

# MICHAEL S. WORDEN

March, 2023

## + CONTACT

185 Meeting St., Box G-LN  
Brown University  
Providence, RI 02912  
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## + EDUCATION

- 1998                      Ph.D., Cognitive Psychology  
University of Pittsburgh, Pittsburgh, PA  
*Functional Magnetic Resonance Imaging Studies of Attentional Selection in Early Visual Cortex*  
Thesis advisor: Walter Schneider, Ph.D.
- 1991                      M.S., Experimental Psychology  
University of Oregon, Eugene, OR
- 1987                      B.A., Psychology  
Pomona College, Claremont, CA

## + PROFESSIONAL APPOINTMENTS

- 2023 – Present              Interim Director, MRI Research Facility  
Brown University, Providence, RI
- 2005 – Present              Associate Director of Research, MRI Research Facility  
Brown University, Providence RI
- 2022 – Present              Assistant Professor of Brain Science (Research)  
Brown University, Providence, RI
- 2015 – 2016                  Interim Director, MRI Research Facility  
Brown University, Providence, RI
- 2008 – 2022                  Assistant Professor of Neuroscience (Research)  
Brown University, Providence, RI
- 2007 – 2008                  Interim Director, MRI Research Facility  
Brown University, Providence RI

2005 – 2008	Investigator, Brain Science Program Brown University, Providence, RI
2003 – 2005	Assistant Research Professor of Psychology in Psychiatry Weill Medical College of Cornell University, New York
2002 – 2003	Assistant Professor of Psychology in Psychiatry Weill Medical College of Cornell University, New York
1999 – 2002	Instructor of Psychology in Psychiatry Weill Medical College of Cornell University, New York
1998 – 1999	Post-Doctoral Research Associate, Department of Neurology Albert Einstein College of Medicine, Bronx, NY

## + SECONDARY APPOINTMENTS

2011 – Present	Research Affiliate, Department of Diagnostic Imaging Rhode Island Hospital, Providence, RI
2012 – 2015	Research Health Science Specialist Providence VA Medical Center, Providence, RI

## + AWARDS AND HONORS

2008	Faculty Award for Service to Brain Science Brain Science Program, Brown University
2000	Certified MRI Scanner Operator Weill Cornell Medical College
1999	Certified MRI Scanner Operator The Nathan Kline Institute for Psychiatric Research
1998	Certificate, Cognitive Neuroscience Training Program Center for the Neural Basis of Cognition University of Pittsburgh and Carnegie Mellon University
1997	Award for Excellence in Undergraduate Teaching Department of Psychology, University of Pittsburgh
1996	Certified MRI Scanner Operator University of Pittsburgh Medical Center

## + GRANTS

### Active

Funding agency: NIH/NIGMS

Title: COBRE Center for Central Nervous System Function (PI: Jerome Sanes)

Core Title: Behavior and Neuroimaging Core; Phase II

Major goals: The major goals of this project are to support the implementation and execution of cognitive neuroscience research at Brown University and its affiliated institutions through consulting, workshops, and the development of software and hardware infrastructure.

Project Number: P20GM103645

Dates: 09/2018 - 07/2023

Role: Core co-Director

Total Award Amount (direct and indirect costs), core only: \$1,489,435

### Pending

Funding agency: NIH/NIGMS

Title: Center for Central Nervous System Function, Behavior and Neuroimaging Core; Phase III

Major Goals: The major goals of this project are to support the implementation and execution of cognitive neuroscience research at Brown University and its affiliated institutions through consulting, workshops, and the development of software and hardware infrastructure.

Project Number: P30GM149405

Name of PD/PI: Jerome Sanes

Proposed start and end date: 08/2023 – 07/2028

Total Award Amount (direct and indirect costs): \$12,028,779

Funding agency: NIH

Title: Development of Quantum Magnetic Tunneling Junction Sensor Arrays for Brain Magnetoencephalography (MEG) under Natural Settings

Major Goals: This project aims to develop a novel sensor to non-invasively detect brain magnetic fields

Name of PD/PI: Gang Xiao, Jerome Sanes

Project/Proposal Start and End Date: 07/2023 – 06/2028

Total Award Amount (including Indirect Costs): \$3,489,927

Funding agency: NIAAA

Title: Translational approaches to evaluate noradrenergic activation in alcohol use disorder

Major Goals: The main goal of this proposed work is to mechanistically evaluate the relationship between sex differences across species to improve AUD precision medicine, and narrow the bench to bedside knowledge gap.

