Mary **Hayhoe**

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Publications

Journal Articles

1. Ashmaig, O., Muller, K., & Hayhoe, M. (2022). Does working memory decay constrain gaze location while walking and bicycling? *Journal of Vision*, *22*(14), 4416. https://doi.org/10.1167/jov.22.14.4416

2. Panfili, D., Muller, K., & Hayhoe, M. (2022). Flow segmentation during locomotion. *Journal of Vision*, *22*(14), 4040. https://doi.org/10.1167/jov.22.14.4040

3. Rubin, M., Muller, K., Hayhoe, M. M., & Telch, M. J. (2022). Attention guidance augmentation of virtual reality exposure therapy for social anxiety disorder: A pilot randomized controlled trial. *Cognitive Behaviour Therapy*, *51*(5), 371–387. https://doi.org/10.1080/16506073.2022.2053882

4. Matthis, J. S., Muller, K. S., Bonnen, K. L., & Hayhoe, M. M. (2022). Retinal optic flow during natural locomotion. *PLOS Computational Biology*, *18*(2), e1009575. https://doi.org/10.1371/journal.pcbi.1009575

5. Rubin, M., Guo, S., Muller, K., Zhang, R., Telch, M. J., & Hayhoe, M. M. (2022). Selective visual attention during public speaking in an immersive context. *Attention, Perception, & Psychophysics*, *84*(2), 396–407. https://doi.org/10.3758/s13414-021-02430-x

6. Bonnen, K., Matthis, J. S., Gibaldi, A., Banks, M. S., Levi, D. M., & Hayhoe, M. (2021). Binocular vision and the control of foot placement during walking in natural terrain. *Scientific Reports*, *11*(1). https://doi.org/10.1038/s41598-021-99846-0

7. Rubin, M., Minns, S., Muller, K., Tong, M. H., Hayhoe, M. M., & Telch, M. J. (2020). Avoidance of social threat: Evidence from eye movements during a public speaking challenge using 360- video. *Behaviour Research and Therapy*, *134*, 103706. https://doi.org/10.1016/j.brat.2020.103706

8. Zhang, R., Saran, A., Liu, B., Zhu, Y., Guo, S., Niekum, S., Ballard, D., & Hayhoe, M. (2020, July). Human gaze assisted artificial intelligence: A review. *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence*. https://doi.org/10.24963/ijcai.2020/689

9. Zhang, R., Walshe, C., Liu, Z., Guan, L., Muller, K., Whritner, J., Zhang, L., Hayhoe, M., & Ballard, D. (2020). Atari-HEAD: Atari human eye-tracking and demonstration dataset. *Proceedings of the AAAI Conference on Artificial Intelligence*, *34*(04), 6811–6820. https://doi.org/10.1609/aaai.v34i04.6161

10. Hayhoe, M., Fiehler, K., Spering, M., Brenner, E., & Gegenfurtner, K. R. (2020). Introduction to special issue on "prediction in perception and action." *Journal of Vision*, *20*(2), 8. https://doi.org/10.1167/jov.20.2.8

Preprints

1. Muller, K., Matthis, J. S., Bonnen, K., Cormack, L. K., Huk, A. C., & Hayhoe, M. (2022). *Behavior shapes retinal motion statistics during natural locomotion*. https://doi.org/10.1101/2022.09.06.506797

2. Liu, L., Ballard, D., & Hayhoe, M. (2020). *Humans use minimum cost movements in a whole-body task*. https://doi.org/10.1101/2020.12.29.424756

3. Matthis, J. S., Muller, K. S., Bonnen, K., & Hayhoe, M. M. (2020). *Retinal optic flow during natural locomotion*. https://doi.org/10.1101/2020.07.23.217893

