

VITA

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EDUCATION

University of Massachusetts (1984-1990)
Computer and Information Science
Ph.D. (September 1990)
M.S. (June 1987)

University of Pennsylvania (1978-1982)
B.A. Psychology (June 1982)

RESEARCH INTERESTS

Cognitive and perceptual learning, memory, and decision making
Computational models of cognition and perception
Visual and multisensory perception
Perception and action
Cognitive neuroscience of learning, memory, and decision making

WORK EXPERIENCE

Professor

Department of Brain & Cognitive Sciences, University of Rochester (July 2003-present); Center for Visual Science (July 2003-present); Department of Computer Science (July 2003-present)

Associate Editor

Topics in Cognitive Science, journal of The Cognitive Science Society (January 2009-December 2012)

Treasurer

Neural Information Processing Systems (NIPS) Foundation (December 2003-December 2007); this foundation organizes the annual NIPS conference and workshops

Senior Editor / Associate Editor

Senior Editor (January 1998-December 2000), Associate Editor (January 2001-December 2003) of *Cognitive Science*, journal of The Cognitive Science Society

Associate Professor

Department of Brain & Cognitive Sciences, University of Rochester (July 1997-June 2003);
Center for Visual Science (July 1997-June 2003); Department of Computer Science (September
1998-June 2003)

Program Director

Cognitive Science Program, University of Rochester (July 1996-June 1998)

Assistant Professor

Department of Brain & Cognitive Sciences, University of Rochester (July 1995-June 1997);
Center for Visual Science (February 1997-June 1997); Department of Psychology (September
1992-June 1995)

Postdoctoral Fellow

Laboratory of Dr. Stephen Kosslyn, Department of Psychology, Harvard University (July 1991-
August 1992)

Postdoctoral Fellow

Laboratory of Dr. Michael Jordan, Department of Brain & Cognitive Sciences, Massachusetts
Institute of Technology (July 1990-June 1991)

Graduate Research Assistant

Laboratory of Dr. Andrew Barto, Department of Computer and Information Science, University
of Massachusetts at Amherst (June 1985-May 1990)

PROFESSIONAL SERVICE

Editorial: *Topics in Cognitive Science*, Associate Editor (January 2009-December 2012)

Cognitive Science, Associate Editor (January 2001-December 2003)

Cognitive Science, Senior Editor (January 1998-December 2000)

Connection Science, guest co-editor of two special issues (December 1996, March 1997)

Grant reviewing: Air Force Office of Scientific Research

Human Frontiers Science Program

Israel Science Foundation

National Institutes of Health (ad hoc)

National Science Foundation

Natural Sciences and Engineering Research Council of Canada

Netherlands Organisation for Scientific Research

The Canada Council for the Arts

The Wellcome Trust

United States-Israel Binational Science Foundation

Journal reviewing: *Behavioral and Brain Sciences*, *Cognition*, *Cognitive Neuropsychology*, *Cognitive Psychology*, *Cognitive Science*, *Connection Science*, *Experimental Brain Research*, *IEEE Transactions on Knowledge and Data Engineering*, *IEEE Transactions on Neural Networks*, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *IEEE Transactions on Signal Processing*, *IEEE Transactions on Systems, Man, and Cybernetics*, *International Journal of Neural*

Systems, Journal of Artificial Intelligence Research, Journal of Cognitive Neuroscience, Journal of Machine Learning Research, Journal of Neuroscience, Journal of the American Statistical Association, Journal of the Optical Society of America A, Journal of Vision, Machine Learning, Nature Neuroscience, Neural Computation, Neural Networks, OpenMind, Perception, PLoS Computational Biology, PLoS ONE, Proceedings of the National Academy of Sciences, Psychological Review, Psychological Science, Psychonomic Bulletin and Review, Science, Trends in Cognitive Sciences, Vision Research