Name of PD/PI: Carolina Haass-Koffler

Project/Proposal Start and End Date: 09/2023 – 08/2028

Total Award Amount (including Indirect Costs): \$2,525,418

## Previous

Internal award: Brown University, CRF Infrastructure Program  
Title: OptoACTIVE-II Two Way Noise Cancellation fMRI Communication System" for the Magnetic Resonance Imaging Core Facility  
Role: Co-PI  
Dates: 2020  
Total Award Amount (no Indirect Costs): \$26,000

Funding agency: NIH/NCRR P20  
Title: COBRE Center for Central Nervous System Function (PI-Sanes)  
Role: Project Leader  
Dates: 12/2012 – 11/2017  
Total Costs (direct and indirect), project only: \$1,006,636

Funding agency: NIH/NIDA R21 DA029189 (Co-I; PI-White)  
Title: Imaging Individual Differences in Methamphetamine Effects  
Role: Co-I  
Dates: 7/15/11 - 6/30/13  
Total Costs: \$138,000

Funding agency: NIH/NIDA R01 1R01DA020725-01A2 (PI-White)  
Title: Imaging Individual Differences in Amphetamine Effects  
Role: Co-I  
Dates: 08/2007 – 05/2011  
\$251,096 direct/yr years 1-2

## + SERVICE

### University

2019 – Present	Chair, Brown University Institutional Review Board
2017 – Present	Co-Director, Behavior and Neuroimaging Core COBRE Center for the Study of Nervous System Function
2017 – Present	Co-Director, Behavior and Neuroimaging Core COBRE Center for the Study of Nervous System Function
2010 – Present	MRI monthly users meeting (Organizer)
2009 – Present	Chair, MRI Research Facility Safety, Education and Training Committee
2007 – Present	Chair, MRI Research Facility Scientific Advisory Committee
2018 – 2019	Faculty Executive Committee

2018 – 2019	Vice-Chair, Brown University Institutional Review Board
2018	Director of BioMed Facilities Search Committee
2013 – 2018	Primary member, Brown University Institutional Review Board
2007 – 2008	Brain Science Program Executive Committee
2006 – 2009	Chair, MRI Research Facility Education and Training Committee
2006 – 2009	Chair, MRI Research Facility Safety Committee
2006	MRI Research Facility Scientific Advisory Committee

## Professional

Peer Reviewer for:

- *Science*
- *Proceedings of the National Academy of Sciences, USA*
- *Journal of Cognitive Neuroscience*
- *Journal of Neuroscience*
- *NeuroImage*
- *NeuroReport*
- *Cognitive Brain Research*
- *Human Brain Mapping*
- *Journal of Computational Neuroscience*
- *Neuroscience*

Professional Memberships:

- Cognitive Neuroscience Society
- Human Brain Mapping
- Society for Neuroscience
- Public Responsibility in Medicine and Research

## Community

2016 – 2019	Seekonk High School STEM Fair
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## + TEACHING

### Brown University

2020 – 2021	ENGN 1220: Neuroengineering (Hochberg, Nurmikko); Imaging the Neural Circuits of the Brain: MRI (3)
2017 – 2021	NEUR2050: Systems Neuroscience (Desrochers), MRI

2017	NEUR2060: Cognitive Neuroscience (Sanes); Sections on Attention
2009 – 2020	PSY1840: Functional Neuroimaging (Badre); Introduction to MRI
2009 – 2019	ENGN1220: Neuroengineering (Hochberg, Nurmikko); Section on MRI; Section on fMRI
2006 – 2011	CG184: Neuroimaging and Language (Blumstein); Section on MRI Physics
2006 – 2009	BN206: Cognitive Neuroscience (Sanes); Sections on Attention
2006	BN171: Neuroimaging (Ress); Sections on EEG and Multimodal Imaging

