

EDUCATION:

Queens College, New York	1968-1972	B.A.	1972	Psychology
University of Maryland at College Park	1972-1978	Ph.D	1978	Psychology

HONORS:

Elected fellow, AAAS, 2014.
Davida Teller Award, Vision Sciences Society, 2013
Elected fellow, Society of Experimental Psychologists, 2013
Warren E. Susman Award for Teaching, 2009
Elected fellow, Association for Psychological Science
24th Swammerdam Lecturer, the Netherlands Academy of Sciences

PROFESSIONAL EXPERIENCE:

School of Graduate Studies, Rutgers University
Senior Associate Dean for Academic Affairs, 2009-present
Executive Board, Rutgers Center for Cognitive Science
Department of Psychology, Rutgers University
Distinguished Professor, Department of Psychology, Rutgers University 2009-present
Professor, 1993 - 2009
Associate Professor, 1986 - 1993
Assistant Professor, 1980 - 1986
Department of Psychology, N.Y.U. NIH Postdoctoral Fellow (NRSA), 1978 - 1980

PRESIDENT, Vision Sciences Society, 2021-2022;

MEMBER BOARD OF DIRECTORS, VISION SCIENCES SOCIETY, 2018-present

ASSOCIATE EDITOR: *Journal of Vision*, January 2013-2017

SECTION EDITOR: *Vision Research* (Behavioral Physiology and visuomotor control) 1995-2004.

EDITORIAL BOARDS: *Journal of Vision* (2003-present), *Cognitive Brain Research* (2000-2004), *Psychological Review* (2010-2012)

STUDY SECTION MEMBER: Visual Sciences B, NIH, 1999-2003

OTHER: Executive Committee, Vision Sciences Society (2004); Nominating Committee, Vision Sciences Society (2008-9)

GRANT SUPPORT:

“REU (Research Experience for Undergraduates) SITE: Perceptual science and perceptual technologies”. (co-PI). NSF:CISE. April, 2011-March, 2014.

“Perceptual-motor anticipation in individuals with autism spectrum disorder”. (co-PI). NJ Governor’s council. Sept, 2010- June, 2013.

- “Innovation through Institutional Integration: Institutionalizing IGERT Innovations at Rutgers” (co-PI). NSF/DUE. Sept, 2009-Sept 2015
- “IGERT: Interdisciplinary Training in Perceptual Science”.(PI) NSF. (DGE-0549115) 2006-2015.
- “Eye movements and vision”, NIH/NEI, ARRA supplement 2009-10.
- “Eye movements and visual information processing”, Air Force Office of Scientific Research, March 2002 – December 2004
- Conference support grants, “Eye movements and vision in the natural world”, NSF, ONR , June, 2000-May, 2001.
- “Eye movements and visual information processing”, Air Force Office of Scientific Research, March, 1999-February 2002
- “Eye movements and visual scene memory”, NIMH predoctoral award sponsor for David Melcher.
- "Eye movements and visual information processing." Air Force Office of Scientific Research. March, 1996-February, 1999.
- "Interdisciplinary Training in Vision". AASERT award, Department of Defense. July, 1993 - June, 1996.
- "Eye movements and visual information processing." Air Force Office of Scientific Research renewal; October, 1991 - September, 1994.
- "Motor performance in meaningful and meaningless contexts". Busch Grant,. 1992-1993.
- "Eye movements and visual information processing," Air Force Office of Scientific Research renewal; May, 1988 - September, 1991..
- "Laboratory instruction in Cognitive Psychology." Rutgers Council for the Improvement of Teaching. July 1989-May 1990.
- "Eye movements and visual information processing," Air Force Office of Scientific Research, renewal, January, 1985 to 1988.
- "Eye movements and visual information processing," Air Force Office of Scientific Research, Jan. 1981 - Dec. 1984.
- "Eye movements and cognitive process," Rutgers Research Council and Biomedical Research Support Grant, July, 1980 - March, 1981.
- "Laboratory Instruction in Cognitive Psychology," Rutgers Council of Instructional Development grant, May, 1983 - May, 1984.

