

CURRICULUM VITAE
Mary M. Hayhoe

EDUCATION

- 1970 B.A., University of Queensland, Australia, First Class Honors in Psychology (minor in Mathematics).
- 1979 Ph.D., University of California, San Diego.

PROFESSIONAL EXPERIENCE AND ACTIVITIES

- 1970-1973 Research student, University of Cambridge, England.
- 1973-1974 Research Associate, Department of Psychology and Institute of Molecular Biophysics, Florida State University.
- 1974-1977 Postgraduate Research Psychologist, University of California, San Diego.
- 1979-1980 Assistant Research Psychologist, University of California, San Diego.
- 1980-1981 Visiting Assistant Professor, University of California, Irvine, Psychology.
- 1981-1982 Assistant Professor in Residence, Psychology, University of California, San Diego.
Visiting Associate in Biology, California Institute of Technology.
- 1982-1984 Assistant Professor of Psychology, Columbia University.
- 1984-1988 Assistant Professor of Psychology, University of Rochester.
- 1988-1995 Associate Professor of Psychology, University of Rochester.
- 1993-1994 Acting Director, Cognitive Science Program, University of Rochester
- 1995-2005 Professor of Brain & Cognitive Science, University of Rochester.
- 1992-2001 Associate Director, Center for Visual Science
- 1998-2000 Director, Cognitive Science Program
- 1999-2005 Professor of Computer Science, University of Rochester
- 2004-2005 Acting Director, Center for Visual Science
- 2006- Professor of Psychology, University of Texas, Austin
Center for Perceptual Systems, Institute for Neuroscience.

HONORS AND AWARDS

- 1969 University of Queensland Honors Scholarship,
McNaughton Scholarship, University Medalist.
- 1970-1973 Commonwealth Scholarship and Fellowship Plan Award in the United Kingdom.
- 1993 Fellow, Optical Society of America (now Optica).
- 2009 Patent Awarded: Computerized Training and Evaluation of Visual Discrimination Abilities.
- 2012 University of Bielefeld ZIF Institute Research Fellow
- 2017 Davida Teller Award, Vision Sciences Society
- 2018 Society of Experimental Psychologists

SERVICE

Editor *Journal of Vision* 2010- present
Associate Editor, *Perception & Psychophysics*, 1993-5

NIH Visual Sciences B Study Section. 1994-98
NIH CP/HCMF Study Section 2017-2021
 Vision Sciences Society Nominating Committee, 2007
Board of Directors, Vision Sciences Society 2012-2016
President, Vision Sciences Society 2014-5

ARVO Program Committee (1984-86)
 Eye Tracking Research & Applications Review Committee 2014
 ACM Symposium on Applied Perception Review Committee 2011-2013.
 Cognitive Science Review Committee 2016, 2017, 2019
 International Eye Data Quality Committee 2014- 2018
 Advisory Committee: FoVea
 Co-organizer: NETI Workshop 2008, 2010, 2012, 2014, 2016, 2019
 Co-organizer: CRCNS Workshop 2019

Ad Hoc Reviewer:

Sensory Physiology and Perception Panel, National Science Foundation, NASA, American Institute of Biological Sciences Panel, Dept of Veteran Affairs, AFOSR, NIH National Institute of Aging, Neuroinformatics Special Emphasis Panel, Vis B Special Emphasis Panel, NEI Special Study Section, NEI Loan Repayment Program, NSF Neural Systems Cluster: Activation Panel. NEI Special Study Section K99 Awards, NIH BBBP-E 04 Special Emphasis Panel. NIH/BBBP-E 02 Special Emphasis Panel. NIH BBBP-T (52) Panel (Multisensory Integration), Wellcome Trust, German Research Foundation Deutsche Forschungsgemeinschaft (2014, 2017, 2019), NIH NEI Training Grant review panel, 2013, 2014, 2015, 2017.
 NIH CP Study Section ad hoc member 2016

Reviewer:

Vision Research, Experimental Brain Research, Cognitive Psychology, Journal of Experimental Psychology, Brain & Behavioral Sciences, Visual Cognition, Perception, Psychonomic Bulletin & Review, Journal of Vision, Strabismus, European Journal of Neuroscience, J. Neurophysiology, Proceedings of National Academy of Sciences, Proceedings Royal Soc B, ACM Transactions in Applied Perception, Neuropsychologia, Memory & Cognition, Psychological Science, Investigative Ophthalmology & Vision Science, Frontiers in Perception Science, PLOS ONE, Current Biology, J. Neuroscience, eLife and others.