JOURNAL ARTICLES

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- Jacobs, R. A., Jordan, M. I., & Barto, A. G. (1991). Task decomposition through competition in a modular connectionist architecture: The what and where vision tasks. *Cognitive Science*, **15**, 219-250.
- Jacobs, R. A., Jordan, M. I., Nowlan, S. J., & Hinton, G. E. (1991). Adaptive mixtures of local experts. *Neural Computation*, **3**, 79-87.
- Jacobs, R. A. & Jordan, M. I. (1992). Computational consequences of a bias towards short connections. *Journal of Cognitive Neuroscience*, **4**, 323-336.
- Jacobs, R. A. & Jordan, M. I. (1993). Learning piecewise control strategies in a modular neural network architecture. *IEEE Transactions on Systems, Man, and Cybernetics*, **23**, 337-345.
- Jacobs, R. A. & Kosslyn, S. M. (1994). Encoding shape and spatial relations: The role of receptive field size in coordinating complementary representations. *Cognitive Science*, **18**, 361-386.
- Jordan, M. I. & Jacobs, R. A. (1994). Hierarchical mixtures of experts and the EM algorithm. *Neural Computation*, **6**, 181-214.
- Jacobs, R. A. (1995). Methods for combining experts' probability assessments. *Neural Computation*, **7**, 867-888.
- Kosslyn, S. M., Chabris, C. F., Marsolek, C. J., Jacobs, R. A., & Koenig, O. (1995). On computational evidence for different types of spatial relations encoding: Reply to Cook et al. (1995). *Journal of Experimental Psychology: Human Perception and Performance*, **21**, 423-431.
- Jacobs, R. A., Tanner, M. A., & Peng, F. (1996). Bayesian inference for hierarchical mixtures-of-experts with applications to regression and classification. *Statistical Methods in Medical Research*, **5**, 375-390.
- Peng, F., Jacobs, R. A., & Tanner, M. A. (1996). Bayesian inference in mixtures-of-experts and hierarchical mixtures-of-experts models with an application to speech recognition. *Journal of the American Statistical Association*, **91**, 953-960.
- Jacobs, R. A. (1997). Bias/Variance analyses of mixtures-of-experts architectures. *Neural Computation*, **9**, 369-383.
- Jacobs, R. A. (1997). Nature, nurture, and the development of functional specializations: A computational approach. *Psychonomic Bulletin and Review*, **4**, 299-309.
- Jacobs, R. A., Peng, F., & Tanner, M. A. (1997). A Bayesian approach to model selection in hierarchical mixtures-of-experts architectures. *Neural Networks*, **10**, 231-241.

