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Department of Psychology and Centre for Vision Research
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Education

- 2002 Ph.D., University of Toronto, Department of Psychology
 Advisors: Patrick J. Bennett and Allison B. Sekuler
- 1994 M.Phil., University of Cambridge, Department of Philosophy
- 1992 B.A., University of Toronto, Department of Philosophy

Positions

- 2009 - present Associate professor
 York University, Department of Psychology
- 2005 - 2009 Assistant professor
 York University, Department of Psychology
- 2004 - 2005 Assistant professor
 University of Pennsylvania, Department of Psychology
- 2002 - 2003 Postdoctoral fellow
 University of Texas at Austin, Center for Perceptual Systems
 Advisor: Wilson Geisler
- 2000 Visiting researcher
 NASA Ames Research Center and Cedars-Sinai Medical Center

Affiliations

- 2005 - present Faculty member
 York University, Centre for Vision Research

SCHOLARLY AND PROFESSIONAL CONTRIBUTIONS

External research grants

- 2006 - 2011 Three-dimensional shape perception
Canada Foundation for Innovation, Leaders Opportunity Fund
with matching grant from Ontario Research Fund
and operating support from Infrastructure Operating Fund
- 2006 - 2011 Perception of shape in two and three dimensions
Natural Sciences and Engineering Research Council, Discovery Grant
- 2004 - 2005 Bayesian shape from shading
National Eye Institute, R03 Grant

Journal articles (refereed)

- MacKenzie, K. J., Murray, R. F., & Wilcox, L. M. (2008). The intrinsic constraint approach to cue combination: an empirical and theoretical evaluation. *Journal of Vision*, 8(8):5, 1-10.
- Gold, J. M., Murray, R. F., Sekuler, A. B., Bennett, P. J., & Sekuler, R. (2005). Visual memory decay is deterministic. *Psychological Science*, 16(10), 769-774.
- Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2005). Classification images predict absolute efficiency. *Journal of Vision*, 5(2), 139-149.
- Murray, R. F., & Gold, J. M. (2004). Troubles with bubbles. *Vision Research*, 44(5), 461-470.
- Murray, R. F., & Gold, J. M. (2004). Reply to Gosselin and Schyns. *Vision Research*, 44(5), 479-482.
- Murray, R. F., Beutter, B. R., Eckstein, M. P., & Stone, L. S. (2003). Saccadic and perceptual performance during visual search. II. Letter discrimination. *Journal of the Optical Society of America A*, 20(7), 1356-1370.
- Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2003). A linear cue-combination framework for understanding selective attention. *Journal of Vision*, 3(2), 116-145.
- Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2002). Optimal methods for calculating classification images: Weighted sums. *Journal of Vision*, 2(1), 79-104.
- Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2001). Time course of amodal completion revealed by a shape discrimination task. *Psychonomic Bulletin and Review*, 8(4), 713-720.
- Gold, J. M., Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2000). Deriving behavioural receptive fields for visually completed contours. *Current Biology*, 10(11), 663-666.

Research highlight articles

Geisler, W. S., & Murray, R. F. (2003). Practice doesn't make perfect [News and views]. *Nature*, 423, 696-697.

Book chapters

Sekuler, A. B., & Murray, R. F. (2001). Amodal completion: a case study in grouping. In T. F. Shipley and P. J. Kellman (Eds.), *From Fragments to Objects: Segmentation and Grouping in Vision*, pp. 265-294. Elsevier Science.

Articles in conference proceedings

Sekuler, A. B., Gold, J. M., Murray, R. F., & Bennett, P. J. (2000). Visual completion of partly occluded objects: insights from behavioral studies. *Neuro-ophthalmology*, 23(3-4), 165-168.

Invited conference and workshop presentations

Murray, R. F. (2005). Psychophysical features from noise classification. *Computational and Systems Neuroscience*. Invited paper in a workshop on 'New approaches to characterizing neural responses'. Snowbird, Utah, March 21-22, 2005.

