movies to determine optimal processing for speed estimation". *Annual Interdisciplinary Conference*, Jackson Hole, WY.

Burge J, Geisler WS (2013). "Optimal retinal speed estimation in natural image movies". *Vision Sciences Society*, Naples, FL.

Burge J, Geisler WS (2013). "Optimal speed estimation in natural image movies". *COSYNE*, Salt Lake City, UT

Burge J, Geisler WS (2012). "Linear and non-linear receptive fields for optimal disparity estimation in natural stereo-images". *COSYNE*, Salt Lake City, UT

Burge J, Geisler WS (2012). "Optimal defocus estimates from individual images for autofocusing a digital camera". *IS&T/SPIE Conference on Electronic Imaging: Digital Photography*, Burlingame, CA (TALK)

Sebastian S, Burge J, Geisler WS (2011). "Human discrimination of defocus blur in natural images". *Society for Neuroscience,* Washington, D.C.

Burge J, Geisler WS (2011). "Optimal receptive fields for disparity estimation in natural images".

Society for Neuroscience, Washington, D.C.

Burge J, Geisler WS (2011) "Optimal image-based defocus estimates from individual natural images". *Optical Society of America: Imaging Systems and Applications*. Toronto, Canada. (TALK)

Burge J, Geisler WS (2011) "Optimal disparity estimation in natural stereo-images". *Vision Sciences Society,* Naples, Florida. (TALK)

Burge J, Geisler WS (2010) "Optimal defocus detection and estimation in natural images". *Vision Sciences Society,* Naples, Florida. (TALK)

Burge J, Geisler WS (2010) "Detection and estimation of defocus in natural images". *COSYNE,* Salt Lake City, Utah (TALK)

Burge, J, Held R, Banks MS (2008) "Blur and accommodation are metric depth cues." *Vision Sciences Society*, Sarasota, Florida (TALK)

Girshick AR, Burge J, Banks MS (2008). "Prior expectations in slant perception: has the visual system internalized natural scene geometry". *Vision Sciences Society,* Sarasota, Florida (TALK)

Burge J, Fowlkes, CC, Banks, MS (2007) "Configural cues, disparity, and depth perception: the internalization of natural scene statistics". *European Conference on Visual Perception*, A Coruna, Spain (TALK)

Burge J, Girshick AR, Banks MS (2007) "Visuo-haptic adaptation: the role of relative reliability" *Vision Science Society,* Sarasota, Florida

Burge J, Ernst MO, Banks MS (2006) "Modeling visuo-motor adaptation behavior with a Kalman Filter" *Computational workshop: bridging the gap between sensation and perception*, Karlsruhe, Germany

Burge J, Peterson MA, Palmer SE, & Banks MS (2005) "Configural cues combine with disparity in depth perception", *European Conference on Visual Perception* (TALK)

Ernst MO, Burge, J, Banks, MS (2005). "Using a Kalman Filter to predict visuomotor adaptation behavior". *European Conference on Visual Perception*

Banks, MS, Burge, J, & Schlerf, JE (2005). "Disparity and texture gradients are combined in a weighted sum and a subtraction" *European Conference on Visual Perception*

Ernst, MO, Burge, J, Banks, MS (2005). "Resolving visual-tactual incongruity depends on sensory reliability". *International Multisensory Research Forum,* Dublin, Ireland

Burge, J, Hillis, JM., Landy, MS, & Banks, MS (2003) "Disparity and texture gradients are combined in two ways." *Vision Sciences Society*