### **Weill Medical College of Cornell University**

2001 – 2005	From Neuron to Brain; Sections on visual attention
2001 - 2005	Section on high-temporal resolution imaging methods and multimodal imaging NIMH-sponsored neuroimaging training course run by Sackler Institute and Functional Neuroimaging Laboratory
2000 – 2005	Laboratory sections for Brain and Mind (1st year med school) course as requested by department.
2002 – 2003	Section on visual attention Current Issues in Cognitive Neuroscience
2000	Integrative Neuroscience, Section on visual attention

### **University of Pittsburgh**

1997	Organizer and Lecturer, Seminar in MRI Physics, 1997
1996	Biopsychology

### **Mentoring**

2017 – Present	Thesis committee, Danielle Sliva
2017 – 2023	Thesis committee, Aarit Abuja Thesis: <i>Visual Simulation in the Primate Brain</i>
2015 – 2016	Honors thesis advisor, Marion Wellington Thesis: <i>Musical Improvisation and the Brain: A Cross-Cultural EEG Study of Jazz and Hindustani Musicians</i>
2001-2002	Faculty Mentor, Ehrine Manzana Tri-Institutional Gateways to the Laboratory Program Weill Medical College of Cornell, Rockefeller University and Memorial Sloan Kettering

### **Invited lectures**

2018	EEG Fundamentals. Butler Hospital, Providence, RI
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- 2009 MRI Research at Brown University. Department of Neurology Grand Rounds, Rhode Island Hospital, Providence, RI
- 2008 Adaptive deployment of visual attention. Department of Neuroscience special seminar, Brown University, Providence, RI
- 2007 E-Prime and Apple Macintosh. Invited symposium lecture, Society for Computers in Psychology, Long Beach, CA
- 2005 Electrophysiology of visual perceptual learning. Invited lecture, Queens College, Queens, NY.
- 2004 Electrophysiological studies of perceptual learning. Invited lecture, Nathan Kline Institute for Psychiatric Research, Orangeburg, NY
- 2004 Electrophysiological studies of perceptual learning. Invited lecture, Columbia University, NY,
- 2003 Fundamentals of EEG and Multimodal Imaging. Invited lecture, Summer Institute on the Biology of Developmental Disabilities, Princeton University, Princeton, NJ
- 2003 Electrophysiological studies of perceptual learning. Invited lecture, Queens College, Queens, NY
- 2002 Basic principles and acquisition of EEG/ERP. Invited lecture, Summer Institute on the Biology of Developmental Disabilities, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY
- 2001 Mechanisms of visual attention in early visual cortex. Invited lecture, University of Texas Health Sciences Center, San Antonio, Texas.
- 1999 fMRI studies of attentional selection in early visual cortex in humans. Invited lecture, Department of Psychology, McMaster University, Hamilton, Ontario
- 1999 fMRI studies of attentional selection in early visual cortex in humans. Invited lecture, Rockefeller-Sackler Institute colloquium series in systems and cognitive neuroscience, Rockefeller University
- 1998 fMRI Studies of Attentional Modulation in Early Visual Cortex. Invited lecture, Center for Advanced Brain Imaging, Nathan Kline Institute for Psychiatric Research, Orangeburg, NY
- 1995 Functional analysis of the human visual system: Methodology and findings with fMRI. Colloquium presented to the Department of Psychology, University of Oregon.
- 1994 Constraining High-Density ERP source analysis using Functional MRI. Invited lecture, First World Congress In Computational Medicine And Public Health: Austin, Texas
- 1994 Constraining High-Density ERP source analysis using functional MRI. Invited lecture, 4th annual Pitt-CMU Psychology Conference
- 1993 Comparison of the cortical imaging technique with functional Magnetic Resonance Imaging mapping of cortical activity. Talk presented at the annual meeting of the American Electroencephalographic Society: New Orleans

## + PUBLICATIONS

### Peer reviewed journal articles

Sabbah, S., Worden, M.S., Laniado, D.D., Person, D.M. & Sanes, J.N. (2022) *Luxotonic signals in human prefrontal cortex as a possible substrate for effects of light on mood and cognition*. *Proceedings of the National Academy of Science* 119(28), doi:10.1073/pnas.2118192119