Murray, R. F. (2004). An overview of reverse correlation. *Neural Information Processing Systems*. Invited paper in a workshop on 'Inferring features from stimulus classification'. Whistler, British Columbia, December 16-18, 2004.

Murray, R. F., Gold, J. M., Bennett, P. J., & Sekuler, A. B. (2001). Perceptually interpolated contours in shape discrimination. *European Conference on Visual Perception*. Invited paper in a symposium on 'Noise and efficiency'. Kusadasi, Turkey, August 26-30, 2001. Abstract in *Perception*, 30(supplement), 1.

Conference papers

Murray, R. F., & Morgenstern, Y. (2008). The light-from-above prior overrides contextual lighting cues. *Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting*. London, Ontario, June 19-21, 2008. Abstract in *Canadian Journal of Experimental Psychology*, 62(4), 311.

MacKenzie, K. J., Murray, R. F., & Wilcox, L. M. (2007). Modelling cue combination: can perceived depth be predicted by JND's? *Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting*. Victoria, British Columbia, June 15-17, 2007.

MacKenzie, K. J., Murray, R. F., & Wilcox, L. M. (2007). Perceived curvature in depth: a test of cue combination models using motion and binocular disparity. *Vision Sciences Society Annual Meeting*. Sarasota, Florida, May 11-16, 2007. Abstract in *Journal of Vision*, 7(9), 93.

Murray, R. F. (2006). System identification in human visual psychophysics. *Engineering Principles in Biological Systems*. Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, December 3-6, 2006.

Murray, R. F. (2006). ROC curves refute an unequal-variance account of search asymmetry. *European Conference on Visual Perception*. St. Petersburg, Russia, August 20-25, 2006. Abstract in *Perception*, 35(supplement), 14.

Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2003). A linear cue combination framework for understanding selective attention. *Vision Sciences Society Annual Meeting*. Sarasota, Florida, May 9-14, 2003. Abstract in *Journal of Vision*, 3(9), 184.

Murray, R. F., Beutter, B. R., Eckstein, M. P., & Stone, L. S. (2002). Saccadic targetting during visual search for letters. *Optical Society of America Fall Vision Meeting*. San Francisco, California, October 24-27, 2002. Abstract in *Journal of Vision*, 2(10), 21.

Murray, R. F., Gold, J. M., Sekuler, A. B., & Bennett, P. J. (2002). Snapshots of perceptual organization. *Annual Interdisciplinary Conference*. Jackson Hole, Wyoming, February 3-8, 2002.

Gold, J. M., Sekuler, R., Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2002). Decay of visual memory. *Annual Interdisciplinary Conference*. Jackson Hole, Wyoming, February 3-8, 2002.

Murray, R. F., Gold, J. M., Sekuler, A. B., & Bennett, P. J. (2001). Reverse correlation reveals behavioural effects of perceptual organization. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft. Lauderdale, Florida, April 29 – May 4, 2001. Abstract in *Investigative Ophthalmology and Visual Science*, 42(4), S723.

Gold, J. M., Sekuler, R., Baerfeldt, A., Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2001). Decay of visual memory is due to decreased signal, not increased noise. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft. Lauderdale, Florida, April 29 – May 4, 2001. Abstract in *Investigative Ophthalmology and Visual Science*, 42(4), S316.

Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2000). Attending to contrast polarity in a global motion task: a quantitative model. *Society for Neuroscience Annual Meeting*. New Orleans, Louisiana, November 4-9, 2000.

Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2000). A quantitative model of attention in a global motion task. *Optical Society of America Annual Meeting*. Providence, Rhode Island, October 22-26, 2000.

Murray, R. F., Gold, J. M., Bennett, P. J., & Sekuler, A. B. (2000). Perceptual organization and perceptual efficiency. *European Conference on Visual Perception*. Groeningen, The Netherlands, August 27-31, 2000. Abstract in *Perception*, 29(supplement), 122.

Gold, J. M., Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2000). Snapshots of visual completion. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft.

