

CURRICULUM VITAE

SCOTT NOLAN JAMES WATAMANIUK

Wright State University
Department of Psychology
Dayton, OH 45435
Office: (937) 775-3563
Fax: (937) 775-3347
email: scott.watamaniuk@wright.edu

643 Deptford Avenue
Dayton, OH 45429
(937) 433-8846

Citizenship: Canadian

EDUCATION

Ph.D., Psychology (Perception), June 1990, Northwestern University, Evanston, IL.
M.S., Psychology (Perception), August 1987. Northwestern University, Evanston, IL.
B.Sc., Psychology (First Class Honors), May 1985. University of Alberta, Edmonton, Alberta, Canada.

EMPLOYMENT

Professor, Wright State University, Dept. of Psychology, Dayton, OH
Aug, 2013 - present.

Affiliate Scientist, The Smith-Kettlewell Eye Research Institute, San Francisco, CA
Aug, 1995 - present.

Associate Professor, Wright State University, Dept. of Psychology, Dayton, OH
Sept, 2000 - July, 2013.

Assistant Professor, Wright State University, Dept. of Psychology, Dayton, OH
Aug, 1995 - Aug, 2000.

Research Associate, Smith-Kettlewell Eye Research Institute, San Francisco, CA
Jan, 1993-July, 1995.

Post-Doctoral Fellow, Smith-Kettlewell Eye Research Institute, San Francisco, CA
Oct, 1989-Dec. 1992.

Research Assistant for Dr. Robert Sekuler, Northwestern University, Psychology Dept,
Evanston, IL 1986-1989.

Research Assistant for Dr. Stanley Rule, University of Alberta, Psychology Dept, Edmonton,
Alta., Canada 1984-1985.

HONORS

Best Track Paper award in the Facilities Design and Planning track at the 2018 IISE Annual Conference (Orlando, FL), May 21, 2018

Journal of Vision Editor-in-Chief's article of the month, November 2017.

Writing Across the Curriculum Faculty Recognition Award, May 28, 2010

Outstanding Faculty Member 2009, WSU Psi Chi/Psychology Club

Top Reviewer in 2008, Vision Research

Rachel C. Atkinson Postdoctoral Fellowship, Smith-Kettlewell Eye Research Institute, San Francisco, CA October 1989 - December 1990.

Fellowship for McDonnell Summer Institute in Cognitive Neuroscience, Dartmouth College, Hanover, NH June, 1989.

Senior Teaching Fellow, Northwestern University, Evanston, IL 1986-1989.

Northwestern University Scholar, Northwestern University, Evanston, IL 1985-1986.

National Science and Engineering Research Counsel Summer Research Grant, University of Alberta, Edmonton, Alberta, Canada May - August 1984.

TEACHING EXPERIENCE

Wright State University

Graduate Courses:	Visual Science-PSY 776 Visual Science Lab-PSY 777 Cortical Visual Functions and their Applications-PSY 778 Fundamentals of Motion Perception-PSY 886 Perception - PSY 7060 Display Design - PSY 8320
-------------------	---

Undergraduate Courses:	Research Design & Methods-PSY 300 Basic Research Methods in Psychology - PSY 301 Perception-PSY 371, PSY 3710 Psychology: The Science of Behavior - PSY 105
------------------------	--

Northwestern University

Teaching Assistant:	Perception (Fall 1985,1987,1988) Perception Lab (Winter 1986) Linear Models:Advanced Topics (Spring 1986).
---------------------	--

ORGANIZATIONS

Member of: Society for Neuroscience (SfN), Vision Sciences Society (VSS)

PROFESSIONAL SERVICE

Moderator at the Vision Sciences Society (VSS) annual meeting, 2017.

Member, Scientific Review Panel, National Science Foundation, October, 2003.

Moderator at the Society for Neuroscience annual meeting, 2000.

Moderator at the Association for Research in Vision & Ophthalmology (ARVO) annual conference, 1997.

Moderator at the Association for Research in Vision & Ophthalmology (ARVO) annual conference, 1995.

Reviewer of grants for the Air Force Office of Scientific Research, the National Science Foundation, Wellcome Trust (Europe) 1992-present.

Reviewer of manuscripts for scientific journals: *Journal of Neuroscience*, *Journal of Neurophysiology*, *Neural Networks*; *Journal of Vision*; *Visual Neuroscience*; *Vision Research*; *Nature*; *Journal of the Optical Society*; *Perception*; *Perception & Psychophysics*; *Attention, Perception and Psychophysics*; *Proceedings of the National Academy of Science*; *Journal of the Society for Information Display*; *PLoS One*; *Australian Journal of Psychology*; *Displays*; *i-Perception*; *Scientific Reports* 1989-present.