- Fine, I. & Jacobs, R. A. (1999). Modeling the combination of motion, stereo, and vergence angle cues to visual depth. *Neural Computation*, **11**, 1297-1330.
- Jacobs, R. A. (1999). Computational studies of the development of functionally specialized neural modules. *Trends in Cognitive Sciences*, **3**, 31-38.
- Jacobs, R. A. (1999). Optimal integration of texture and motion cues to depth. *Vision Research*, **39**, 3621-3629.
- Jacobs, R. A. & Fine, I. (1999). Experience-dependent integration of texture and motion cues to depth. *Vision Research*, **39**, 4062-4075.
- Fine, I. & Jacobs, R. A. (2000). Perceptual learning for a pattern discrimination task. *Vision Research*, **40**, 3209-3230.
- Meegan, D. V., Aslin, R. N., & Jacobs, R. A. (2000). Motor timing learned without motor training. *Nature Neuroscience*, **3**, 860-862.
- Atkins, J. E., Fiser, J., & Jacobs, R. A. (2001). Experience-dependent visual cue integration based on consistencies between visual and haptic percepts. *Vision Research*, **41**, 449-461.
- Fine, I. & Jacobs, R. A. (2002). Comparing perceptual learning across tasks: A review. *Journal of Vision*, **2**, 190-203.
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- Battaglia, P. W., Jacobs, R. A., & Aslin, R. N. (2003). Bayesian integration of visual and auditory signals for spatial localization. *Journal of the Optical Society of America A*, **20**, 1391-1397.
- Dominguez, M. & Jacobs, R. A. (2003). Developmental constraints aid the acquisition of binocular disparity sensitivities. *Neural Computation*, **15**, 161-182.
- Ivanenko, V. & Jacobs, R. A. (2003). A developmental approach aids motor learning. *Neural Computation*, **15**, 2051-2065.
- Jacobs, R. A. & Dominguez, M. (2003). Visual development and the acquisition of motion velocity sensitivities. *Neural Computation*, **15**, 761-781.
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- Chhabra, M., Jacobs, R. A., & Štefankovič, D. (2007). Behavioral shaping for geometric concepts. *Journal of Machine Learning Research*, **8**, 1835-1865.
- Ivanchenko, V. & Jacobs, R. A. (2007). Visual learning by cue-dependent and cue-invariant mechanisms. *Vision Research*, **47**, 145-156.
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- Yildirim, I. & Jacobs, R. A. (2015). Learning multisensory representations for auditory-visual transfer of sequence category knowledge: A probabilistic language of thought approach. *Psychonomic Bulletin and Review*, **22**, 673-686.
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- Chen, Q., Garcea, F. E., Jacobs, R. A., & Mahon, B. Z. (2017). Abstract representations of object directed action in the left inferior parietal lobule. *Cerebral Cortex*, in press.
- Erdogan, G. & Jacobs, R. A. (2017). Visual shape perception as Bayesian inference of 3D object-centered shape representations. *Psychological Review*, **124**, 740-761.
- Overlan, M. C., Jacobs, R. A., & Piantadosi, S. T. (2017). Learning abstract visual concepts via probabilistic program induction in a Language of Thought. *Cognition*, **168**, 320-334.

BOOK CHAPTERS

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- Kosslyn, S. M. & Jacobs, R. A. (1994). Encoding shape and spatial relations: A simple mechanism for coordinating complementary representations. In V. Honavar & L. Uhr (Eds.), *Artificial Intelligence and Neural Networks: Steps Toward Principled Integration*. New York: Academic Press.
- Jordan, M. I. & Jacobs, R. A. (1995). Modular and hierarchical learning systems. In M. Arbib (Ed.), *The Handbook of Brain Theory and Neural Networks*. Cambridge, MA: MIT Press.
- Fine, I. & Jacobs, R. A. (1999). A comparison of visual cue combination models. In A. Sharkey (Ed.), *Combining Artificial Neural Nets: Ensemble and Modular Multi-Net Systems*. Berlin: Springer-Verlag.
- Jacobs, R. A. & Jordan, M. I. (1999). Computational consequences of a bias towards short connections. In R. Ellis & G. W. Humphreys (Eds.), *Connectionist Psychology*. London: Psychology Press. [This

chapter is a reprint of the article with the same title published in *Journal of Cognitive Neuroscience*, **4**, 323-336 (1992).]