Wang, Z., Tamaki, M., Frank, S., Shibata, K., Worden, M.S., Takashi, Y., Kawato, M., Sasaki, Y., Watanabe, T. (2021). *Visual perceptual learning of a primitive feature in human V1/V2 as a result of unconscious processing, revealed by decoded functional MRI neurofeedback (DecNef)*. *J Vision* 21, 24. doi: 10.1167/jov.21.8.24

Markant, J., Worden, M. S., & Amso, D. (2015). *Not all attention orienting is created equal: Recognition memory is enhanced when attention orienting involves distractor suppression*. *Neurobiology of Learning and Memory*, 120, 28–40. doi:10.1016/j.nlm.2015.02.006

Chiu, C., Miller, M. C., Caralopoulos, I. N., Worden, M. S., Brinker, T., Gordon, Z. N., Johanson, C. E., et al. (2012). *Temporal course of cerebrospinal fluid dynamics and amyloid accumulation in the aging rat brain from three to thirty months*. *Fluids and barriers of the CNS*, 9(1), 3. doi:10.1186/2045-8118-9-3

Righi, G., Blumstein, S.E., Mertus, J. & Worden, M.S. (2010). *Neural Systems Underlying Lexical Competition: An Eye-tracking and fMRI Study*. *Journal of Cognitive Neuroscience*, 22(2), 213-224. doi:10.1162/jocn.2009.21200

Dale, C.L., Simpson, G.V., Foxe, J.J., Luks, TL & Worden, M.S. (2008). *ERP correlates of anticipatory attention: spatial and non-spatial specificity and relation to subsequent selective attention*. *Experimental Brain Research*, 188(1), 45-62. doi: 10.1007/s00221-008-1338-4

Fan, J., Byrne, J., Worden, M.S., Guise, K., McCandliss, B.D., Fosella, J. & Posner, M.I. (2007) *The relation of brain oscillations to attentional networks*. *Journal of Neuroscience*, 27(23), 6197-6206. doi: 10.1523/JNEUROSCI.1833-07.2007

Scerif, G., Worden, M.S., Davidson, M. Seiger, L. & Casey, B.J. (2006). *Context modulates early stimulus-processing when resolving stimulus-response conflict*. *Journal of Cognitive Neuroscience*, 18(5), 781-792. DOI: 10.1162/jocn.2006.18.5.781

Martinez, A., Teder-Salejarvi, W., Vazquez, M., Molholm, S., Foxe, J. J., Javitt, D. C., et al. (2006). *Objects are highlighted by spatial attention*. *Journal of Cognitive Neuroscience*, 18(2), 298-310. doi: 10.1162/jocn.2006.18.2.298

Ruz, M., Worden, M. S., Tudela, P., & McCandliss, B. D. (2005). *Inattentive amnesia to words in a high attentional load task*. *Journal of Cognitive Neuroscience*, 17(5), 768-776. doi: 10.1162/0898929053747685

Thomas, K. M., Hunt, R., Vizueta, N., Sommer, T., Durston, S., Yang, Y., et al. (2004). *Evidence of developmental differences in implicit sequence learning: behavioral and fMRI data from children and adults*. *Journal of Cognitive Neuroscience*, 16(8), 1339-1351. doi: 10.1162/0898929042304688



Durston, S., Davidson, M. C., Thomas, K. M., Worden, M. S., Tottenham, N., Martinez, A., et al. (2003). *Parametric manipulation of conflict and response competition using rapid mixed-trial event-related fMRI*. *NeuroImage*, 20(4), 2135-2141. doi: 10.1016/j.neuroimage.2003.08.004

Durston, S., Thomas, K.M., Worden, M.S., Yang, Y. and Casey, B.J. (2002) *The effect of preceding context on inhibition: An event-related fMRI study*. *NeuroImage*, 16(2), 449-453. doi: 10.1006/nimg.2002.1074

Worden, M. S., Foxe, J. J., Wang, N., & Simpson, G. V. (2000). *Anticipatory biasing of visuospatial attention indexed by retinotopically specific alpha-band electroencephalography increases over occipital cortex*. *Journal of Neuroscience*, 20(6), RC63(61-66).

Schneider, W., Pimm-Smith, M., & Worden, M. (1994). *Neurobiology of attention and automaticity*. *Current Opinion in Neurobiology*, 4(2), 177-182.