GRANTS

1979-1983	NIH NEI R01 grant: "Retinal Mechanisms in Human Vision," Co-Principal Investigator (PI: D.I.A. MacLeod)
1983-1986	NIH NEI. R01 grant: "Visual Sensitivity and Color Coding," Principal Investigator
1986-1987	AFOSR grant for Symposium: "Computational Models in Human Vision," Principal Investigator

1986-1987	NIH Equipment grant: "Eyetracker for Research on Human Vision," Co-Principal Investigator
1986-1990	NIH NEI R01 grant: "Visual Sensitivity and Color Coding," Principal Investigator
1987-1988	N.I.H. Equipment grant: "Image Computer for Vision Research," Co-Principal Investigator
1990-1994	AFOSR grant: "Reference Frames in Vision," Principal Investigator
1990-1994	NIH NCRR R01 grant: "Visual Sensitivity and Color Coding," Principal Investigator
1991-1994	NIH NCRR Resource Technology Development grant, "Resource for the Study of Neural Models of Behavior", Co-Principal Investigator (P.I.: Dana Ballard)
1994-1997	NIH NCRR. Resource Technology grant, "Resource for the Study of Neural Models of Behavior", Co-Principal Investigator (P.I.: Dana Ballard)
1997-2002	NIH NCRR. Resource Technology grant, "Resource for the Study of Neural Models of Behavior", Co-Principal Investigator (P.I.: Dana Ballard)
1994-2003	NIH NEI R01 grant "Visual Processing in Natural Tasks", Principal Investigator
2000-2001	N.I.H. Symposium grant: Neural Coding, Principal Investigator
2002-2008	NIH NCRR grant, "Resource for the Study of Neural Models of Behavior", Co-Principal Investigator (P.I.: Dana Ballard)
2003-2009	NIH NEI R01 grant "Visual Processing in Natural Tasks", Principal Investigator
2009-2012	NIH NEI. R01 grant, "Neural Models of Behavior", Co-Principal Investigator (P.I.: Dana Ballard)
2010-2014	NIH NEI. R01EY05729-27, "Visual Processing in Natural Tasks", Principal Investigator.
2012-2017	NIH NEI T32EY021462 Center for Perceptual Systems Training Grant, Principal Investigator (MPI W Geisler).
2014-2019	NIH NEI R01EY05729-30, "Visual Processing in Natural Tasks", Principal Investigator.
2015-2018	NSF CPS Synergy Grant. Autonomous protocols from human behavioral modeling. Co-PI (PI: Behcet Acikmese: Aerospace Engineering).
2017-2018	Google AR/VR Faculty Research Award "Modeling Attention in Human Behavior in VR Environments" Co-PI.
2018	UT Faculty Research Award: UC Berkeley. Coordination of Gaze and Locomotion in Amblyopes

- 2017-2022 NIH NEI T32EY021462 Center for Perceptual Systems Training Grant, Principal Investigator (MPI W Geisler).
- 2019-2024 NIH NEI. R01EY05729-33 "Visual Processing in Natural Tasks", Principal Investigator.
- 2020-2023 NIH U01 NS116377-01 Neural circuit computations for visual motion during natural primate behaviors. MPI (Huk PI)

MENTORING:

- 2017-2022 K01 MH107774 co-mentor. Visuomotor integration and attention in Autism Spectrum Disorder. Haylie Miller University North Texas Health Sciences Center
- 2018-2019 K99 EY 028229-01. Gaze and the visual control of foot placement when walking over rough terrain. JS Matthis
- 2018-2021 F31 NRSA co-mentor. Mikael Rubin Efficacy of an attention guidance VR intervention for social anxiety disorder.

PROFESSIONAL SOCIETIES

Association for Research in Vision and Ophthalmology
 Society for Neuroscience
 Neural Control of Movement Society
 Vision Sciences Society

PUBLICATIONS

- MacLeod, D.I.A. and Hayhoe, M.M. (1974) Three pigments in normal and anomalous color vision. *J. Opt. Soc. Am.*, 64, 37-42.
- MacLeod, D.I.A. and Hayhoe, M.M. (1974) Rod origin of prolonged afterimages. *Science*, 185, 1171-1172.
- Hayhoe, M.M., MacLeod, D.I.A., and Bruch, T. (1976) Rod-cone independence in dark adaptation. *Vision Res.*, 16, 591-600.
- Hayhoe, M.M. and MacLeod, D.I.A. (1976) A single anomalous pigment? *J. Opt. Soc. Am.*, 66, 276-277.
- Boynton, R.M., Hayhoe, M.M. and MacLeod, D.I.A. (1977) The gap effect: Chromatic and achromatic visual discrimination as affected by field separation. *Optica Acta*, 24, 159-177.
- Hayhoe, M.M. (1979) Lateral interactions in human cone dark adaptation. *J. Physiol.*, 296, 125-140.
- Hayhoe, M.M. (1979) After-effects of small adapting fields. *J. Physiol.*, 296, 141-158.
- Hayhoe, M.M. (1979) Review of Visual Psychophysics and Physiology. Edited by Armington, Krauskopf, and Wooten. *J. Opt. Soc. Am.*, 69, 920.