- Jacobs, R. A. & Tanner, M. A. (1999). Mixtures of X. In A. Sharkey (Ed.), *Combining Artificial Neural Nets: Ensemble and Modular Multi-Net Systems*. Berlin: Springer-Verlag.
- Jordan, M. I. & Jacobs, R. A. (2001). Hierarchical mixtures of experts and the EM algorithm. In M. I. Jordan & T. J. Sejnowski (Eds.), *Graphical Models: Foundations of Neural Computation*. Cambridge, MA: MIT Press. [This chapter is a reprint of the article with the same title published in *Neural Computation*, **6**, 181-214 (1994).]
- Tanner, M. A. & Jacobs, R. A. (2001). Neural networks and related statistical latent variable models. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social and Behavioral Sciences*. Oxford, UK: Elsevier Science.
- Jacobs, R. A. (2002). Visual cue integration for depth perception. In R. P. N. Rao, B. A. Olshausen, & M. S. Lewicki (Eds.), *Probabilistic Models of the Brain: Perception and Neural Function*. Cambridge, MA: MIT Press.
- Dominguez, M. & Jacobs, R. A. (2003). Does visual development aid visual learning? In P. Quinlan (Ed.), *Connectionist Models of Development*. East Sussex, UK: Psychology Press.
- Jordan, M. I. & Jacobs, R. A. (2003). Modular and hierarchical learning systems. In M. Arbib (Ed.), *The Handbook of Brain Theory and Neural Networks (Second Edition)*. Cambridge, MA: MIT Press. [This chapter is a slightly modified version of the chapter with the same title that appeared in the first edition of this handbook.]
- Tanner, M. A. & Jacobs, R. A. (2006). Mixtures of experts. In N. J. Salkind (Ed.), *Encyclopedia of Measurement and Statistics*. Thousand Oaks, CA: Sage Publications.
- Dominguez, M. & Jacobs, R. A. (2007). Learning the best first: Interactions between visual development and learning. In D. Mareschal, S. Sirois, G. Westermann, & M. H. Johnson (Eds.), *Neuroconstructivism, Volume 2: Perspectives and Prospects*. Oxford, UK: Oxford University Press.
- Michel, M. M., Brouwer, A.-M., Jacobs, R. A., & Knill, D. C. (2011). Optimality principles apply to a broad range of information integration problems in perception and action. In J. Trommershäuser, K. Körding, & M. S. Landy (Eds.), *Sensory Cue Integration*. New York: Oxford University Press.

CONFERENCE PAPERS (REFEREED)

- Jacobs, R. A. (1989). Initial experiments on constructing domains of expertise and hierarchies in connectionist systems. In D. Touretzky, G. Hinton, & T. Sejnowski (Eds.), *Proceedings of the 1988 Connectionist Models Summer School*. San Mateo, CA: Morgan Kaufmann Publishers.
- Jordan, M. I. & Jacobs, R. A. (1990). Learning to control an unstable system with forward modeling. In D.S. Touretzky (Ed.), *Advances in Neural Information Processing Systems 2*. San Mateo, CA: Morgan Kaufmann Publishers.
- Jacobs, R. A. & Jordan, M. I. (1991). A competitive modular connectionist architecture. In R. P. Lippmann, J. E. Moody, & D. S. Touretzky (Eds.), *Advances in Neural Information Processing Systems 3*. San Mateo, CA: Morgan Kaufmann Publishers.

- Jacobs, R. A. & Jordan, M. I. (1991). A modular connectionist architecture for learning piecewise control strategies. *Proceedings of the 1991 American Control Conference*, Boston, MA. [Winner of a best paper award.]
- Jordan, M. I. & Jacobs, R. A. (1992). Hierarchies of adaptive experts. In J. E. Moody, S. J. Hanson, & R. P. Lippmann (Eds.), *Advances in Neural Information Processing Systems 4*. San Mateo, CA: Morgan Kaufmann Publishers.
- Jordan, M. I. & Jacobs, R. A. (1993). Supervised learning and divide-and-conquer: A statistical approach. *Proceedings of the Tenth International Conference on Machine Learning*, Amherst, MA.
- Fine, I. & Jacobs, R. A. (1997). Combining visual cues to depth and shape: A comparison of three models. *Proceedings of the Nineteenth Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Lawrence Erlbaum.
- Jacobs, R. A., Peng, F., & Tanner, M. A. (1998). Bayesian inference for hierarchical mixtures-of-experts. *Proceedings of the Thirteenth International Workshop on Statistical Modeling*. Berlin: Springer-Verlag.
- Fine, I. & Jacobs, R. A. (2000). Visual learning for a mid-level pattern discrimination task. *Proceedings of the Twenty-Second Annual Conference of the Cognitive Science Society*. Hillsdale, NJ: Lawrence Erlbaum.
- Dominguez, M. & Jacobs, R. A. (2001). Visual development and the acquisition of binocular disparity sensitivities. *Proceedings of the Eighteenth International Conference on Machine Learning*. San Francisco: Morgan Kaufmann.
- Dominguez, M. & Jacobs, R. A. (2002). Interactions between development and learning during the acquisition of binocular disparity sensitivities. *Proceedings of the Second International Conference on Development and Learning*, Cambridge, MA.
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- Chhabra, M. & Jacobs, R. A. (2006). Properties of synergies arising from a theory of optimal motor behavior. *Proceedings of the Twenty-Eighth Annual Conference of the Cognitive Science Society*. [Winner of the best paper award in the area of computational models of perception and action (\$1000 prize!)]
- Chhabra, M., Stefankovic, D., & Jacobs, R. A. (2007). A theoretical model of behavioral shaping. *Proceedings of the Twenty-Ninth Annual Conference of the Cognitive Science Society*.
- Clayards, M., Aslin, R. N., Tanenhaus, M. K., & Jacobs, R.A. (2007). Within category phonetic variability affects perceptual uncertainty. *Proceedings of the International Congress of Phonetic Sciences*, Saarbrücken, Germany.
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- Yakushijin, R. & Jacobs, R. A. (2010). Are people successful at learning sequential decisions on a perceptual matching task? *Proceedings of the Thirty-Second Annual Conference of the Cognitive Science Society*.