PUBLICATIONS

1. Heinen, S.J., Singh, D., & Watamaniuk, S.N.J. (in revision). Pursuit is altered by saccade adaptation. *Journal of Neuroscience*.
2. Watamaniuk, S.N.J., Badler, J.B., & Heinen, S.J. (submitted 3-31-23). Peripheral and foveal targets differentially impact retinal-image stability. *Scientific Reports*.
3. Chanda, A., Badler, J.B., Singh, D., Watamaniuk, S.N.J., & Heinen, S.J. (2021). A covered eye fails to follow an object moving in depth. *Scientific Reports*, May 26;11(1):10983. (doi: 10.1038/s41598-021-90371-8).
4. Badler, J.B., Heinen, S.J., & Watamaniuk, S.N.J. (2019). A common mechanism modulates saccade timing during pursuit and fixation. *Journal of Neurophysiology*, 122, 1981-1988.
5. Heinen, S.J., Badler, J.B., & Watamaniuk, S.N.J. (2018). Choosing a foveal goal recruits the saccadic system during smooth pursuit. *Journal of Neurophysiology*, 120, 489-496. (doi: 10.1152/jn.00418.2017)
6. Watamaniuk, S.N.J., Bal, J., & Heinen, S.J. (2017). A subconscious interaction between fixation and anticipatory pursuit. *Journal of Neuroscience*, 37, 11424-11430. (doi: doi.org/10.1523/JNEUROSCI.2186-17.2017)
7. Ma, Z., Watamaniuk, S.N.J., Heinen, S.J. (2017). Illusory motion reveals velocity matching, not foveation, drives smooth pursuit of large objects. *Journal of Vision*, 17(12):20, 1-14. (doi: 10.1167/17.12.20)
8. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2016). A foveal target increases catch-up saccade frequency during smooth pursuit. *Journal of Neurophysiology*, 115, 1220-1227 (doi:10.1152/jn.00774.2015).
9. Watamaniuk, S.N.J. & Heinen, S.J. (2015). Allocation of attention during pursuit of large objects is no different than during fixation. *Journal of Vision*. 15(9):9. (doi:10.1167/15.9.9)
10. Maus, G., Potapchuk, E., Watamaniuk, S., & Heinen, S. (2015). Different time scales of motion integration for anticipatory smooth pursuit and perceptual adaptation. *Journal of Vision*, 15(2):16. (doi:10.1167/15.2.16)
11. McIntire, J.P., Wright, S.T., Harrington, L.K., Havig, P.R., Watamaniuk, S.N.J., Heft, E.L., & Winterbottom, M. (2015). Binocular fusion ranges and stereoacuity predict positional and rotational spatial task performance on a stereoscopic 3D display. *Journal of Display Technology*, 99. (doi:10.1109/JDT.2014.2367161)
12. Jin, Z., Watamaniuk, S.N.J., Khan, A.Z., Potapchuk, E., & Heinen, S.J. (2014). Motion integration for ocular pursuit does not hinder perceptual segregation of moving objects. *Journal of Neuroscience*, 34, 5835-5841. (doi: 10.1523/JNEUROSCI.4867-13.2014)

13. McIntire, J., Wright, S., Harrington, L.K., Havig, P., Watamaniuk, S., & Heft, E. (2014). Optometric measurements predict performance but not comfort on a virtual object placement task with a stereoscopic 3D display. *Optical Engineering*, 53, 061711. (doi:10.1117/1.OE.53.6.061711)
14. McIntire, J., Havig, P., Harrington, L.K., Wright, S., Watamaniuk, S.N.J., & Heft, E.L. (2014). Clinically normal stereopsis does not ensure a performance benefit from stereoscopic 3D depth cues. *3D Research*, 5, 20. (doi: 10.1007/s13319-014-0020-9)
15. Jin, Z., Reeves, A., Watamaniuk, S.N.J., & Heinen, S.J. (2013). Shared attention for smooth pursuit and saccades. *Journal of Vision*, 13, 4, 7 (doi:10.1167/13.4.7)
16. Watamaniuk, S.N.J., Sekuler, R., & McKee, S.P. (2011). Perceived global flow direction reveals local vector weighting by luminance. *Vision Research*, 51, 1129-1136.
17. Heinen, S.J., Jin, Z., Reeves, A., & Watamaniuk, S.N.J. (2011). Flexibility of foveal attention during ocular pursuit. *Journal of Vision*, 11, 2, 9. (doi: 10.1167/11.2.9)
18. McIntire, J.P., Havig, P.R., Watamaniuk, S.N.J., & Gilkey, R.H. (2010). Visual search performance with 3-d auditory cues: Effects of motion, target location, and practice. *Human Factors*, 52, 41-53. (doi:10.1177/0018720810368806)
19. Watamaniuk, S.N.J. & Heinen, S.J. (2007). Storage of an oculomotor motion aftereffect. *Vision Research*, 47, 466-473. PMID: 17239421
20. Watamaniuk, S. N. J. (2005). The predictive power of trajectory motion. *Vision Research*, 45, 2993-3003. PMID: 16153677
21. Watamaniuk, S. N. J., & Heinen, S. J. (2003). Perceptual and oculomotor evidence of limitations on processing accelerating motion. *Journal of Vision*, 3(11), 698-709. <http://journalofvision.org/3/11/5/>, doi:10.1167/3.11.5. PMID: 14765954
22. Watamaniuk, S.N.J., Flinn, J., & Stohr, R.E. (2003). Segregation from direction differences in dynamic random-dot stimuli. *Vision Research*, 43, 171-180. PMID: 12536139
23. Watamaniuk, S.N.J. (2003). Motion perception. In R. B. Johnson and R. G. Driggers (Eds.), *The Encyclopedia of Optical Engineering* (pp. 1380-1389). New York: Marcel Dekker.
24. Sekuler, R., Watamaniuk, S.N.J. & Blake, R. (2002). Perception of visual motion. In H. Pashler (Series Ed.) & S. Yantis, (Vol. Ed.), *Steven's Handbook of Experimental Psychology: Vol 1. Sensation and Perception* (3rd ed., pp. 121-176). New York: Wiley.
25. Morgan, M.J., Watamaniuk, S.N.J., & McKee, S.P. (2000). The use of an implicit standard in measuring discrimination thresholds. *Vision Research*, 40, 2341-2349. PMID: 10927119
26. Watamaniuk, S.N.J. (1999). Invited review of the book, *High-level motion processing: Computational, neurobiological, and psychophysical perspectives*, *Optometry and Vision Science*, 76.
27. Watamaniuk, S.N.J. & Heinen, S.J. (1999). Human smooth pursuit direction discrimination. *Vision Research*, 39, 59-70. PMID: 10211396
28. Verghese, P., Watamaniuk, S.N.J., McKee, S.P., & Grzywacz, N.M. (1999). Local motion detectors cannot account for the detectability of an extended trajectory in noise. *Vision Research*, 39, 19-30. PMID: 10211392
29. Harris, J.M., McKee, S.P., & Watamaniuk, S.N.J. (1998). Visual search for motion-in-depth: Stereomotion does not 'pop-out' from disparity noise. *Nature Neuroscience*, 1, 165-168. PMID: 10195134