Ambrose, J.M. and Hayhoe, M.M. (1980) Surround configuration and cone dark adaptation. *Vision Res.*, 20, 883-890.

Williams, D.R., MacLeod, D.I.A. and Hayhoe, M.M. (1981) Foveal tritanopia. *Vision Res.*, 21, 1341-1356.

Williams, D.R., MacLeod, D.I.A. and Hayhoe, M.M. (1981) Punctate sensitivity of the blue-sensitive mechanism. *Vision Res.*, 21, 1357-1376.

Lennie, P., Hayhoe, M.M. and MacLeod, D.I.A. (1982) Stabilized vision through a bleaching window. *Vision Res.*, 22, 827-834.

Buss, C.M., Hayhoe, M.M., and Stromeyer, C.F. (1982) Lateral interactions in the control of visual sensitivity. *Vision Res.*, Rushton Memorial Issue, 22, 693-709.

Hayhoe, M.M. and Williams, D.R. (1984) Disappearance of afterimages at 'impossible' locations in space. *Perception*, 13, 455-459.

Hayhoe, M.M. (1984) Sensory Physiology and Psychophysics: The 70's Crystallized. *Contemporary Psychology*, 29, 19-20. (book review)

Hayhoe, M.M. and Chen Bing. (1986) Temporal modulation sensitivity during cone dark adaptation. *Vision Res.*, 26, 1715-1725.

Hayhoe, M.M., Benimoff, N. and Hood, D.C. (1987) The time course of multiplicative and subtractive adaptation processes. *Vision Res.*, 27, 1981-1996.

Hayhoe, M.M. and Smith, M.V. (1989) The role of spatial filtering in sensitivity regulation. *Vision Res.*, 29, 457-469.

Cicerone, C.M. and Hayhoe, M.M. (1990) The size of the pool for bleaching adaptation in human rod vision. *Vision Res.*, 30, 693-697.

Hayhoe, M.M. (1990) Spatial interactions and models of adaptation. *Vision Res.*, 30, 957-965.

Cicerone, C.M., Hayhoe, M.M., and MacLeod, D.I.A. (1990) The spread of adaptation in human foveal and parafoveal cone vision. *Vision Res.*, 30, 1603-1615.

Hayhoe, M., Lachter, J., Feldman, J. (1991) Integration of form across saccadic eye movements. *Perception*, 20, 393-402.

Hayhoe, M.M. and Wenderoth, P. (1991) Adaptation mechanisms in color & brightness. In: Lee, B. & Valberg, A. (Eds.), *From Pigments to Perception*. New York: Plenum Press, pp. 353-367.

Hayhoe, M., Levin, M., Koshel, R.J. (1992) Subtractive processes in light adaptation. *Vision Res.*, 32, 323-333.

Hayhoe, M.M., Lachter, J. and Moeller, P. (1992) Spatial memory and integration across saccadic eye movements. In Rayner, K. (Ed.), *Eye Movements & Visual Cognition*. Springer Verlag, pp. 130-145.