EDITED BOOKS:

- Kowler, E. (1990). (Ed.) *Eye Movements and their Role in Visual and Cognitive Process*. Volume 4 in *Reviews of Oculomotor Research*, Elsevier Science Publishers, Amsterdam.
- Papathomas, T., Chubb, C., Gorea, A. and Kowler, E. (1995) (Eds.) *Early Vision and Beyond*. MIT Press, Cambridge, MA.

EDITED JOURNAL ISSUES:

- Kowler, E., Erkelens, C.J. and Spekreijse, H. (2001) Eye Movements and Vision in the Natural World. Special issue of *Vision Research*, Volume 41 (Nov-Dec).

- Burr, D., Kowler, E., Reeves, A. and Verghese, P. (2004) Visual Attention. Special issue of *Vision Research*, Volume 44 (June).
- Martinez-Conde, S., Krauzlis, R., Miller, J., Morrone, C.M., Williams, D. and Kowler, E. (2008) *Eye movements and the perception of a clear and stable world. Special issue of Journal of Vision (volume 8, number 14)* <http://journalofvision.org/8/14/i/>, doi:10.1167/8.14.i.

PUBLISHED ARTICLES:

- Murphy, B. J., Kowler, E. and Steinman, R. M. (1975). Slow oculomotor control in the presence of moving backgrounds. *Vision Research*, 15, 1263-1268.
- Kowler, E. and Steinman, R. M. (1977). The role of small saccades in counting. *Vision Research*, 17, 141-146.
- Kowler, E., Murphy, B. J. and Steinman, R. M. (1978). Velocity matching during smooth pursuit of different targets on different backgrounds. *Vision Research*, 18, 603-605.
- Kowler, E. and Steinman, R. M. (1979). Miniature saccades: Eye movements that do not count. *Vision Research*, 19, 105-108.
- Kowler, E. and Steinman, R. M. (1979). The effect of expectations on slow oculomotor control--I: Periodic target steps. *Vision Research*, 19, 619-632.
- Kowler, E. and Steinman, R. M. (1979). The effect of expectations on slow oculomotor control--II: Single target displacements. *Vision Research*, 9, 633-646.
- Kowler, E. and Steinman, R. M. (1980). Small saccades serve no useful purpose. *Vision Research*, 20, 273-276.
- Kowler, E. and Sperling, G. (1980). Transient stimulation does not aid visual search: Implications for the role of saccades. *Perception and Psychophysics*, 27, 1-10.
- Kowler, E. and Steinman, R. M. (1981). The effect of expectations on slow oculomotor control-III: Guessing unpredictable target displacements. *Vision Research*, 21, 191-203.
- Kowler, E. and Martins, A. J. (1982). Eye movements of preschool children. *Science*, 215, 997-999.
- Kowler, E. and Sperling, G. (1983). Abrupt onsets do not aid visual search. *Perception and Psychophysics*, 34, 307-313.
- Kowler, E. and Martins, A. J. (1983). Eye movements of preschool children (Technical comment). *Science*, 222, 75-77.
- Kowler, E., Martins, A. J., and Pavel, M. (1984). The effect of expectations on slow oculomotor control-IV: Anticipatory smooth eye movements depend on prior target motions. *Vision Research*, 24, 197-210.
- Kowler, E., van der Steen, J., Tamminga, E. P., and Collewyn, H. (1984). Voluntary selection of the target for smooth eye movements in the presence of superimposed, full-field stationary and moving stimuli, *Vision Research*, 24, 1789-1798.
- Martins, A. J., Kowler, E. and Palmer, C. (1985). Smooth pursuit of small amplitude sinusoidal motion. *Journal of the Optical Society of America, A*, 2, 234-242.
- Kowler, E., and Zingale, C. (1985). Smooth eye movements as indicators of selective attention. In M.I. Posner, & O.S.M. Marin. *Attention and Performance XI*. Hillsdale, NJ: Erlbaum.
- Kowler, E. and Anton, S. (1987). Reading twisted text: Implications for the role of saccades. *Vision Research*, 27, 45-60.