- Yildirim, I. & Jacobs, R. A. (2010). A Bayesian nonparametric approach to multisensory perception. *Proceedings of the Thirty-Second Annual Conference of the Cognitive Science Society.*
- Orhan, A. E. & Jacobs, R. A. (2011). A nonparametric Bayesian model of visual short-term memory. *Proceedings of the Thirty-Third Annual Conference of the Cognitive Science Society.*
- Sims, C. R., Jacobs, R. A., & Knill, D. C. (2011). An ideal observer model of visual short-term memory predicts human capacity-precision tradeoffs. *Proceedings of the Thirty-Third Annual Conference of the Cognitive Science Society.*
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- Keane, T. P., Cahill, N. D., Tarduno, J. A., Jacobs, R. A., & Pelz, J. B. (2014). Computer vision enhances mobile eye-tracking to expose expert cognition in natural-scene visual-search tasks. *Proceedings of the SPIE 9014, Human Vision and Electronic Imaging XIX*, 90140F.
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- Voronov, J. Tarduno, J. A., Jacobs, R. A., Pelz, J. B., & Rosen, M. R. (2010). An active vision approach to understanding and improving visual training in the geosciences. *Annual Meeting of the Geological Society of America*.
- Sims, C. R., Jacobs, R. A., & Knill, D. C. (2011). An ideal observer analysis of visual short-term memory: Evidence for flexible resource allocation. *Eleventh Annual Meeting of the Vision Sciences Society*, Naples, FL.
- Tarduno, J. A., Hu, B., May, B. B., Evans, K. M., Jacobs, R. A., Pelz, J. B., Cottrell, R. D., & Bono, R. K. (2012). An active vision approach to understanding and improving visual training in the geosciences. *Annual Meeting of the Geological Society of America*.
- Erdogan, G., Yildirim, I., & Jacobs, R. A. (2015). An analysis-by-synthesis approach to multisensory object shape perception. Presented at the *Multimodal Machine Learning* workshop at the *Neural Information Processing Systems (NIPS) conference*, Montreal, CA.