## Book chapters

Worden, M.S. (2018) *The Attention Network Test*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2018) *Discriminability*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2018) *Disengagement of Attention*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2018) *Selective Attention Models*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2012) *The Attention Network Test*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2012) *Discriminability*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2012) *Disengagement of Attention*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M.S. (2012) *Selective Attention Models*. In *Encyclopedia of Clinical Neuropsychology*, Springer, New York.

Worden, M, Martinez, A and Posner, MI (2002) *Neural Basis of Spatial Attention*. In *Encyclopedia of Cognitive Science*, Nature Publishing, New York.

Worden, M., Vincent, D. J., Schneider, W. and Shedden, J.M.. (1995). *Constraining high-density ERP source analysis using functional MRI*. In M. Witten & D. J. Vincent (Eds.), *Computational Medicine, Public Health and Biotechnology*. (Vol. 5, pp. 723-743): World Scientific.

## Preprints and non-peer reviewed journal articles

Sabbah, S., Worden, M. S., Laniado, D. D., Berson, D. M. & Sanes, J. N. *Luxotonic signals in human prefrontal cortex as a possible substrate for effects of light on mood and cognition*. *Biorxiv* 2020.09.28.316943 (2021)  
doi:10.1101/2020.09.28.316943.

Worden, M.S. and Foxe, J.J. (2003) *The dynamics of the spread of selective visual attention*. Proceedings of the National Academy of Sciences, USA, 100(21), 11933-5.

Worden, M., Wellington, R. and Schneider, W. (1996). *Determining the locus of attentional selection with functional magnetic resonance imaging*. NeuroImage, 3, 244.

Worden, M., & Schneider, W. (1995). *Cognitive Task Design for FMRI*. International Journal of Imaging Systems and Technology, 6, 253-270.

## Abstracts

Worden, M.S., McEleney, F., Gonsalves, M.A., Lorenc, E.S., Berson, D.M., Carpenter, L. & Sanes, J.N. (2022) *Seasonal affective disorder and major depressive disorder reduce light-induced responses in human prefrontal cortex*. Society for Neuroscience, San Diego, CA.

Sabbah, S., Worden M.S., Berson, D.M. & Sanes, J.N. (2019) *Luminance Signals in the Human Brain*. The 10th IBRO World Congress of Neuroscience, Daegu, Korea. doi.org/10.1016/j.ibror.2019.07.1310

Sabbah, S., Worden M.S., Berson, D.M. & Sanes, J.N. (2019) *Luminance Signals in the Human Brain*. Meeting of the Organization for Human Brain Mapping, Rome.

Sabbah, S., Waugh, R., Worden M.S., Berson, D.M. & Sanes, J.N. (2018) *Luxotonic Signals in Human Frontal-Polar Cortex: A possible substrate for effects of light on mood*. Society for Neuroscience, San Diego.

Unger, K., Waugh, R. & Worden, M.S. (2017) *Flexible biasing of visuospatial attention works through both target facilitation and distractor suppression*. Cognitive Neuroscience Society, San Francisco.

Unger, K., Waugh, R. & Worden, M.S. (2016) *Effects of Conflict-Driven Attention on High and Low Level Visual Processing*. Cognitive Neuroscience Society, New York.

Waugh, R., Barredo., J., Unger, K. & Worden, M.S. (2016) *Attention Effects in Early Visual Cortex Related to Conflict Adaptation*. Cognitive Neuroscience Society, New York.

Unger, K., Waugh, R. & Worden, M.S. (2016) *Effects of Conflict-Driven Attention on High and Low Level Visual Processing*. Brown University Mind Brain Research Day, Providence, RI.

Westlin, C., BA, Bedard, P., Guediche, S., Luthra, S., Walsh, E., Yan, P., Sanes, J., Dickstein, D. & Worden, M. (2016) *A Practical Comparison of the Siemens TIM TRIO and Siemens Prisma(fit) Scanners for Anatomical and Functional MRI*. Brown University Mind Brain Research Day, Providence, RI.

Markant, J., Worden, M.S. & Amso, D. (2013). *Attention moderates the effects of memory encoding and subsequent item recognition: Evidence from combined eye tracking and fMRI*. Society for Neuroscience, San Diego, CA.