- Ballard, D.H., Hayhoe, M.M., Li, F., Whitehead, S.D.(1992) Eye hand coordination in a sequential task. *Proc. Royal Soc. Lond. B.*, 337, 331-339
- Karn, K., Moeller, P., and Hayhoe, M. (1992) Precision of the eye position signal. In Van Rensbergen, J. & d'Ydewalle, G. (Eds.), *Studies in Visual Attention*. North Holland. pp. 71-82.
- Trueswell, J. and Hayhoe, M. (1993) Surface segmentation mechanisms and motion perception. *Vision Res.*, 33, 313-328.
- Hayhoe, M., Ballard, D., Whitehead, S., (1993) Memory use during hand eye coordination. Proceedings of the 15th Annual Meeting of the Cognitive Science Society, 534-538.
- Karn, K., Moeller, P., Lachter, J., & Hayhoe, M. (1993) Task dependent spatial memory across saccades. *Brain & Behavioral Sciences Commentary*.
- Hayhoe, M., Ballard, D., & Pelz J (1994) Visual representations in natural tasks Proceedings IEEE Workshop on Visual Behaviors. pp1-9.
- Pelz, J. and Hayhoe, M. (1995) Influence of the visual scene in visual direction constancy *Vision Res* 35, 2267-2275 .
- Ballard, D., Hayhoe, M. & Pelz J (1995) Memory limits in sensory-motor tasks. in J.C. Houk, J.L. Davis, and D.G. Beiser (Eds.). *Models of Information Processing in the Basal Ganglia*. Cambridge, MA: MIT Press, 295-314.
- Ballard, D., Hayhoe, M. & Pelz J (1995) Memory representations in natural tasks *J Cognitive Neuroscience* 7, 66-80.
- Lachter, J & Hayhoe, M. (1995) Capacity limitations in memory for visual locations. *Perception*, 24, 1427-1441.
- Rao, R., Zelinsky, G., Hayhoe, M., and Ballard, D. (1996) Modelling Saccade Targeting in visual search. in D. Touretzky, M. Mozer, & M. Hasselmo (Eds) *Advances in Neural Information Processing Systems* 8, 830-836, Cambridge, MIT Press.
- Smeets, J., Hayhoe, M., & Ballard, D. (1996) Influence of hand movements on eye-head coordination. *Experimental Brain Res.* 109, 434-440.
- Karn, K., Moeller, P., & Hayhoe, M. Reference Frames in Saccade Targeting. (1997) *Exp Brain Research* , **115**, 267-282.
- Ballard, D. Hayhoe, M., & Pook, P. & Rao, R. (1997) Deictic Codes for the Embodiment of Cognition. *Behavioral & Brain Sciences* **20**, 723-767.
- Zelinsky, G., Rao, R., Hayhoe, M., & Ballard, D. (1997) Eye movements reveal the spatio-temporal dynamics of visual search. *Psychological Science*. **8**, 448-453.

Shimozaki, S., Weinstein, A., Hayhoe, M., Merigan, W., Zelinsky, G., & Ballard, D. (1997) Eye tracking of a right parietal patient and normal subjects during the 7/24 spatial recall test and object memory tests. *Brain and Cognition*, **35**, 388-92.

Hayhoe, M., Bensinger, D. & Ballard, D. (1998) Task constraints in visual working memory. *Vision Research*, **38**, 125-137.

Magnuson, J.S., Bensinger, D. G, Hayhoe, M., and Ballard, D. (1998). Learning to Form Visual Chunks: On the Structure of Visuo-Spatial Working Memory. In M. A. Gernsbacher and S. J. Derry (Eds). *Proceedings, Cognitive Science Society*, 645-650. Mahwah, NJ: Lawrence Erlbaum Associates.

Pelz, J., Hayhoe, M., Ballard, D., Shrivastava, A., Bayliss, J., von der Heyde, M. (1999) Development of a virtual laboratory for the study of complex human behavior. *Proceedings of the SPIE*, Vol. **3639B**, The Engineering Reality of Virtual Reality, San Jose, CA: SPIE

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Karn, K. & Hayhoe, M. (2000) Memory representations guide targeting eye movements in a natural task. *Visual Cognition*. **7** (6), p.673-704.

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Ballard, D., Hayhoe, M., Shinoda, H. & Salgian, G. (2001) Spatio-temporal organization of Behavior. *Spatial Vision*. **13**, 321-333.

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Land, M. & Hayhoe, M. (2001) In what ways do eye movements contribute to everyday activities? *Vision Research*, special issue on Eye Movements and Vision in the Natural World. **41**, 3559-3566.

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Triesch, J., Ballard, D., Hayhoe, M., & Sullivan, B. (2003) What you see is what you need. *J. of Vision*. 3, 86-94.

Shimozaki, S., Zelinsky, G., Hayhoe, M., Merigan, W., & Ballard, D. (2003) Spatial memory and saccade targeting deficits from parietal injury. *Neuropsychologia*, 41, 1365–1386.

Hayhoe, M. (2004) Relating Eye Movements and Cognitive Processes. Invited Commentary, Special Issue *Infancy*. 6, 267-274.

Aivar, P., Hayhoe, M., & Mruczek, R. (2005) Role of spatial memory in saccadic targeting in natural tasks. *Journal of Vision*, 5, 177-193

Hayhoe, M & Ballard, D. (2005) Eye Movements and Cognition. *Trends in Cognitive Science*, 9, 188-194.

Droll, J, Hayhoe, M, Triesch, J. & Sullivan, B. (2005) Task demands control acquisition and maintenance of visual information. *J Experimental Psychology: HPP*. 31, 1416-1438.

Hayhoe, M, Mennie, N, Sullivan B & Gorgos K (2005) The role of internal models and prediction in catching balls. *Proceedings of AAAI Fall Symposium Series*.

Sullivan, B, Jovancevic, J, Hayhoe, M, & Sterns, G (2005) Fixation patterns in natural tasks in Stargart's disease. *International Congress Series*, Elsevier.