INVITED TALKS

- MIT-Siemens Conference on Computational Learning Theory, Princeton, NJ, 1989
- Department of Computer Science, University of Toronto, Toronto, Ontario, 1990
- MIT-Siemens Conference on Computational Learning Theory, Princeton, NJ, 1990
- Computational Learning Theory Colloquium Series, The Rowland Institute of Science, Cambridge, MA, 1992
- Conference of the Center for Visual Science, University of Rochester, Rochester, NY, 1992
- Department of Psychology, University of Rochester, Rochester, NY, 1992
- ONR Workshop on Image Representation in Biological and Machine Vision, Laguna Beach, CA, 1992
- Conference of the Cognitive Science Society, University of Colorado, Boulder, CO, 1993
- Center for Cognitive Science, SUNY Buffalo, Buffalo, NY, 1994
- Cognitive Science Summer School, SUNY Buffalo, Buffalo, NY, 1994
- IEEE Workshop on Intelligent Control, Columbus, OH, 1994
- Center for Neural Engineering, University of Southern California, Los Angeles, CA, 1995
- Cognitive Science Program, University of Arizona, Tucson, AZ, 1995
- Department of Psychology, Stanford University, Stanford, CA, 1995
- Department of Psychology, University of California, Los Angeles, CA, 1995
- Conference of the Cognitive Science Society, University of California, San Diego, CA, 1996
- Department of Mathematics, University of Rochester, Rochester, NY, 1997
- Conference of the Cognitive Neuroscience Society, San Francisco, CA, 1998
- Department of Psychology, University of Wisconsin, Madison, WI, 1998
- Joint Statistical Meetings, Baltimore, MD, 1999
- Lake Ontario Vision Conference (aka LOVE Conference), Niagara Falls, ON, 2000
- Center for Cognitive Science, SUNY Buffalo, Buffalo, NY, 2000

Cognitive Science Program, Swarthmore College, Swarthmore, PA, 2001
Department of Cognitive Science, UC San Diego, La Jolla, CA 2001
Vision and Color Meeting, Optical Society of America, Irvine, CA, 2001
Department of Psychology, UC Berkeley, Berkeley, CA, 2001
Human and Computer Vision Seminar, Rutgers University, New Brunswick, NJ, 2001
Cognitive Science Program, Rutgers University, New Brunswick, NJ, 2001
Workshop on Multi-Sensory Perception and Learning, Conference on Neural Information Processing Systems, Whistler, BC, Canada, 2001
Cognitive Science Program, University of Massachusetts, Amherst, MA, 2002
Department of Computer Science, University of Massachusetts, Amherst, MA, 2002
Institute for Research in Cognitive Science, University of Pennsylvania, Philadelphia, PA, 2003
Workshop on Statistical Models of Vision and Action, New York University, 2003
Gatsby Computational Neuroscience Unit, University College London, 2003
Neuroscience Colloquium Series, University College London, 2003
Conference of the Cognitive Science Society, Boston, MA, 2003
Workshop on Neural Representations of Uncertainty, Conference on Neural Information Processing Systems, Whistler, BC, Canada, 2003
Department of Cognitive and Linguistic Sciences, Brown University, Providence, RI, 2004
Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, MA, 2004
ONR Workshop on Visual Learning and Brain Plasticity, University of Minnesota, Minneapolis, MN, 2005
Cognitive Science Program, Indiana University, Bloomington, IN, 2005
Neuroscience and Cognitive Science Program, University of Maryland, College Park, MD, 2005
Department of Cognitive Science, Rensselaer Polytechnic Institute, Troy, NY, 2006
AFOSR Workshop titled "Robust Decision Making", Arlington, VA, 2007
Center for Perceptual Systems, University of Texas, Austin, TX, 2007
Graduate Summer School: Probabilistic Models of Cognition: The Mathematics of Mind, Institute for Pure and Applied Mathematics, UCLA, Los Angeles, CA, 2007
AFOSR Workshop on Cognition and Decision, Arlington, VA, 2008
Graduate course on "Normative Theories of Brain Function", Champalimaud Neuroscience Education, CF Neuroscience Programme at the Instituto Gulbenkian de Ciéncia, Lisbon, Portugal, 2008
Center for Cognitive Science, SUNY Buffalo, Buffalo, NY, 2008
Workshop on "Cue Combination: Unifying Perceptual Theory", Rauschholzhausen, Germany, 2008
Frankfurt Institute for Advanced Studies, Frankfurt, Germany, 2008
Center for Visual Cognition, University of Southampton, Southampton, UK, 2009