30. Heinen, S.J. & Watamaniuk, S.N.J. (1998). Spatial integration in human smooth pursuit. *Vision Research*, 38, 3785-3794. PMID: 9893807
31. Watamaniuk, S.N.J. & McKee, S.P. (1998). Simultaneous encoding of direction at a local and global scale. *Perception & Psychophysics*, 60, 191-200. PMID: 9529903
32. McKee, S.P., Watamaniuk, S.N.J., Harris, J.M., Smallman, H.S., & Taylor, D.G. (1997). Is stereopsis effective in breaking camouflage for moving targets? *Vision Research*, 37, 2047-2055. PMID: 9327053
33. Harris, J.M. & Watamaniuk, S.N.J. (1996). Poor speed discrimination suggests that there is no specialized speed mechanism for Cyclopean motion. *Vision Research*, 36, 2149-2157. PMID: 8776481
34. Watamaniuk, S.N.J. & McKee, S.P. (1995). 'Seeing' motion behind occluders. *Nature*, 377, 729-730. PMID: 7477261
35. Grzywacz, N.M., Watamaniuk, S. N. J., & McKee, S. P. (1995). Temporal coherence theory for the detection and measurement of visual motion. *Vision Research*, 35, 3183-3203. PMID: 8533352
36. Bravo, M.J. & Watamaniuk, S.N.J. (1995). Evidence for two speed signals: a coarse local signal for segregation and a precise global signal for discrimination. *Vision Research*, 35, 1691-1697. PMID: 7660577
37. Harris, J.M. & Watamaniuk, S.N.J. (1995). Speed discrimination of motion in depth using binocular cues. *Vision Research*, 35, 885-896. PMID: 7762146
38. Watamaniuk, S.N.J., McKee, S.P., & Grzywacz, N.M. (1995). Detecting a trajectory embedded in random-direction motion noise. *Vision Research*, 35, 65-77. PMID: 7839611
39. McKee, S.P. & Watamaniuk, S.N.J. (1994). The psychophysics of motion perception. In A.T. Smith and R.J. Snowden (Eds.), *Visual Detection of Motion*, London: Academic Press Ltd.
40. Watamaniuk, S.N.J. (1993). An ideal observer for discrimination of the global direction of dynamic random dot stimuli. *Journal of the Optical Society of America A*, 10, 16-28. PMID: 8478742
41. Watamaniuk, S.N.J., Grzywacz, N.M. & Yuille, A.L. (1993). Dependence of speed and direction perception on cinematogram dot density. *Vision Research*, 33, 849-859. PMID: 8351856
42. Watamaniuk, S.N.J. & Sekuler, R. (1992). Temporal and spatial integration in dynamic random dot stimuli. *Vision Research*, 32, 2341-2347. PMID: 1288010
43. Watamaniuk, S.N.J. & Duchon, A. (1992). The human visual system averages speed information. *Vision Research*, 32, 931-941. PMID: 1604862
44. Watamaniuk, S.N.J. (1992). Visible persistence is reduced by fixed-trajectory motion but not random motion. *Perception*, 21, 791-802. PMID: 1297982
45. Watamaniuk, S.N.J., Sekuler, R. & Williams, D.W. (1989). Direction perception in complex dynamic displays: the integration of direction information. *Vision Research*, 29, 47-59. PMID: 2773336

TECHNICAL REPORTS

1. Russell, S.M., Funke, G.J., Miller, B.T., Dukes, A., Flach, J.M., Watamaniuk, S.N.J., Strang,

A.J., Menkw, L., & Brown, R. (2014). ALTERNATIVE INDICES OF PERFORMANCE: AN EXPLORATION OF EYE GAZE METRICS IN A VISUAL PUZZLE TASK. Interum Report, AFRL (AFRL-RH-WP-TR-2014-0095).

ABSTRACTS

1. Watamaniuk, S.N.J., Heinen, S.J., Singh, D., & Chandna, A. (2023). Occluding one eye during fixation increases wandering of both eyes. Vision Sciences Society Annual Meeting, St. Pete, FL, May 19-24.
2. Heinen, S.J., Chandna, A., Singh, D., & Watamaniuk, S.N.J. (2023). A dual signal model generates miniature fixational eye movements. Vision Sciences Society Annual Meeting, St. Pete, FL, May 19-24.
3. Heinen, S., Chandna, A., Singh, D., & Watamaniuk, S. (2022). A new model of binocular control demystifies the 'remarkable saccade'. 2022 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2022. Online.
4. Heinen, S., Chandna, A., Singh, D., & Watamaniuk, S. (2021). A new model of binocular eye movement control. 2021 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2021. Online.
5. Heinen, S., Watamaniuk, S., Candy, R., Badler, J., & Chandna, A. (2020). Evidence that a single vergence command does not drive smooth pursuit in depth. *Journal of Vision*, 20, 1610. doi:<https://doi.org/10.1167/jov.20.11.1610>
6. Watamaniuk, S.N.J., Badler, J.B., & Heinen, S.J. (2019). Saccade adaptation selectively transfers to spot pursuit. Program No.108.07, 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
7. Heinen, S.J., Badler, J.B., Chandna, A., & Watamaniuk, S.N.J. (2019). Asymmetric binocular control revealed by monocular pursuit on the midline. Program No.144.19, 2019 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2019. Online.
8. Watamaniuk, S.N.J., Badler, J.B., & Heinen, S.J. (2019). Saccade adaptation alters smooth pursuit velocity of small, but not large objects. *Journal of Vision*, 19, 252b. doi:10.1167/19.10.252b
9. Heinen, S.J., Watamaniuk, S.N.J., Candy, T.R., Badler, J.B., & Chandna, A. (2019). A covered eye does not always follow objects moving smoothly in depth. *Journal of Vision*, 19, 304a. doi:10.1167/19.10.304a
10. Heinen, S.J., Chandna, A., Badler, J.B., & Watamaniuk, S.N.J. (2018). Are vergence eye movements a myth? Observations from midline smooth pursuit. Program No. 60.12, 2018 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2018. Online.
11. Guthrie, B., Parikh, P., Whitlock, T., Glines, M., Wischgoll, T., Flach, J., & Watamaniuk, S. (2018). Comparing and enhancing the analytical model for exposure of a retail facility layout with human performance. Proceedings of the 2018 IISE Annual Conference, May 19-22.
12. Chandna, A., Badler, J.B., Heinen, S.J., & Watamaniuk, S.N.J. (2018). Evidence of oculomotor dominance during smooth pursuit in depth. *Investigative Ophthalmology and Visual Science*, 59(9),1016.
13. Ayres, D., Heinen, S.J., & Watamaniuk, S.N.J. (2018). An oculomotor contribution to the attentional blink. *Journal of Vision*, 18(10),1195-1195. doi: 10.1167/18.10.1195
14. Watamaniuk, S.N.J., Badler, J.B., & Heinen, S.J. (2018). Fixating an imaginary foveal