Nyhus, E., Worden, M.S., & Badre, D. (2012). *Simultaneously Recorded EEG and fMRI Identifies Brain Networks Related to Oscillatory Activity*. Cognitive Neuroscience Society, Chicago.

Correia S., Worden M.S., Ahern D.C., Lo AC., Benedicto D., Gianfrancesco M., Mernoff S., Hochberg L. (2011). *Reaction time enhancement in a modified attention network task*. International Neuropsychological Society 39th Annual Meeting, February 2-5, 2011, Boston MA; Journal of the International Neuropsychological Society, vol 17, Supplement 1, p. 205

Scerif, G., Worden, M. S., Davidson, M., & Casey, B. J. (2006). *Temporal and spatial dynamics of contextual effects on stimulus response conflict*. Presented at the 12th International Conference on Functional Mapping of the Human Brain, Florence, Italy.

Tottenham, M, Davidson, MC, Galvan, A, Spicer, J, Hare, TA, Rossi, J, Worden, MS, Whalen, PJ, Casey, BJ. (2005). *Neutral faces elicit more ventral amygdala response than calm faces in children*. Journal Of Cognitive Neuroscience, 162-162, Suppl. S.

Blau, V, Maurer, U, Worden, M, Tottenham, N, McCandliss, B. (2005). *The N170 ERP component is modulated by emotional facial expression, even after repeated exposure as task-irrelevant stimuli controlled for shape, contrast, and gender*. Journal Of Cognitive Neuroscience, 198-199, Suppl. S.

Simpson, G, Miller, W, Handwerker, D, Worden, M. 2002. *Cortical dynamics of directing visual spatial attention measured with event-related brain potentials*. Journal Of Cognitive Neuroscience, 98-99, Suppl. S.

Durston, S, Thomas, K, Worden, M, Silbersweig, D, Stern, E, Yang, YH, Casey, BJ. 2001. *The effect of context on inhibition in normal development: An fMRI study*. Neuroimage, 13(6): S312-S312, Part 2 Suppl. S.

Ruz, M., Worden, M.S. and McCandliss., B.D. (2003) *Where fMRI is blind: HDERP evidence for early activation for ignored information in a high perceptual load task*. Human Brain Mapping, New York.

Fan, J., Fossella, J., Worden, M.S., Wu, Y., Sommer, T., McCandliss, B.D. and Posner, M.I. (2003) *Mapping the influence of genetic variation on executive attention with the attention network task (ANT)*. Human Brain Mapping, New York.

Tottenham, N., Davidson, Watts, R.W., Nelson, C., M. Worden, M.S., Haxby, J. and Casey, B.J. (2003) *Activation of the fusiform face area without conscious awareness*. Human Brain Mapping, New York.

Worden, M.S. and Sigman, M. (2002) *Effects of perceptual learning on the dynamics of visual object processing*. Cognitive Neuroscience Society, San Francisco.

Simpson, G.V., Worden, M.S., Wang, N., Miller, W.L. and Handwerker, D. (2002) *Dynamics of brain systems underlying deployment of visual spatial attention*. Human Brain Mapping, Sendai, Japan.

Simpson, G.V., Worden, M.S. Wang, N., Miller, W.L., and Handwerker, D. (2002) *Cortical dynamics of directing visual spatial attention measured with ERPs*. Cognitive Neuroscience Society, New York.

Fan, J., Worden, M.S. and Posner, M.I. (2002) *Time course of monitoring and resolving conflict*. Cognitive Neuroscience Society, San Francisco.