Computational and Biological Learning, Department of Engineering, University of Cambridge, Cambridge, UK, 2009

Gatsby Computational Neuroscience Unit, University College London, London, UK, 2009

Institute for Adaptive and Neural Computation, School of Informatics, University of Edinburgh, Edinburgh, UK, 2009

Department of Psychology, Neuroscience, and Behaviour, McMaster University, Hamilton, Ontario, Canada, 2010

Symposium on "Prediction in Visual Processing", Conference of the Vision Sciences Society, Naples, FL, 2011

Workshop on "Coding and Computation in Visual Short-Term Memory", Conference on Computational and Systems Neuroscience (COSYNE), Snowbird, UT, 2012

Workshop on "Natural Environments, Tasks, and Intelligence", University of Texas at Austin, Austin, TX, 2012

Workshop on "Reinforcement Learning: Celebratory Workshop for Andrew Barto", University of Massachusetts, Amherst, MA, 2012

Perceptual Science colloquium series, Rutgers University, New Brunswick, NJ, 2012

AFOSR Workshop on "Mathematical and Computational Cognition", Washington, D.C., 2013

Symposium on "The Structure of Visual Working Memory", Conference of the Vision Sciences Society, Naples, FL, 2013

Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD, 2013

Institute of Cognitive and Brain Sciences, University of California, Berkeley, Berkeley, CA, 2013

AFOSR Workshop on "Mathematical and Computational Cognition", Arlington, VA, 2013

Workshop on "Multisensory Computations in the Cortex", Conference on Computational and Systems Neuroscience (COSYNE), Snowbird, UT, 2014

Department of Psychology, Syracuse University, Syracuse, NY, 2014

Department of Computer Science, Johns Hopkins University, Baltimore, MD, 2014

AFOSR Workshop on "Mathematical and Computational Cognition", Arlington, VA, 2014

Department of Computer Science, University of Rochester, Rochester, NY, 2014

Center for Visual Science, University of Rochester, Rochester, NY, 2015

Department of Psychological and Brain Sciences, Johns Hopkins University, Baltimore, MD, 2015

David Knill Memorial Symposium, Conference of the Vision Sciences Society, St. Pete Beach, FL, 2015

Workshop on "Combining Information from Multiple Modalities Across the Animal Kingdom", Janelia Farm Research Campus, Ashburn, VA, 2015

Rumelhart Symposium: Symposium in honor of Michael Jordan, Conference of the Cognitive Science Society, Pasadena, CA, 2015

AFOSR Workshop on "Mathematical and Computational Cognition", Arlington, VA, 2015

Laboratoire des Systèmes Perceptifs, Ecole Normale Supérieure, Paris, France, 2016

Laboratory of Cognitive Computational Neuroscience, Université de Genève, Geneva, Switzerland, 2016

Gatsby Computational Neuroscience Unit, University College London, London, UK, 2016

Computational and Biological Learning, Department of Engineering, University of Cambridge, Cambridge, UK, 2016

Google DeepMind, London, UK, 2016

Symposium on "Integrating Prior Knowledge with Memory", Conference of the Mathematical Psychology Society, New Brunswick, NJ, 2016

Cognitive Science Program, Indiana University, Bloomington, IN, 2016

Centre for Theoretical Neuroscience, University of Waterloo, Waterloo, Ontario, Canada, 2016

Department of Psychology, University of California, San Diego, CA, 2017

Workshop on "Cognitively Informed Artificial Intelligence", Conference of the Neural Information Processing Systems (NIPS) Foundation, Long Beach, CA, 2017

FELLOWSHIPS AND GRANTS

McDonnell-Pew Program in Cognitive Neuroscience, Postdoctoral fellowship to R. A. Jacobs, "Principles underlying the development of modularity," 1990-1991.

McDonnell-Pew Program in Cognitive Neuroscience, Postdoctoral fellowship to R. A. Jacobs, "Neural network models of high-level vision," 1991-1992.