- stimulus increases microsaccades. *Journal of Vision*, 18(10), 1011-1011. doi: 10.1167/18.10.1011
15. Heinen, S.J., Badler, J.B., & Watamaniuk, S.N.J. (2018). Pursuing an imaginary foveal stimulus increases catch-up saccades. *Journal of Vision*, 18(10), 377-377. doi: 10.1167/18.10.377
 16. McIntire, J.P., Havig, P.R., Harrington, L.K., Wright, S.P., Watamaniuk, S.N.J., & Heft, E. (2018). Microstereopsis is Good, but Orthostereopsis is Better. SPIE: Three-Dimensional Imaging, Visualization, and Display annual meeting, Orlando, FL, April 15-19.
 17. Watamaniuk, S.N.J., Badler, J., & Heinen, S.J. (2017). Foveation engages the saccadic system with or without a stimulus. Program No. 60.12, 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
 18. Heinen, S.J., Watamaniuk, S.N.J., Ma, Z. (2017). Illusory motion reveals smooth pursuit of large objects is driven by motion, not position. Program No. 59.12, 2017 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2017. Online.
 19. Watamaniuk, S.N.J. & Heinen, S.J. (2017). Fixation and pursuit show similar behavior with complex stimuli. *Journal of Vision*, 17, 887-887. doi:10.1167/17.10.887
 20. Heinen, S.J., Badler, J.B., & Watamaniuk, S.N.J. (2017). The frequency of catch-up and micro saccades reacts to and predicts stimulus events. *Journal of Vision*, 17, 919-919. doi:10.1167/17.10.919
 21. Watamaniuk, S.N.J. & Heinen, S.J. (2016). Common motion error correction guides pursuit and fixation. Society for Neuroscience annual meeting (717.13).
 22. Heinen, S.J. & Watamaniuk, S.N.J. (2016). Are catch-up saccades and microsaccades siblings? Society for Neuroscience annual meeting (717.22).
 23. Watamaniuk, S.N.J., Potapchuk, E., & Heinen, S.J. (2016). Pursuing a spot engages a different mechanism than pursuing a feature on a large object. *Journal of Vision*, 16(12):1352-1352. doi: 10.1167/16.12.1352.
 24. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2016). Catch-up saccades during pursuit correct position error with the help of attention. *Journal of Vision*, 16(12):1353-1353. doi: 10.1167/16.12.1353.
 25. Watamaniuk, S.N.J., Potapchuk, E., & Heinen, S.J. (2015). Different mechanisms for pursuing a spot target versus a feature on a large object. Society for Neuroscience annual meeting (110.01).
 26. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2015). Foveal attention amplifies a position-correcting mechanism during ocular pursuit. Society for Neuroscience annual meeting (234.06).
 27. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2015). Foveal attention augments catch-up saccade frequency during smooth pursuit. *Journal of Vision*, 15(12):1020-1020. doi: 10.1167/15.12.1023.
 28. Watamaniuk, S.N.J., Potapchuk, E., Bal, J. & Heinen, S.J. (2015). Interactions between fixation and pursuit systems. *Journal of Vision*, 15(12):1020-1020. doi: 10.1167/15.12.1020.
 29. McIntire, J.P., Havig, P.R., Heft, E.L., Wright, S.T., Harrington, L.K., Watamaniuk, S.N.J. (2015). Optometric predictors of performance and discomfort for stereoscopic 3d precision control tasks. AsMA 86th Annual Scientific Meeting, May 10-14, Walt Disney World, FL.