Lauderdale, Florida, May 1-5, 2000. Abstract in *Investigative Ophthalmology and Visual Science*, 41(4), S317.

Murray, R. F., Sekuler, A. B., Bennett, P. J., & Sekuler, R. (1998). Interference between motion signals of opposite contrast polarity. *Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting*. Ottawa, Ontario, June 18-21, 1998.

Conference posters

Morgenstern, Y. & Murray, R. F. (2009). Contextual lighting cues can override the light-from-above prior. *York Centre for Vision Research Conference on Vision in 3D Environments*. Toronto, Ontario, June 23-26, 2009.

Taylor, C. P., & Murray, R. F. (2009). Classification images reveal the effect of visual attention on shape discrimination. *York Centre for Vision Research Conference on Vision in 3D Environments*. Toronto, Ontario, June 23-26, 2009.

Morgenstern, Y. & Murray, R. F. (2009). Contextual lighting cues can override the light-from-above prior. *Vision Sciences Society Annual Meeting*. Naples, Florida, May 8-13, 2009. Abstract to appear in *Journal of Vision*.

Taylor, C. P., & Murray, R. F. (2008). Classification images reveal the effect of visual attention on shape discrimination. *Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting*. London, Ontario, June 19-21, 2008. Abstract in *Canadian Journal of Experimental Psychology*, 64(2), 295.

Bartlett, A. M., & Murray, R. F. (2008). Modular second-order processing in the human visual system. *University of Rochester Center for Visual Science Symposium*. Rochester, NY, May 29-31, 2008.

Murray, R. F. (2007). ROC curves refute an unequal-variance account of search asymmetry. *Vision Sciences Society Annual Meeting*. Sarasota, Florida, May 11-16, 2007. Abstract in *Journal of Vision*, 7(9), 723.

Murray, R. F. (2006). Local 3D shape and orientation statistics of natural surfaces. *Vision Sciences Society Annual Meeting*. Sarasota, Florida, May 5-10, 2006. Abstract in *Journal of Vision*, 6(6), 263.

Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2002). Predicting absolute efficiency from classification images. *European Conference on Visual Perception*. Glasgow, U.K., August 25-29, 2002. Abstract in *Perception*, 31(supplement), 110.

Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2001). No pointwise nonlinearity in shape discrimination. *International Society for Psychophysics Annual Meeting*. Leipzig, Germany, October 19-23, 2001.

Murray, R. F., Bennett, P. J., & Sekuler, A. B. (2001). No pointwise nonlinearity in shape discrimination. *Vision Sciences Society Annual Meeting*. Sarasota, Florida, May 4-8, 2001. Abstract in *Journal of Vision*, 1(3), 52.

Gold, J. M., Murray, R. F., Sekuler, A. B., & Bennett, P. J. (2001). Learning optimizes the behavioral receptive fields underlying pattern discrimination. *The Learning Workshop*. Snowbird, Utah, April 10-13, 2001.

Murray, R. F., Beutter, B. R., Eckstein, M. P., & Stone, L. S. (2000). Efficiency of the first saccade in visual search for letters. *Optical Society of America Annual Meeting*. Providence, Rhode Island, October 22-26, 2000.

Murray, R. F., Bennett, P. J., Sekuler, A. B., & Gold, J. M., (2000). Effect of visual completion on calculation efficiency. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft. Lauderdale, Florida, May 1-5, 2000. Abstract in *Investigative Ophthalmology and Visual Science*, 41(4), S440.

Murray, R. F., Bennett, P. J., & Sekuler, A. B. (1999). Amodal completion: calculation efficiency and time course. *International Conference on Vision and Attention*. Toronto, Ontario, June 22-26, 1999.

Murray, R. F., Sekuler, A. B., & Bennett, P. J. (1999). Grouping of partially occluded contours for symmetry judgement. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft. Lauderdale, Florida, May 9-14, 1999. Abstract in *Investigative Ophthalmology and Visual Science*, 40(4), S359.