Books

Book Chapters

1. Hayhoe, M. (2022). Visual guidance of natural behavior. In *Oxford research encyclopedia of psychology*.

Professional Presentations

Tillyer Award Lecture

Optica   *2022*

Human Visuo-motor Control

Texas Robotics Symposium   *2022*

Invited Colloquium Worcester Polytechnic

                                                                                           2022

Visual Decisions in Natural Action

Worcester Polytechnic Inst, Robotics Engineering   *2022*

Visual Decisions in Natural Action

European Conference on Visual Perception   *2021*

Visual Decisions in Natural Action

NYU SHanghai   *2021*

Visual Decisions in Natural Action

Bar Ilan University School of Optometry and Vision Science   *2021*

Gaze Control in Natural Behavior

Simon Frazer University   *2020*

Gaze control in natural behavior

Dartmouth College   *2020*

Visual Decisions in Natural Action

Goethe University Frankfurt Germany   *2020*

Conference Abstracts

Attentional capture during public speaking in a virtual reality environment

Vision Sciences Society   *2021*

Comparing Human and AI Attention in Visuomotor Tasks

Vision Sciences Society   *2021*

Comparing human and AI attention in visuomotor tasks

Vision Sciences Society   *2021*

Foothold selection during locomotion over rocky terrain

Vision Sciences Society   *2021*

Gaze distribution around footholds in rough terrain

Vision Sciences Society   *2021*

Retinal optic flow and the control of locomotion

Vision Sciences Society   *2021*

Behaviorally dependent properties of retinal motion during natural locomotion

Vision Sciences Society   *2020*

Modeling human multitasking behavior in video games through modular reinforcement learning

Vision Sciences Society   *2020*

Honors

Awarded Humboldt Fellowship   *Bonn, DE*

Alexander von Humboldt Foundation   *2022*

Tillyer Medal   *Washington , US*

Optica previously Optical Society of America   *2022*

Funding

Vision in Natural Tasks

Funding: $7,837,086

National Eye Institute, R01EY005729
1984 - 2024

Neural circuit computations for visual motion during natural primate behaviors

Funding: $3,344,560

National Institute of Neurological Disorders and Stroke, UF1NS116377
2020 - 2023

CPS Training Program

Funding: $1,653,313

National Eye Institute, T32EY021462
2012 - 2022

2019 Collaborative Research in Computational Neuroscience (CRCNS) Annual Principal Investigators Meeting

Funding: $50,000

Directorate for Computer & Information Science & Engineering, 1938015
2019 - 2020

Service

NSF

Co-organizer CRCNS Workshop at UT Austin

Washington, US
2019 - present

Journal of Vision

Editor

USA, US
2010 - present

University of Giessen, Marburg, Darmstadt

International Scientific Advisory Board member

Giessen, Marburg, Darmstadt, DE
2022 - 2025

University of Nevada Reno, Indiana University, Bates College

Advisory Board: NSF project: Visual Experience Database

Reno, Bloomington, Lewiston, US
2021 - 2023

numerous journals

reviewer

US and international, US
1984 - 2022

National Institutes of Health

Member CP/HCMF Study Section

Bethesda, US
2017 - 2021

The University of Texas at Austin

Panelist of R01 for Life

Austin, US
2021 - 2021

Mentoring and Teaching

Mentoring

Psychology

post-doctoral advisor: Nathaniel Powell

2022 - present

Psychology

Committee Mandi Severson

2021 - present

Dan Panfili

Dissertation advisor

2018 - 2023

Psychology

Dissertation Committee Sara Schroer

2021 - 2023

Neuroscience

Dissertation Committee Stephanie Shields

2021 - 2023

Psychology

Dissertation Committee Jake Whritner

2017 - 2022

Univ Nth Texas Health Sciences Center

Mentor K01 Haylie Miller

2017 - 2022

Karl Muller

Dissertation supervisor

2017 - 2021

Rachel Lerch

Post-doc mentor

2020 - 2021

Sihang Guo

Advisor CS Masters Dissertation

2019 - 2021

Mikael Rubin

Dissertation co-advisor

2018 - 2021

Ruohan Zhang

co-advisor CS dissertation

2016 - 2021

Co-Mentor F31 NIH NRSA Mikael Rubin

2018 - 2021

Teaching

UGS302 Seeing and Acting

Instructor

2022 - 2025

PSY341K Vision & Action

Instructor

2015 - 2021

PSY394U Perceptual System or Sensory-Motor Systems

Instructor

2010 - 2021