30. Haggitt, J., Simpson, B., Watamaniuk, S., & Gilkey, R. (2015). Cued visual search and multisensory enhancement. International Symposium on Aviation Psychology, May 6-8, Dayton, OH.
31. McIntire, J.P., Havig, P.R., Harrington, L.K., Wright, S., & Watamaniuk, S.N.J., Heft, E. (2015). Microstereopsis is good, but orthostereopsis is better: precision alignment task performance and viewer discomfort with a stereoscopic 3D display. Stereoscopic Displays and Applications XXVI, (Feb 8-12) San Francisco, CA.
32. Watamaniuk, S.N.J. & Heinen, S.J. (2014). Interspersing fixation trials better reduces anticipatory pursuit than randomizing target direction. Society for Neuroscience (626.10).
33. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2014). Foveal attention modulates saccade frequency during smooth pursuit. Society for Neuroscience annual meeting (626.04).
34. Watamaniuk, S.N.J. & Heinen, S.J. (2014). Attention allocation during pursuit is broad and symmetric, but can be limited by set size and crowding. *Journal of Vision*, 14(10): 497; doi:10.1167/14.10.497.
35. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2014). Small foveal stimuli render smooth pursuit less smooth. *Journal of Vision*, 14(10): 494; doi:10.1167/14.10.494.
36. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2014). Small foveal stimuli are not ideal smooth pursuit targets. Applied Vision A Annual meeting, University of York, UK, April 11.
37. Watamaniuk, S.N.J. & Heinen, S.J. (2013). Stimulus configuration shapes the attentional spotlight during smooth pursuit. Society for Neuroscience annual meeting (363.13).
38. Heinen, S.J. & Watamaniuk, S.N.J. (2013). Smooth pursuit is penalized by small spot stimuli. Society for Neuroscience annual meeting (363.14).
39. Maus, G., Potapchuk, E., Watamaniuk, S. & Heinen, S.J. (2013). Opposite effects of adaptation and priming: Speed discriminations during smooth pursuit. *Perception*, 42, ECVF Abstract Supplement, page 184. Paper presented at the 36th annual European Conference on Visual Perception, Bremen, Germany.
40. Watamaniuk, S.N.J., Jin, Z., Potapchuk, E., & Heinen, S.J. (2013). Attentively segregated moving elements are effortlessly integrated to drive pursuit. [Abstract]. *Journal of Vision*, 13(9): 387; doi:10.1167/13.9.387. Paper presented at the Visual Sciences Society Annual Meeting, Naples, FL.
41. Heinen, S.J., Potapchuk, E., & Watamaniuk, S.N.J. (2013). Smooth pursuit “go” circuitry is affected by priming, “nogo” circuitry by cognitive expectation. [Abstract]. *Journal of Vision*, 13(9): 388; doi:10.1167/13.9.388. Paper presented at the Visual Sciences Society Annual Meeting, Naples, FL.
42. Heinen, S.J., Jin, Z., & Watamaniuk, S.N.J. (2012). Attention modulates anticipatory eye movements [Abstract]. *Journal of Vision*, 12(9),995; doi: 10.1167/12.9.995. Paper presented at the Visual Sciences Society Annual Meeting, Naples, FL.
43. Watamaniuk, S.N.J., Jin, Z., & Heinen, S.J. (2012). Attention for saccades and foveal pursuit is shared [Abstract]. *Journal of Vision*, 12(9),998; doi: 10.1167/12.9.998. Paper presented at the Visual Sciences Society Annual Meeting, Naples, FL.
44. Heinen, S.J., Jin, Z., & Watamaniuk, S.N.J. (2011). Anticipatory eye velocity is diminished with a large random-dot pursuit stimulus. Society for Neuroscience annual meeting

(490.07).

45. Watamaniuk, S.N.J., Jin, Z., & Heinen, S.J. (2011). Shared attention for saccades and foveal pursuit. Society for Neuroscience annual meeting (18.08).
46. Gabbard, S.R. & Watamaniuk, S.N.J. (2011). Referee offside decisions: the nature of expert decisions in moving position determination and the flash lag effect. Invited presentation at The 10th International Conference on Naturalistic Decision Making, Orlando, FL.
47. Gabbard, S.R. & Watamaniuk, S.N.J. (2011). The flash-lag effect (FLE) as a biasing factor for offside determination in soccer. *Journal of Vision*, 11(11): 759; doi:10.1167/11.11.759. Paper presented at the Visual Sciences Society Annual Meeting, Naples, FL.
48. Jin, Z., Watamaniuk, S., Khan, A., & Heinen, S. (2010). Integration of motion information for smooth pursuit during multiple object tracking (MOT) [Abstract]. *Journal of Vision*, 10(7): 542; doi:10.1167/10.7.542.
49. Heinen, S., Khan, A., Jin, Z., & Watamaniuk, S. (2010). Smooth pursuit during multiple object tracking (MOT). Paper presented at the Neural Control of Movement Annual Meeting, Naples, FL. April 20-25.
50. Watamaniuk, S.N.J., Jin, Z., & Heinen, S.J. (2009). Simultaneous smooth pursuit and perceptual multiple object tracking (MOT). Society for Neuroscience annual meeting (405.9).
51. Jin, Z., Reeves, A., Watamaniuk, S., & Heinen, S. (2009). Smooth pursuit and cognition share attentional resources [Abstract]. *Journal of Vision*, 9(8):432, 432a, <http://journalofvision.org/9/8/432/>, doi:10.1167/9.8.432.
52. Maeda, S., Nagy, A., & Watamaniuk, S. (2009). Dividing attention between two simultaneous visual tasks I: The Parvocellular system & the Koniocellular system [Abstract]. *Journal of Vision*, 9(8):210, 210a, <http://journalofvision.org/9/8/210/>, doi:10.1167/9.8.210.
53. Watamaniuk, S., Maeda, S., & Nagy, A. (2009). Dividing attention between two simultaneous visual tasks: The Magnocellular system [Abstract]. *Journal of Vision*, 9(8):211, 211a, <http://journalofvision.org/9/8/211/>, doi:10.1167/9.8.211.
54. McIntire, J. P., Havig, P. R., Watamaniuk, S. N. J., & Gilkey, R. H. (2008). "Aurally aided visual search performance in a dynamic environment." *Proceedings of SPIE*, 6955, 695501.
55. Jin, Z., Watamaniuk, S., Reeves, A., & Heinen, S. (2008). Peripheral motion enhances target selection during smooth pursuit [Abstract]. *Journal of Vision*, 8(6):667, 667a, <http://journalofvision.org/8/6/667/>, doi:10.1167/8.6.667.
56. Watamaniuk, S.N.J., & Heinen, S.J. (2007). Distractors enhance target detection during smooth pursuit [Abstract]. *Journal of Vision*, 7(9):1009, 1009a, <http://journalofvision.org/7/9/1009/>, doi:10.1167/7.9.1009.
57. Watamaniuk, S.N.J. & Heinen, S.J. (2006). Moving backgrounds enhance pursuit and target selection. Society for Neuroscience annual meeting .
58. Watamaniuk, S. N. J., & Blaser, E. L. (2006). Perceived speed of intermittently occluded motion [Abstract]. *Journal of Vision*, 6(6), 581a, <http://journalofvision.org/6/6/581/>, doi:10.1167/6.6.581.
59. Watamaniuk, S. N. J., & Heinen, S. J. (2005). Opposing motion aftereffects and storage in the eye movement system [Abstract]. *Journal of Vision*, 5(8), 592a,

<http://journalofvision.org/5/8/592/>, doi:10.1167/5.8.592.