Hayhoe, M. Integrating information across saccadic eye movements. (2006) In Peterson, M. A., Gillam, B., Sedgwick, H. *In the Mind's Eye: Julian Hochberg on the Perception of Pictures, Film, and the World*. NY: Oxford University Press.

Jovanevic, J., Sullivan, B., & Hayhoe, M. (2006) Control of Attention and Gaze in Complex Environments. *Journal of Vision* 6, 1431-1450.

Mennie, N., Hayhoe, M. & Sullivan, B. (2006) Look-ahead fixations: anticipatory eye movements in natural tasks. *Experimental Brain Research* 179, 427-442.

Hayhoe, M, Droll, J, & Mennie, N (2007) Learning where to look. In Van Gompel, R.P.G., Fischer, M.H., Murray, W.S., & Hill, R.L. *Eye movements: A window on mind and brain*. Oxford: Elsevier. pp641-660.

Droll, J & Hayhoe, M. (2007) Deciding when to remember and when to forget: Trade-offs between working memory and gaze. *JEP:HPP*. 33(6), 1352-1365

Karacan, H. & Hayhoe, M. (2007) 'Is attention drawn to changes in familiar scenes?' *Visual Cognition*, 16:2, 356 - 374.

Rothkopf, C, Ballard, & Hayhoe, M. (2007) Task and scene context determines where you look. *J of Vision* 7(14):16, 1-20.

Martin, T, Riley, M, Kelly, K, Hayhoe, M, & Huxlin, K (2007) Visually-guided behavior of homonymous hemianopes in a naturalistic task. *Vision Research* 47, 3434–3446

Droll, J, Hayhoe, M, & Gigone (2008) Learning where to direct gaze during change detection. *Journal of Vision* 7(14):6, 1-12.

Sullivan, B., Jovancevic-Misic, J., Hayhoe, M.M. & Sterns, G. (2008) Use of multiple preferred retinal loci in Stargardt's disease during natural tasks: a case study. *Ophthalmic & Phys Optics* 28: 168–177

Droll, J & Hayhoe, M. (2009) Seeing what we can do: Insights into vision and action through observations of natural behaviors. In Calvo, P & Gomila, G.(eds) *Handbook of Embodied Cognitive Science*, Elsevier.

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Hayhoe, M, Gillam, B, Chajka, K, & Vecellio, E (2009) The function of binocular vision in walking. *Visual Neuroscience; special issue on Natural Systems Analysis*. 26, 73-80.

Huxlin, K, Martin, T., Kelly, K, Riley, M, Friedman, D, Burgin, W, & Hayhoe, M. (2009) Perceptual re-learning of complex visual motion after V1 damage in humans *J Neurosci* 29(13):3981–3991.

Ballard D & Hayhoe M. (2009) Modeling the role of task in the control of gaze. *Visual Cognition* 17 (6/7), 1185-1204

Jovancevic, J. & Hayhoe, M. (2009) Adaptive gaze control in natural environments. *J Neurosci* 29(19), 6234-6238.

Hayhoe M (2009) Eye movements and action in everyday life. *Encyclopedia of Perception*. Sage Publications. 430-433.

Hayhoe, M & Rothkopf, C. (2010) Vision in the natural world. *Wiley Interdisciplinary Reviews: Cognitive Science*, 2(2) 158-166.

Nadeem, S, Hayhoe, M, & Stankiewicz, B (2010) Gaze Patterns in Navigation: Encoding Information in Large-Scale Environments. *Journal of Vision* 10(12):28, 1–11

Iorizzo, D, Riley, M, Hayhoe, M, & Huxlin, K (2010) Differential impact of partial cortical blindness on gaze strategies when sitting and walking - an immersive virtual reality study. *Vision Research* 51 (10), 1173-1184

Tatler, B & Hayhoe, M, Land, M F, Ballard, D. (2011) Eye Guidance in Natural Vision: Reinterpreting Salience. *Journal of Vision* 11(5):5, 1–23

Hayhoe, M & Ballard, D (2011) Mechanisms of gaze control in natural vision. Oxford Handbook of Eye Movements Oxford Univ Press.

McCann, B, Hayhoe, M & Geisler, W (2011) Decoding natural signals from the peripheral retina Journal of Vision. 11(10), 19.

Sullivan, BT; Johnson, LM; Ballard, DH; Hayhoe, M; (2011) Proceedings of the AISB 2011 Symposium on Architectures for Active Vision. 2011 April; 33-40.

Hayhoe, M, Chajka, K, & McKinney, T. & Pelz, J. (2012) Prediction in saccadic eye movements. Experimental Brain Research. 217(1), 125-136.