- Kowler, E. and McKee, S. M. (1987). Sensitivity smooth eye movements to small differences in target velocity. *Vision Research*, 27, 993-1015.
- Zingale, C. and Kowler, E. (1987). Planning sequences of saccades. *Vision Research*, 27, 1327-1341.
- Khurana, B. and Kowler, E. (1987). Shared attentional control of smooth eye movements and perception. *Vision Research*, 27, 1603-1618.
- He, P. and Kowler, E. (1989). The role of location probability in the programming of saccades: Implications for "center-of-gravity" tendencies. *Vision Research*, 29, 1165-1181.
- Kowler, E. (1989). Cognitive expectations, not habits, control anticipatory smooth oculomotor pursuit. *Vision Research*, 29, 1049-1057.
- Kowler, E. (1990). The role of visual and cognitive processes in the control of eye movement. In E. Kowler. *Eye Movements and Their Role in Visual and Cognitive Processes*. Amsterdam: Elsevier.
- Steinman, R.M., Kowler, E. and Collewijn, H. (1990). New directions for oculomotor research. *Vision Research*, 30, 1845-1864.
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- He P. and Kowler, E. (1991). Saccadic localization of eccentric forms. *Journal of the Optical Society of America, A*, 8, 440-449.
- Kowler, E., Pizlo, Z., Zhu, G.L., Erkelens, C., Steinman, R.M., and Collewijn, H. (1991). Coordination of head and eyes during the performance of natural (and unnatural) visual tasks. In A. Berthoz, W. Graf, and P.P. Vidal. *The Head-Neck Sensory Motor System*. N.Y.: Oxford University Press.
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- Epelboim, J. and Kowler, E. (1993). Slow control with eccentric targets: Evidence against a position-corrective model. *Vision Research*, 33, 361-380.
- Kowler, E. and Blaser, E. (1995) The accuracy and precision of saccades to small and large targets. *Vision Research*, 35, 1741-1754.
- Kowler, E., Anderson, E., Doshier, B. and Blaser, E. (1995) The role of attention in the programming of saccades. *Vision Research*, 35, 1897-1916.
- Epelboim, J., Steinman, R.M., Kowler, E., Edwards, M., Pizlo, Z., Erkelens, C.J. and Collewijn, H. (1995) The function of visual search and memory in sequential looking tasks. *Vision Research*, 35, 3401-3422.
- Epelboim, J., Kowler, E., Steinman, R.M., Collewijn, H., Erkelens, C.J., and Pizlo, Z. (1995) When push comes to shove: Compensation for passive perturbations of the head during natural gaze shifts. *Journal of Vestibular Research*, 5, 421-442.
- Kowler, E. (1995) Cogito ergo moveo: Cognitive control of eye movement. In M. Landy, L. Maloney and M. Pavel. *Exploratory Vision: The active eye*. N.Y.: Springer-Verlag. Pp. 51-77.