60. Posey, S. M., & Watamaniuk, S. N. J. (2005). Perception and discrimination of global flow speed reveals motion coding [Abstract]. *Journal of Vision*, 5(8), 146a, <http://journalofvision.org/5/8/146/>, doi:10.1167/5.8.146.
61. Heinen, S.J. & Watamaniuk, S.N.J. (2004). Motion after-effect (MAE) storage in human smooth pursuit. Program No. 71.19. 2004 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.
62. Heinen, S.J., Velisar, A., Badler, J.B., & Watamaniuk, S.N.J. (2004). Evidence against a motion aftereffect (MAE) for smooth pursuit. Neural Control of Movement annual conference.
63. Eshelman-Haynes, C.M. & Watamaniuk, S.N.J. (2004). Background motion affects the perceived direction of a trajectory target [Abstract]. *Journal of Vision*, 4(8), 561a, <http://journalofvision.org/4/8/561/>, doi:10.1167/4.8.561.
64. Watamaniuk, S.N.J., Velisar, A., Badler, J.B., & Heinen, S.J. (2004). Effects of motion adaptation on smooth pursuit performance [Abstract]. *Journal of Vision*, 4(8), 116a, <http://journalofvision.org/4/8/116/>, doi:10.1167/4.8.116.
65. Heinen, S.J., Velisar, A., Badler, J.B., & Watamaniuk, S.N.J. (2003). Motion adaptation modulates smooth pursuit performance. Program No. 603.18. 2003 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience. Online.
66. Watamaniuk, S. N. J. (2003). The perceived speed of global flow [Abstract]. *Journal of Vision*, 3(9), 396a, <http://journalofvision.org/3/9/396/>, doi:10.1167/3.9.396.
67. Watamaniuk, S. N. J., & Van Oss, J. M. (2002). 3-D Structure in global flow stimuli [Abstract]. *Journal of Vision*, 2(7), 298a, <http://journalofvision.org/2/7/298/>, DOI 10.1167/2.7.298.
68. Blasch, E.P. & Watamaniuk, S.N.J. (2001). Perception of motion direction after a direction change. *Investigative Ophthalmology & Visual Science*, 42, S737.
69. Watamaniuk, S.N.J. (2001). Assessing the size of motion trajectory networks. *Investigative Ophthalmology & Visual Science*, 42, S737.
70. Blasch, E.P., Watamaniuk, S.N.J., & Svenmarck, P. (2000). Cognitive-based fusion using information sets for moving target recognition. *Proc. SPIE 4052, Signal Processing, Sensor Fusion, and Target Recognition IX*, 208 (August 4, 2000); doi:10.1117/12.395071; <http://dx.doi.org/10.1117/12.395071>
71. Watamaniuk, S.N.J. & Heinen, S.J. (2000). Evidence for a structured receptive field subserving voluntary smooth eye movements. *Society for Neuroscience Abstracts*, 26, 1331.
72. Watamaniuk, S.N.J. (2000). Propagating motion history in trajectory networks. *Investigative Ophthalmology & Visual Science*, 41, S231.
73. Watamaniuk, S.N.J. (1999). Spatial and temporal characteristics of trajectory networks. *Investigative Ophthalmology & Visual Science*, 40, S424.
74. Watamaniuk, S.N.J. & Heinen, S.J. (1998). Saccades to moving targets with and without background motion. *Society for Neuroscience Abstracts*, 24, 671.
75. Heinen, S.J. & Watamaniuk, S.N.J. (1998). Speed and direction effects of moving textured perifoveal stimuli on smooth pursuit. *Investigative Ophthalmology & Visual Science*, 39, S765.

76. Watamaniuk, S.N.J. (1998). Is there a moving Poggendorff illusion? *Investigative Ophthalmology & Visual Science*, 39, S1075.
77. Blasch, E.P., Morgan, J., & Watamaniuk, S.N.J. (1998). Adaptive multisensor fusion. Paper presented at the Fourth Symposium on Human Interaction With Complex Systems, Wright State University.
78. Blasch, E.P. & Watamaniuk, S.N.J. (1998). Learned multitarget tracking by feature recognition. *Proceedings of the 9th annual Midwest Artificial Intelligence and Cognitive Science Conference*, Wright State University.
79. Watamaniuk, S.N.J. & Heinen, S.J. (1997). Tracking across a background: implications for summation in smooth pursuit. *Society for Neuroscience Abstracts*, 23, 8.
80. Watamaniuk, S.N.J. (1997). Speed tuning for detecting a trajectory in noise. *Investigative Ophthalmology & Visual Science*, 38, S1167.
81. Flinn, J.T. & Watamaniuk, S.N.J. (1997). The oblique effect for motion. *Investigative Ophthalmology & Visual Science*, 38, S379.
82. Stohr, R.E. & Watamaniuk, S.N.J. (1997). Size changes affect perceived speed. *Investigative Ophthalmology & Visual Science*, 38, S374.
83. Harris, J.M., McKee, S.P. & Watamaniuk, S.N.J. (1997). Motion-in-depth and lateral motion are detected by different mechanisms. *Investigative Ophthalmology & Visual Science*, 38, S1167.
84. Watamaniuk, S.N.J. & Heinen, S.J. (1996). Spatial summation of motion signals improves smooth pursuit. *Society for Neuroscience Abstracts*, 22, 963.
85. Verghese, P., Watamaniuk, S.N.J., McKee, S.P., & Grzywacz, N.M. (1996). Evaluating a simple model for detecting visual signals in noise. In *OSA Annual Meeting Technical Digest* (Optical Society of America, Washington, D.C.), 65.
86. Watamaniuk, S.N.J. (1996). Sequential direction changes can produce segregation in random dot displays. *Investigative Ophthalmology & Visual Science*, 37, S466.
87. Heinen, S.J. & Watamaniuk, S.N.J. (1996). Spatial integration facilitates human smooth pursuit. *Investigative Ophthalmology & Visual Science*, 37, S717.
88. Watamaniuk, S.N.J. & Heinen, S.J. (1995). Evidence against image-acceleration analyzers in human smooth pursuit. *Society for Neuroscience Abstracts*, 21, 519.
89. McKee, S.P., Harris, J.M., & Watamaniuk, S.N.J. (1995). Detection of motion-in depth is disrupted by static disparity. *Perception* (supplement), 24, 33a.
90. Watamaniuk, S.N.J. & Heinen, S.J. (1995). Is the visual system's insensitivity to acceleration also evident in the smooth pursuit system? *Investigative Ophthalmology & Visual Science*, 36, S205.
91. Harris, J.M. & Watamaniuk, S.N.J. (1995). A poor speed signal for disparity defined motion. *Investigative Ophthalmology & Visual Science*, 36, S813.
92. Watamaniuk, S.N.J., Harris, J.M., & McKee, S.P. (1995). Finding consistent patterns in three-dimensional noise. Paper presented at the 2nd annual meeting of the Cognitive Neuroscience Society, San Francisco.
93. Watamaniuk, S.N.J. & Heinen, S.J. (1994). Smooth pursuit eye movements to dynamic random-dot stimuli. *Society for Neuroscience Abstracts*, 20, 317.