Brian T. Sullivan, Leif Johnson, Constantin Rothkopf, Dana Ballard & Mary Hayhoe (2012) The role of uncertainty and reward on eye movements in a virtual driving task. Journal of Vision, 12(13) 19.

Diaz, G, Cooper, J, Rothkopf, C, & Hayhoe, M. (2013) Saccades to future ball location reveal memory-based prediction in a natural interception task. Journal of Vision, 13(1) 20, 1-14.

Delerue, C., Hayhoe, M, & Boucart, M. Eye movements during natural action in schizophrenia J. Psychiatry Neurosci. 2013 Apr 3;38(3):120143. doi: 10.1503/jpn.120143.

Diaz, G, Cooper, J, Kit, D, & Hayhoe, M. (2013) Analyzing Gaze in a 3D Virtual Environment: Methods for gaze classification, and tools for real-time visual recording. Journal of Vision: Methods 13(12): 5; doi:10.1167/13.12.5

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Brian T. Sullivan, Leif Johnson, Constantin Rothkopf, Dana Ballard & Mary Hayhoe
Predicting human visuomotor behavior in a driving task. (2014) Phil Trans Roy Soc B, 369 1636 20130044; doi:10.1098/rstb.2013.0044, 1471-2970

Kit, D, Katz, L, Sullivan, B, Snyder, K, Hayhoe, M & Ballard D (2014) Searching for objects in a virtual apartment: The effects of experience on scene memory PLoS ONE 9(4): e94362. doi:10.1371/journal.pone.0094362

Hayhoe, M. & Ballard, D. (2014) Modeling task control of eye movements. *Current Biology*, 24(13), 622-628.

Gottlieb, J, Hayhoe, M, Hikosaka, O & Rangel, A (2014) Attention, reward, and information-seeking *J Neuroscience*. 34(46):15497–15504.

Muriel Boucart; Celine Delerue; Miguel Thibaut; Sebastien Szaffarczyk; Mary Hayhoe; Thi Ha Chau Tran (2015) Impact of wet macular degeneration on the execution of natural actions. *Invest. Ophthalmol. Vis. Sci.*. 2015; 56(11):6832-6838. doi: 10.1167/iovs.15-16758

Chia-Ling Li, M Pilar Aivar, Dmitry M Kit, Matthew H Tong, Mary M Hayhoe. (2016) Memory and visual search in naturalistic 2D and 3D environments *Journal of Vision*. 16(8):9.

Tong, MH, Zohar, O, & Hayhoe, M. (2017) Factors influencing gaze behavior in a walking task: rewards, uncertainty, and task modules. *Journal of Vision*. 17(1):28. doi: 10.1167/17.1.28

Hayhoe, M 2017 Perception and Action. *Annual Review of Vision Science*. 3:4.1–4.25

Ruohan Zhang*, Zhuode Liu*, Mary M. Hayhoe, Dana H. Ballard (2017) Attention Guided Deep Imitation Learning. *Proceedings Cognitive Computational Neuroscience (CCN)* 2017.

Hayhoe, M. 2018 What can be learnt from natural behavior? Teller Award Lecture. *Journal of Vision* 18, 10. doi:10.1167/18.4.10

Chia-Ling Li, M Pilar Aivar, Matthew H Tong & Mary M Hayhoe (2018) Memory shapes visual search strategies in large-scale environments. *Scientific Reports* 8:4324

Brian C. McCann, Mary M. Hayhoe & Wilson S. Geisler (2018) Contributions of monocular and binocular cues to distance discrimination in natural scenes *Journal of Vision* 18, 12. doi:10.1167/18.4.12

Jonathan S Matthis, Jacob L. Yates, & Mary M. Hayhoe (2018) Gaze and the control of foot placement when walking in natural terrain. *Current Biology* 28,(8) p1224–1233.

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R Zhang, Z Liu, L Zhang, J A. Whritner, K S. Muller, M. Hayhoe, D H. Ballard. (2018) AGIL: Learning Attention from Humans for Visuomotor Tasks. *Proceedings European Conference on Computer Vision (ECCV)* arXiv preprint arXiv:1806.03960

Zhang, Luxin, Ruohan Zhang, Zhuode Liu, Mary M. Hayhoe, and Dana H. Ballard. (2018) Learning Attention Models from Humans for Visuomotor Tasks. In *Thirty-Second AAAI Conference on Artificial Intelligence*. 2018.

S Junges, N Jansen, J-P Katoen, U Topcu, R Zhang, M Hayhoe. (2018) Model Checking for Safe Navigation Among Humans. *Proceedings International Conference on Quantitative Evaluation of SysTem (QEST)*, 207-222.