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- Kowler, E. (1999) Eye movements and visual attention. In: *MIT Encyclopedia of Cognitive Science*. Cambridge: MIT Press.
- Melcher, D. and Kowler, E. (1999) Shape, surfaces and saccades. *Vision Research*, 39, 2929-2946.
- Bahcall, D.O. and Kowler, E. (1999) Illusory shifts in perceived visual direction accompany adaptation of saccadic eye movements. *Nature*, 400, 864-866.
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- Vishwanath, D., Kowler, E. and Feldman, J. (2000) Saccadic localization of occluded targets. *Vision Research*, 40, 2797-2811.
- Melcher, D. and Kowler, E. (2001) Visual scene memory and the guidance of saccadic eye movements. *Vision Research*, 41, 3597-3611.
- Araujo, C., Kowler, E. and Pavel, M. (2001) Eye movements during visual search: The costs of choosing the optimal path. *Vision Research*, 41, 3613-3625.
- Vishwanath, D. and Kowler, E. (2003) Localization of shapes: Eye movements and perception compared. *Vision Research*, 43, 1637-1653.
- Vishwanath, D. and Kowler, E. (2004) Saccadic localization of shapes in the presence of cues to 3-dimensional shape. *Journal of Vision*, 4, 445-458 (<http://journalofvision.org/4/6/4>).
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- Schnitzer, B.S. and Kowler, E. (2006) Eye movements during multiple readings of the same text. *Vision Research*, 46, 1611-1632.
- Kowler, E. (2006) The basis of a saccadic decision: what we can learn from visual search and visual attention. In *Seeing Spatial Form*. (Editors M.R.M. Jenkins and L.R. Harris). NY: Oxford University Press. (pp. 169-186).
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- Kowler, E. (2008) Attention and eye movements. In: *New Encyclopedia of Neuroscience*. (Editor, L. Squire; Volume Editor, R. Krauzlis). Amsterdam: Elsevier. Pp. 605-616. (ISBN-13: 978-0-08-045046-9; see: <http://www.sciencedirect.com/science/referenceworks/9780080450469>)
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- Gersch, T.M., Kowler, E., Schnitzer, B.S., and Doshier, B. (2008) Visual memory during pauses between successive saccades. *Journal of Vision*, 8(16):16, 1-18. (<http://journalofvision.org/8/16/15/>, doi:10.1167/8.16.15)
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- Wilder, J.D., Kowler, E., Schnitzer, B.S., Gersch, T.M., and Doshier, B.A. (2009) Attention during active visual tasks: Counting, pointing and simply looking. *Vision Research*, 49, 1017-1031. PMC2744585
- Kowler, E. and Collewyn, H. (2010) Eye movements: Behavior. In *Sage Encyclopedia of Perception*.
- Wu, C-C., Kwon, O-S., and Kowler, E. (2010) Fitts's Law and speed/accuracy trade-offs during sequences of saccades: Implications for strategies of saccadic planning. *Vision Research*, 50, 2142-2157. PMC2949070.
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- Kibbe M.M. and Kowler E. (2011) Visual search for category sets: Tradeoffs between exploration and memory. *Journal of Vision*, 11(3), 14, 1-21. doi: 10.1167/11.3.14.
- Kowler E. (2011) Eye movements: The past 25 years *Vision Research (special 50th anniversary issue; invited review)*, 51, 1457-1483. PMC3094591.
- Santos, E.M., Ngang, E.K. & Kowler, E. (2012) Anticipatory smooth eye movements with random dot kinematograms. *Journal of Vision*, 12 (11): 1, 1-20. doi: 10.1167/12.11.1.
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- Ross, N.M. & Kowler, E. (2013) Eye movements while viewing narrated, captioned and silent videos. *Journal of Vision*, 13(4): 1, 1-19. doi: 10.1167/13.4.1.
- Kowler, E. & Pavel, M. (2013) Strategies of saccadic planning. In: *Human Information Processing: Vision, Memory and Attention*. (Editors C. Chubb, B.A. Doshier, Z-L. Lu & R.M. Shiffrin). Washington DC: APA Press. pp 133-147.
- Wu, C-C & Kowler, E. (2013) Timing of saccadic eye movements during visual search for multiple targets. *Journal of Vision*. 13(11). doi:pii: 11. 10.1167/13.11.11.
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- Kowler, E., Aitkin, C.D., Ross, N.M., Santos, E.M. & Zhao, M. (2014). Davida Teller Award Lecture: The importance of prediction and anticipation in the control of smooth pursuit eye movements. *Journal of Vision*, 14(5):10, 1-16. doi 10.1167/14.5.10
- Santos, E.M. & Kowler, E. (2017) Anticipatory smooth eye movements evoked by probabilistic cues. *Journal of Vision*, 17(13), 1-16. doi:10.1167/17.13.13
- Rubinstein, J.F. & Kowler, E. (2018) The role of implicit perceptual-motor costs in the integration of information across graph and text. *Journal of Vision*, 18(13):16. 1-18, doi:10.1167/18.13.16
- Kowler, E., Rubinstein, J.F., Santos, E.M., & Wang, J (2019) Predictive smooth pursuit eye movements. *Annual Review of Vision Science*, 5, 223-246.

- Wang, J. & Kowler, E. (2021). Micropursuit and the control of attention and eye movements in dynamic environments. *Journal of Vision* (2021) 21(8):6, 1–27
- Rubinstein, J.F. & Kowler, E. (2018) The role of implicit perceptual-motor costs in the integration of information across graph and text. *Journal of Vision*, 18(13):16. 1-18, doi:10.1167/18.13.16
- Kowler, E., Rubinstein, J.F., Santos, E.M., & Wang, J (2019) Predictive smooth pursuit eye movements. *Annual Review of Vision Science*, 5, 223-246.
- Wang, J. & Kowler, E. (2021). Micropursuit and the control of attention and eye movements in dynamic environments. *Journal of Vision* (2021) 21(8):6, 1–27