94. Harris, J.M. & Watamaniuk, S.N.J. (1994). Speed discrimination of the motion of an object defined only by binocular disparity. *Perception (supplement)*, 23, 60.
95. Watamaniuk, S.N.J, McKee, S.P., & Taylor, D.G. (1994). Detecting a trajectory moving behind occluders. *Investigative Ophthalmology & Visual Science*, 35, S2162.
96. Harris, J.M. & Watamaniuk, S.N.J. (1994). Speed discrimination of binocular motion in depth. *Investigative Ophthalmology & Visual Science*, 35, S1986.
97. McKee, S.P., Watamaniuk, S.N.J., Harris, J.M., & Taylor, D.G. (1994). Detecting moving features in 3-dimensional noise. *Investigative Ophthalmology & Visual Science*, 35, S1986.
98. Plant, G. & Watamaniuk, S.N.J. (1993). A failure of motion deblurring in the human visual system. *Investigative Ophthalmology & Visual Science*, 34, S1230.
99. Watamaniuk, S.N.J & McKee, S.P. (1993). Why is a trajectory more detectable in noise than correlated signal dots? *Investigative Ophthalmology & Visual Science*, 34, S1364.
100. Watamaniuk, S.N.J, McKee, S.P. & Sekuler, R. (1992). Is luminance a cue for matching in random-dot motion displays? in *OSA Annual Meeting Technical Digest (Optical Society of America, Washington, D.C.)*, 23, 215-216.
101. Watamaniuk, S. N. J. & Bravo, M. J. (1992). Transparency Influences Speed Discrimination In Random Dot Displays. Paper presented at the annual conference of the American Psychological Society, San Diego, CA.
102. Watamaniuk, S. N. J. (1992). Simultaneous Direction Information From Global Flow And A Local Trajectory Component. *Investigative Ophthalmology & Visual Science*, 33, S1050.
103. Bravo, M. J. & Watamaniuk, S. N. J. (1992). Speed Segregation And Transparency In Random Dot Displays. *Investigative Ophthalmology & Visual Science*, 33, S1050.
104. Plant, G. T. & Watamaniuk, S. N. J. (1991). Abnormal Visual Persistence Specific to Motion. Paper presented at the European Neuroscience Association annual meeting, Cambridge, England.
105. Watamaniuk, S. N. J. (1991). Motion Trajectory Networks Reduce Visual Persistence. *Investigative Ophthalmology & Visual Science*, 32, S825.
106. McKee, S.P. & Watamaniuk, S. N. J. (1991). Detecting a single point moving on a linear trajectory amidst randomly moving points. *Investigative Ophthalmology & Visual Science*, 32, S892.
107. Watamaniuk, S. N. J. (1990). Information Loss in the Integration of Direction Information. *Investigative Ophthalmology & Visual Science*, 31, S519.
108. Watamaniuk, S. N. J., Sekuler, R. & Geisler, W. (1989). Distinguishing directions of motion: discriminators real and ideal. *Investigative Ophthalmology & Visual Science*, 30, S426.
109. Watamaniuk, S. N. J., Sekuler, R. & Sekuler, E. (1988). Mechanisms of direction discrimination with stochastic displays. Paper presented at The Psychonomic Society annual meeting, Chicago, IL.
110. Watamaniuk, S. N. J., Sekuler, R. & Williams, D. W. (1988). Integration of direction information in motion perception. *Investigative Ophthalmology & Visual Science*, 29, S252.
111. Watamaniuk, S. N. J. & Sekuler, R. (1986). Large random fluctuations in perceived

direction of motion. Paper presented at The Psychonomic Society annual meeting, New Orleans, LA.

INVITED PRESENTATIONS

"An explanation for overlapping saccade and pursuit architecture", The Smith-Kettlewell Eye Research Institute, San Francisco, CA June 27, 2019.

"Monocular viewing during midline smooth pursuit disrupts the vergence system", Bay Area Strabismus Club meeting, San Francisco, CA June 19, 2019.

"Creating Reality: What visual illusions tell us about how the brain works", Wright State University Pub Science, Dayton, OH October 5, 2018.

"Foveal stimuli penalize smooth pursuit eye movements: different mechanisms for the ocular pursuit of large and small stimuli", University of Adelaide, South Australia, Australia February 1, 2015.