National Science Foundation, research grant to M. I. Jordan (PI) and R. A. Jacobs, "A modular connectionist architecture for control," 1990-1993.

McDonnell-Pew Program in Cognitive Neuroscience, Postdoctoral training grant to R. A. Jacobs (PI) and J. Fiser, "Learning visual features: An integrated developmental, computational, and psychophysical approach to visual object recognition," 1996-1999.

National Institute of Mental Health, FIRST Award to R. A. Jacobs (PI), "Learning in modular systems: A computational approach," 1995-2001.

National Science Foundation, research grant to R. N. Aslin (PI), M. D. Hauser, R. A. Jacobs, and E. L. Newport, "Statistical learning and its constraints," 1998-2002.

National Eye Institute, research grant to R. A. Jacobs (PI), "Experience-dependent perception of visual depth," 2000-2006.

Office of Naval Research, equipment grant to D. Bavelier (PI), M. Hayhoe, R. A. Jacobs, D. C. Knill, and A. Pouget, "Virtual reality learning," 2005-2006.

University of Rochester Schmitt Program on Integrative Brain Research, research grant to R. A. Jacobs (PI), D. Bavelier, and K. R. Huxlin, "Visual learning in naturalistic environments," 2006-2007.

Air Force Office of Scientific Research, research grant to R. A. Jacobs (PI) and D. C. Knill, "Acquisition and use of internal models for human motor learning," 2006-2009.

National Institute of Mental Health, training grant to E. L. Newport (PI), R. A. Jacobs, and K. W. Nordeen, "Research training in learning, development, and biology," 1997-2002, 2002-2007, 2007-2012.

National Institute on Deafness and Other Communication Disorders, research grant to M. K. Tanenhaus (PI), R. N. Aslin, and R. A. Jacobs, "Time course of spoken word recognition," 2007-2012.

Air Force Office of Scientific Research, research contract to Scientific Systems Company, Inc. (Woburn, MA), subcontract to R. A. Jacobs (PI), 2007-2008.

National Science Foundation, research grant to R. A. Jacobs (PI), "A Machine Learning Approach to Human Visual Learning," 2008-2013.

National Science Foundation, research grant to R. A. Jacobs (PI), J. B. Pelz, M. R. Rosen, and J. A. Tarduno, "An Active Vision Approach to Understanding and Improving Visual Training in the Geosciences," 2009-2015.

Air Force Office of Scientific Research, research grant to R. A. Jacobs (PI), "Learning Multisensory Representations", 2012-2015.

University of Rochester Center for Brain Imaging, research grant to R. A. Jacobs (PI) and B. Z. Mahon, "Visual, Haptic, and Visual-Haptic Perception of Object Shape: A Behavioral and Brain Imaging Approach," 2014-2015.

University of Rochester PumpPrimer II Award to R. A. Jacobs (PI) and B. Z. Mahon, "Visual, Haptic, and Visual-Haptic Perception of Object Shape: A Behavioral and Brain Imaging Approach," 2014-2015.

University of Rochester Schmitt Program on Integrative Brain Research, research grant to R. A. Jacobs (PI) and B. Z. Mahon, "Visual, Haptic, and Visual-Haptic Perception of Object Shape: A Behavioral and Brain Imaging Approach," 2014-2015.

National Science Foundation, research grant to R. A. Jacobs (PI), "A Grammar-Based Approach to Visual-Haptic Object Perception," 2014-2018.

National Science Foundation, training grant to H. Kautz (PI), G. C. DeAngelis, M. E. Hoque, and R. A. Jacobs, "NRT-DESE: Graduate Training in Data-Enabled Research into Human Behavior and its Cognitive and Neural Mechanisms", 2015-2020.

University of Rochester Researcher Mobility Travel Grant, research grant to R. A. Jacobs (PI), 2016

National Science Foundation, research grant to R. A. Jacobs (PI) and J. A. Tarduno, "Collaborative Research: Visual Training in the Geosciences by Training Visual Working Memory", 2016-2021.