- Durston, S., Thomas, K.M., Worden, M.S., Silbersweig, D., Stern, E., Yang, Y. and Casey, B.J. (2001) *A developmental fMRI study of the effect of context on inhibition*. Cognitive Neuroscience Society, New York.
- Casey, B.J., Durston, S., Thomas, K.M. and Worden, M.S. (2001) *Jittered versus constant stimulus presentation rate in an fMRI study using the go nogo task*. Cognitive Neuroscience Society, New York.
- Worden, M.S., Simpson, G.V. and Wang, N. (2001) *Cortical dynamics of directing visual spatial attention measured with ERP*. Society for Neuroscience, San Diego.
- Worden, M.S., Foxe, J. J., Wang, N. Higgins, B. and Simpson, G.V. (2000) *Preparatory inhibition of nonrelevant stimulus locations indexed by focal distributions of alpha-band EEG activity*. Cognitive Neuroscience Society, San Francisco.
- Worden, M., Foxe, J.J., Wang, N., Higgins, B and Simpson, G.V. (1999) *Anticipatory visuospatial attention actively inhibits nonrelevant stimulus locations as indexed by focal distributions of alpha-band electrical activity recorded from the scalp*. Society for Neuroscience Abstracts, 25, 115.2.
- Worden, M. and Schneider, W. (1999). *Visuospatial attention is flexibly allocated at the earliest stages of visual processing in humans*. Journal of Cognitive Neuroscience, Vol. 1999S, 53B.
- Vaughn G.P., Worden M., Smith T., and Schneider W. (1997). *fMRI in visual search indicates that automatic processing modulates activity of lateral occipital cortex*. Society for Neuroscience Abstracts, 23: 1586.
- Shrager, J., Worden, M., Smith, T., Noll, D. C., Hahn, M., and Schneider, W. (1997). *Cortical dynamics during skill acquisition: fMRI of task-specific and "management" regions in multiple paradigms*. Journal of Cognitive Neuroscience, 1997S.
- Worden, M. and Schneider, W. (1996). *Visuospatial attentional selection examined with functional magnetic resonance imaging*. Society for Neuroscience Abstracts, 22, 1856.
- Worden, M., Schneider, W. & Wellington, R. (1996). *Determining the locus of attentional selection with functional magnetic resonance imaging*. Journal of Cognitive Neuroscience, Vol. 1996S.
- Shrager, J., Worden, M., Wellington, R., Vaughn, G., Smith, T., Hahn, M., Noll, D. C., and Schneider, W. (1996). *fMRI of cortical control areas in early skill acquisition*. Presented at the 37th Annual Meeting of the Psychonomic Society. Chicago, IL.
- Vincent, DJ, Worden, M, Schneider, W. (1996). *Functional and structural MRI constraints applied to the inverse problem in electroencephalography*. Zeitschrift Fur Angewandte Mathematik Und Mechanik 76: 581-582, Suppl. 3.
- Worden, M., Schneider, W. & Wellington, R. (1995) *Assessing the distribution of exogenous and endogenous attentional modulation in human visual cortex with fMRI*. Presented at the 36th annual meeting of the Psychonomic Society, Los Angeles.

Schneider, W., Worden, M., Shedden, J., Noll, D. (1995). *Assessing the distribution of exogenous and endogenous attentional modulation in human visual cortex with fMRI*. Presented at the Second Annual Meeting of the Cognitive Neuroscience Society, San Francisco.

Vincent, D.J., Worden, M., Schneider, W. and Shedden, J. (1994). *fMRI, ERP, CIT, and dipoles - utilizing multimodality techniques to obtain simultaneous spatial and temporal information of cortical activity*. Twelfth annual meeting of the Society for Magnetic Resonance Imaging: Dallas, Texas.

Schneider, W., Worden, M., Vincent, D., Shedden, J., Noll, D. (1994). *Co-localization in time and space with fMRI and High-Density ERP for millisecond and millimeter mapping of cortical activity*. Invited talk given at the annual meeting of the American Electroencephalographic Society: Chicago.

Vincent, D.J., Schneider, W., Worden, M. and Shedden, J. (1993). *Combining high-density ERPs and functional MRI to obtain high-temporal and spatial resolution of cortical activity*. Presented at the annual meeting of the American Electroencephalographic Society: New Orleans.

### **Manuscripts in progress**

Unger, K., Waugh, R. & Worden, M.S. , *Effects of Conflict-Driven Attention on High and Low Level Visual Processing*

Worden, M.S., McEleney, F., Gonsalves, M.A., Lorenc, E.S., Berson, D.M., Carpenter, L. & Sanes, J.N. *Seasonal affective disorder and major depressive disorder reduce light-induced responses in human prefrontal cortex*

Worden, M.S., Lorenc, E.S. and Walsh *High-Temporal Resolution Imaging of Neural Activity in the Human Brain*

Worden, M.S., Lorenc, E.S. and Walsh *Parameter Optimization for Whole Brain Myelin Imaging*.