Ruohan Zhang, Shun Zhang, Matthew H. Tong, Dana H. Ballard, Mary M. Hayhoe (2018) Modeling sensory-motor decisions in natural behavior. *PLOS Computational Biology*.
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Zhang, Ruohan, Calen Walshe, Zhuode Liu, Lin Guan, Karl S. Muller, Jake A. Whritner, Luxin Zhang, Mary M. Hayhoe, and Dana H. Ballard. "Atari-HEAD: Atari Human Eye-Tracking and Demonstration Dataset." In *Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI)*, 2020.

M Hayhoe, K Fiehler, M Sperling, E Brenner, KR Gegenfurtner (2020) Introduction to special issue on Prediction in Perception and Action. *Journal of Vision* 20 (2), 8-8

Ruohan Zhang, Akanksha Saran , Bo Liu , Yifeng Zhu , Sihang Guo , Dana H. Ballard , Mary M. Hayhoe and Scott Niekum (2020) Human Gaze Assisted Artificial Intelligence: A Review
International Joint Conference on Artificial Intelligence (IJCAI) Survey Track.

Rubin, M, Minns, S, Muller, K, Tong, M, Hayhoe, M, & Telch, M (2020) Avoidance of social threat: Evidence from eye movements during a public speaking challenge using 360deg video. *Behav Res & Therapy*, 134, 103706.

Bonnen, K, Matthis, J, Gbaldi, A, Banks, M, Levi, D, & Hayhoe, M (2021) Binocular vision and the control of foot placement during walking in natural terrain *Scientific Reports* (in press)

Matthis, J, Muller, K, Bonnen, K & Hayhoe, M. (2021) Retinal optic flow during natural locomotion. (accepted *PLOS Computational Biology*).
<https://www.biorxiv.org/content/10.1101/2020.07.23.217893v1>

JS Matthis, KS Muller, KL Bonnen, MM Hayhoe Retinal Optic Flow during natural locomotion-
PLOS Computational Biology, 2022 <https://doi.org/10.1371/journal.pcbi.1009575>

Mikael Rubin, Sihang Guo, Karl Muller, Ruohan Zhang, Michael J. Telch, Mary M. Hayhoe Selective Visual Attention During Public Speaking in an Immersive Context. *Attention, Perception, & Psychophysics* (submitted)

Hayhoe, M., & Lerch, R. Visual Guidance of Natural Behavior. *Oxford Research Encyclopedia of Psychology*. Retrieved 4 Mar. 2022, from
<https://oxfordre.com/psychology/view/10.1093/acrefore/9780190236557.001.0001/acrefore-9780190236557-e-848>.

PRESENTATIONS AT SCIENTIFIC MEETINGS (recent)

2018 Hayhoe, M Predictive eye movements in natural vision. Vision Sciences Society Annual Meeting

2018 Jonathan Matthis; Karl Muller; Kathryn Bonnen; Mary Hayhoe The dynamics of optic flow during natural locomotion. Vision Sciences Society Annual Meeting

2018 Ruohan Zhang, Jake A Whritner, Zhuode Liu, Luxin Zhang, Karl S Muller, Mary M Hayhoe, Dana H Ballard. Modelling complex perception-action choices. Vision Sciences Society Annual Meeting

2018 Karl Muller, Jonathan S Matthis, Kathryn Bonnen, Lawrence K Cormack, Mary M Hayhoe Visual motion statistics during real-world locomotion Vision Sciences Society Annual Meeting

2018 Karl Muller, Jonathan S. Matthis, Kathryn Bonnen, Lawrence K. Cormack, Mary M. Hayhoe Visual motion statistics during real-world locomotion. Annual Meeting Society for Neuroscience

2018 Matthis, J.S., Hayhoe, M.M., “*The dynamic of optic flow during real-world locomotion.*” Talk presented at annual meeting on Dynamic Walking.

2019 Dawei Liang, Ruohan Zhang, Jonathan S. Matthis, Karl S. Muller, Edison Thomaz, Dana H. Ballard, Mary M. Hayhoe Gaze and foothold selection in outdoor walking Vision Sciences Society Annual Meeting

2019 Kate Bonnen, Jonathan S. Matthis, Agostino Gibaldi, Martin S Banks, Dennis Levi, Mary M. Hayhoe A role for stereopsis when walking over complex terrain Vision Sciences Society Annual Meeting

2019, Jonathan S. Matthis, Karl S. Muller, Mary M. Hayhoe Retinal optic flow and the control of locomotion Vision Sciences Society Annual Meeting

2019 Dan Panfili, Jonathan S. Matthis, Mary M. Hayhoe The role of optic flow and visual direction in locomotion Vision Sciences Society Annual Meeting