"Multiple-object tracking (MOT) during smooth pursuit: Simultaneous integration and segregation", The Smith-Kettlewell Eye Research Institute, San Francisco, CA April 11, 2013.

"Attentive multiple-object tracking while making smooth pursuit eye movements", University of Adelaide, South Australia, Australia October 26, 2012.

"Perceiving depth in unstructured moving stimuli", University of Dayton, Dayton, OH December 1, 2006.

"Processing visual motion: An advantage for realistic/slowly changing trajectories (Subtitle: Why is it so hard to swat a fly)", Denison University, Granville, OH November 13, 2006.

"In pursuit of the waterfall effect: Pursuit eye movements after motion adaptation", The Smith-Kettlewell Eye Research Institute, San Francisco, CA June 10, 2004.

"Processing motion information: An advantage for realistic trajectories", North Dakota State University, February 3, 2001.

"Processing motion information: An advantage for realistic trajectories", Purdue University, March 29, 2000.

"Motion psychophysics: Probing the visual input for smooth pursuit", The Smith-Kettlewell Eye Research Institute, San Francisco, CA June 24, 1999.

"Can the Poggendorff Configuration be used to Study Motion Trajectory Networks?", The Smith-Kettlewell Eye Research Institute, San Francisco, CA June 17, 1998.

"New perspective on human smooth pursuit eye movements", Ohio State University, OH, February 20, 1997.

"New thoughts on human smooth pursuit eye movements", Miami University, Oxford, OH, February 9, 1996.

"Surface segregation based on speed", Stanford University, Stanford, CA, April, 1995.

"The encoding of global and local motion", University of Alberta, Edmonton, Alberta, Canada, June 1991.

"Motion Information: Its Integration and Loss", University of Rochester, Rochester, NY., July 1989.

"What gives rise to the perception of motion?", MIT, Cambridge, MA., September 1988.

GRANTS

"Cortical and Brainstem Contributions to Binocular Eye Movements" (resubmission), National Institutes of Health, \$2,934,181 (WSU budget: \$761,516), July 1, 2023-June 30, 2028.
Co-PI with Dr. S. Heinen.

"Attention Allocation for Voluntary Smooth Eye Movements", National Institutes of Health Grant #1 1R01EY021286-02, \$997,200 (WSU budget: \$303,754), Jan 1, 2012-Dec 31, 2014.
Co-PI with Dr. S. Heinen.

"Motion Detector Networks for Smooth Pursuit", National Institutes of Health Grant #3 RO1 EY013886-03S1, \$35,200, August 1, 2005-July 31, 2006. Co-PI with Dr. S. Heinen.

"Motion Detector Networks for Smooth Pursuit", National Institutes of Health Grant #1 RO1 EY013886-01A1, \$1,132,692 (WSU budget: \$285,080), August 1, 2003-July 31, 2007.
Co-PI with Dr. S. Heinen.

Research Supplies Award (Brain Voyager software), Wallace-Kettering Neuroscience Institute, \$5,339, Dec 1, 2003.

"Motion Detector Networks for Smooth Pursuit", Research Challenge Early Start/Augmentation - Ohio Board of Regents, \$7,627, Dec 1, 2002 - Dec 31, 2003.

"Trajectory Networks in Human Motion Perception", National Science Foundation, \$146,808, March 1, 2000-Feb. 28, 2004.

"Motion Processing Limitations on Human Smooth Pursuit", Research Challenge Early Start/Augmentation - Ohio Board of Regents, \$12,246, Jan 4, 2000-Dec 31, 2002.

"Integrating motion at different spatial scales", Research Incentive Grant - Ohio Board of Regents, May 31, 1997-June 30, 1999, \$8,000

"Motion processing and Smooth Pursuit Eye Movements", Research Challenge Grant - Ohio Board of Regents, June 1996-June 1998, \$21,000

"Visual Motion Processing for Smooth Pursuit", National Institutes of Health Grant #1 RO1 EY10838-01A1, July 1, 1995-June 30, 1998, \$522,000. Co-PI with Dr. S. Heinen.

CONTRACTS

Service Agreement for "Integration of Sensor Technologies for Adaptive Real-Time Training (I-START2)". P-9997-411 SBIR Phase II, Aptima Inc., Jan 1, 2024-Sept 30, 2024, \$125,000. submitted 3-1-23

Service Agreement for "Virtual Reality Laser Dazzle Demonstrator". SBIR Direct to Phase II, Aptima Inc., Aug 2023-July 2025, \$60,000.

Service Agreement for development of "CLEAR, an Augmented Reality software platform". P-9997-467 SBIR Direct to Phase II, Aptima Inc., March 2018-Feb 2021, \$15,000.

Service Agreement for "System acquisition guidance from expert systems (SAGES)". AF112-019-1447 SBIR Phase II Extension, Aptima Inc., Jan 2017-Aug 2017, \$20,000.

Service Agreement for "Proactive and Retroactive interference in intuitive spatial learning". AFRL, Oct 2013-Oct 2015, \$70,346.

Service Agreement for "System acquisition guidance from expert systems (SAGES)".
AF112-019-1447 SBIR Phase II, Aptima Inc., March 2013-Feb 2015, \$60,000.

Service Agreement for "Visual identification of human biosignatures via pattern
recognition-based decision making in immersive environments". Infoscitex, Oct 2012-Oct
2013, \$36,500 (subcontract: 5002-S002).

Service Agreement for "System acquisition guidance from expert systems (SAGES)".
AF112-019-1447 SBIR Phase I, Aptima Inc., Jan 2012-Sept 2012, \$8,562.

Service Agreement for "Visual identification of human biosignatures via pattern
recognition-based decision making in immersive environments". Infoscitex, Oct 2011-Oct
2012, \$51,100 (subcontract: 5002-S002).

Service Agreement for a research report on helicopter pilot problems (A988), Flightsafety
International, Visual Simulation Systems, Nov-Dec 2006, \$1985.

112.