Murray, R. F., Sekuler, A. B., Bennett, P. J., & Sekuler, R. (1998). Attending to component directions in random dot cinematograms. *Association for Research in Vision and Ophthalmology Annual Meeting*. Ft. Lauderdale, Florida, May 10-15, 1998. Abstract in *Investigative Ophthalmology and Visual Science*, 39(4), S1078.

Contributions to the profession

Reviewer for the following journals: Cognitive Psychology; Investigative Ophthalmology and Visual Science; Journal of Neuroscience; Journal of Vision; Medical Decision Making; Nature; Neural Computation; Perception; Perception and Psychophysics; PLoS One; Psychological Review; Psychonomic Bulletin and Review; Sinauer Associates; Trends in Neurosciences; Vision Research; Visual Cognition

Reviewer for the following granting agencies: National Science Foundation; Research Grants Council of Hong Kong

2006 Contributed MATLAB-OpenGL (MOGL) interface to PsychToolbox (open-source software for psychophysical experiments)

TEACHING**Courses**

PSYC 2220 – Sensation and perception I
 PSYC 3270 – Sensation and perception II
 PSYC 3890 – Independent study
 PSYC 4000 – Honours thesis
 PSYC 6273 – Computer programming for experimental psychology (graduate)
 PSYC 6274 – Laboratory methods of perceptual psychology (graduate)

Graduate supervision

2009 - present	Minjung Kim	M.A. supervisor
2006 - present	Yaniv Morgenstern	minor paper supervisor, Ph.D. supervisor

Graduate committee membership

2009 - present	Inna Tsirlin	minor paper committee member
2009 - present	Adrian Bartlett	M.A. committee member
2008 - present	Ashley Curtis	M.A. committee member
2008 - 2009	Steven Prime	Ph.D. committee member
2008	Christopher Zanette	M.Sc. oral examination committee member
2007 - present	Charles Or	minor paper committee member
2006 - 2009	Kevin MacKenzie	Ph.D. committee member
2004 - 2005	Bei Xiao	Ph.D. committee member
2004 - 2005	Rebecca Stone	Ph.D. committee member

Undergraduate supervision

2009 - present	Meem Siddique	work-study
2009 - present	Kye Kim	honours thesis
2008 - 2009	Natalie Levine	work-study
2008 - present	Aaron Rosen	independent study, honours thesis
2007 - 2008	Adrian Bartlett	volunteer, work-study, honours thesis
2007	Vivian Chau	volunteer, NSERC work-study
2007 - 2009	Christian Surdivall	volunteer, work-study
2006 - 2007	Charisa Ng	honours thesis
2006 - 2007	Elena Chernenko	work-study
2006 - 2007	Jessica Chevrier	work-study
2006 - 2007	Jean-Francois Nankoo	work-study
2006 - 2008	Jonathan Bega	volunteer, independent study, honours thesis
2006 - 2007	Rohit Sharma	volunteer
2006 - 2007	Naheed Hosan	volunteer, work-study
2006	Meera Paleja	work-study
2006	Ava Ghasemi	volunteer
2004 - 2005	Kateki Vinod	independent study, honours thesis
2004 - 2005	Audrey Chin	honours thesis

Teaching grants

2007 - 2008 Teaching-Learning Development Grant, York University
2007 - 2008 Release-Time Teaching Fellowship, York University

SERVICE

Positions

2009 - present York University Faculty Association steward
Department of Psychology, York University

2007 - present Steering committee member
Centre for Vision Research, York University

2006 - present Coordinator, York CVR Vision Science Summer School
Centre for Vision Research, York University

2006 - present Graduate executive committee member
Department of Psychology, York University

2006 - 2009 Coordinator for Brain, Behaviour, and Cognitive Sciences graduate area
Department of Psychology, York University

Non-research funding awarded

2009 MITACS grant for York CVR Vision Science Summer School

c.v. prepared July 16, 2009