2020 Panfili, Muller, Hayhoe A real-time model of retinal stimulation in virtual environments Vision Sciences Society Annual Meeting

2020 Muller, Bonnen, Matthis, Huk, Hayhoe Behaviorally dependent properties of retinal motion during natural locomotion Vision Sciences Society Annual Meeting

2020 Guo, Zhang, Masetti, Ballard, Hayhoe Modeling human multitasking behavior in video games through modular reinforcement learning Vision Sciences Society Annual Meeting

2021 Karl Muller, Dan Panfili, Jon Matthis, Mary Hayhoe (2021) Foothold selection during locomotion over rocky terrain. Annual Meeting V-VSS

2021 Dan Panfili, Karl Muller, Jon Matthis, Mary Hayhoe Gaze distribution around footholds in rough terrain. Annual Meeting V-VSS

2021 Ruohan Zhang, Sihang Guo, Bo Liu, Yifeng Zhu, Dana Ballard, Peter Stone, Mary Hayhoe Comparing Human and AI Attention in Visuomotor Tasks Annual Meeting V-VSS

COLLOQUIA AND INVITED PRESENTATIONS (last 10 years)

2011

Attention and Gaze in natural tasks. University of Lille, France
 ACEVS Vision Center Retreat. Invited Speaker, Murramarang, NSW Australia.
 CITEC Summer School on Attention Bielefeld Germany

2012

Keynote speaker. Fifth International Conference on Cognitive Systems, Vienna, Austria
 Invited Speaker Fall Vision Meeting Optical Society of America Rochester New York
 Keynote address at workshop on Pervasive Eye-Tracking and Mobile eye-Based Interaction Pittsburg, PA.
 Bielefeld ZIF Institute Research Fellow "Competition and Priority Control in Mind & Brain: New perspectives from task-driven vision" October-November.
 University of Giessen, Adaptive Gaze Control. Invited colloquium.

2013

Invited colloquium University of Pennsylvania, Institute for Research in Cognitive Science
Invited Colloquium Cognitive Science University of Rochester.
Invited presentation Gordon Conference on Eye Movements

2014

Invited Symposium presentation: Attention, Reward, and Information Seeking. Society for Neuroscience Annual Meeting.
Invited presentation Vision NYC. Modeling Task Control of Gaze

2015

Colloquium, University of Pennsylvania, Psychology Department
Colloquium, Rutgers University, Psychology Department
International Neuropsychological Society Collioure France
Invited presentation University of Giessen. SFB Retreat.
Gordon Research Conference, Boston. Session Discussant
Invited Symposium presentation, Behavior 2015. Cairns Australia
The Eye and the Auto. Invited presentation. Detroit MI.

2016

Colloquium Smith Kettlewell Eye Research Institute San Francisco
Colloquium University of North Texas Health Sciences Center
Fall Vision Meeting, Optical Society, University of Rochester
Keynote speaker, IEEE Visualization Workshop, Baltimore

2017

Workshop on Multimodal Scene Perception, Berlin.
Colloquium, Rochester Institute of Technology
Vision Sciences Society: Teller Award Presentation
SMI presentation: Using Virtual Reality.
Workshop on Egocentric Vision: Indiana University

2018

Royal Society London Meeting: Rank Prize Funds Workshop - Understanding images in biological and computer vision.
Craig Laboratory, Cambridge UK Gaze control of foot placement in rough terrain.
Keynote Speaker - Conference of Experimental Psychologists: Marburg, Germany
UC Berkeley Optometry Oxyopia colloquium. Gaze Control of foot placement in rough terrain.
University of Nevada Reno Invited colloquium. Gaze control in natural terrain.
Vision Sciences Society – Invited Symposium Presentation on Prediction
Center for Visual Science Symposium on Virtual and Augmented Reality, Rochester
Keynote Speaker - NASPSPA Annual Meeting Denver Human Kinetics
European Conference on Visual Perception - Invited Symposium
Keynote Speaker - Southwest Regional Cognitive Psychology Conference, Houston

2019

York University Center for Vision Research: International Conference on Predictive Vision.

2020

Invited colloquium Simon Fraser University
Colloquium, Dartmouth College (Zoom)

2021

Keynote Speaker - Gordon Conference (postponed)

Invited Colloquium – NYU Shanghai (Zoom)

Invited Colloquium – School of Optometry and Vision Science, Bar Ilan University (Zoom)

Invited Colloquium – Dept of Cognitive Psychology Goethe University Frankfurt (Zoom)

Special Session in Honor of Mike Land ECVF (Zoom)

University of Texas Austin Presentation: R01 Club. R01 for Life Panelist