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Education

- **Postdoctoral Fellow**, Department of Psychology, Stanford University, Stanford, CA (Dr. Brian Wandell) 1998 - 2000
- **Postdoctoral Fellow**, Department of Ophthalmology, University of British Columbia, Vancouver, BC (Dr. Deborah Giaschi), 1996 - 1998
- **Ph.D. Experimental Psychology**; University of California, Santa Cruz, August 1996
- **B.A Psychology (Highest Honors)**; Rutgers University, New Brunswick, NJ, June 1991

Professional Experience and Honors

- **Research Director**, Center for Cognitive and Neurobiological Imaging (2010 – present)
- **Executive Board**, Center for Cognitive and Neurobiological Imaging (2009 – present)
- **Planning Committee**, Center for Cognitive and Neurobiological Imaging (2006 – present)
- **Senior Research Scientist**, Psychology, Stanford University (2001 – present)
- **Co-founder**, Vischeck.com (1999 – present)
- **Co-founder & Chief Engineer**, Image U, Inc., Menlo Park, CA, (2000 – 2002)
- **National Eye Institute Travel Grant** (1999)
- **Research Assistant**, University of California, Santa Cruz, (1991 – 1996)
- **Teaching Assistant**, University of California, Santa Cruz, CA (1991 - 1996)
- **Electroretinography Clinician**, Retinal Diagnostic Center, Campbell, CA, (1993 - 1996)

Publications

2011:

- Rauschecker, A.M., Bowen, R.F., Perry, L.M., Kevan, A.M, Dougherty, R.F. & Wandell, B.A. (2011). **Feature-Tolerance in the Reading Network.** Neuron 71(5):941-53. (PMID: 21903085)
- Yeatman, J.D., Dougherty, R.F., Rykhlevskaia, E., Sherbondy, A.J., Deutsch, G.K., Wandell, B.A. & Ben-Shachar, M. (2011). **Anatomical Properties of the Arcuate Fasciculus Predict Phonological and Reading Skills in Children.** J. Cogn. Neurosci. (PMID: 21568636)
- Ben-Shachar M, Dougherty RF, Deutsch GK, & Wandell BA. (2011). **The Development of Cortical Sensitivity to Visual Word Forms**. J. Cogn. Neurosci. (PMID: 21261451)
- Dastjerdi, M., Foster, B.L., Nasrullah, S., Rauschecker, A.M., Dougherty, R.F., Townsend, J., Greicius, M.D., Chang, C., Kennedy, D. & Parvizi, J. (2011). **Differential electrophysiological response during rest, self-referential and non-self-referential tasks in human posteromedial cortex.** PNAS, 108(7):3023-8. (PMID: 21282630)
- Stikov, N., Keenan, K.E., Pauly, J.M., Smith, R.L., Dougherty, R.F., & Gold, G.E. (2011). **Bound pool fractions correlate with proteoglycan and collagen content in articular cartilage.** Magn Reson Med. doi: 10.1002/mrm.22865. (PMID: 21416504)

2009 - 2010:

- Stikov, N., Perry, L.M., Mazer, A., Wandell, B.A., Pauly, J.M., & Dougherty, R.F. (2010). **Bound Pool Fractions Complement Diffusion Measures to Describe White Matter Micro and Macrostructure.** *NeuroImage;* doi:10.1016/j.neuroimage.2010.08.068. (PMID: 20828622)

- Schwartzman, A., Dougherty, R.F., & Taylor, J.E. (2010). **Group Comparison of Eigenvalues and Eigenvectors of Diffusion Tensors.** *Journal of the American Statistical Association;* Vol. 105, No. 490, pp. 588-599, June 2010.
- Levin, N., Dumoulin, S., Winawer, J., Dougherty, R.F., & Wandell, B.A. (2010). **Cortical maps and white mater tracts following long period of visual deprivation and retinal image restoration.** *Neuron,* 65(1), pgs. 21-3; doi:10.1016/j.neuron.2009.12.006. (PMID: 20152110)
- Thomason, M.E., Dougherty, R.F., Colich, N.L., Perry, L.M., Rykhlevskaia, E.I., Louro, H.M., Hallmayer, J.F., Waugh, C.E., Bammer, R., Glover, G.H., & Gotlib, I.H. (2010). **COMT genotype is associated with prefrontal brain white matter pathways in children.** *NeuroImage; doi:10.1016/j.neuroimage.2010.01.033.* (PMID: 20083203)
- Tsang, J.M., Dougherty, R.F., Deutsch, G.K., Wandell, B.A. & Ben-Shachar, M. (2009). **Frontoparietal white matter diffusion properties predict mental arithmetic skills in children.** *PNAS;* doi: 10.1073/pnas.0906094106. (PMID: 19948963)
- Sherbondy, A.J., Dougherty, R.F., Ananthanarayanan, R., Modha, D.S. & Wandell, B.A. (2009). **Think Global, Act Local; Projectome Estimation with BlueMatter.** *Medical Image Computing and Computer-Assisted Intervention Proceedings*

2007 - 2008:

- Sherbondy, A.J., Dougherty R.F., Napel, S. & Wandell, B.A. (2008). **Identifying the human optic radiation using diffusion imaging and fiber tractography.** *Journal of Vision*, 8(10):12,1-11; doi:10.1167/8.10.12. (PMID: 19146354)
- Herbsman T., Forster L., Molnar C., Dougherty R., Christie D., Koola J., Ramsey D., Morgan P.S., Bohning D.E., George M.S. & Nahas Z. (2008). **Motor threshold in transcranial magnetic stimulation: The impact of white matter fiber orientation and skull-to-cortex distance.** *Human Brain Mapping*, doi:10.1002/hbm.20649. (PMID: 18973261)
- Rauschecker, A.M., Deutsch, G.K., Ben-Shachar, M., Schwartzman, A., Perry, L.M. and Dougherty, R.F. (2008). **Reading impairment in a patient with missing arcuate fasciculus.** *Neuropsychologia*, doi:10.1016/j.neuropsychologia.2008.08.011. (PMID: 18775735)
- Sherbondy, A.J., Dougherty, R.F., Ben-Shachar, M., Napel, S. & Wandell, B.A. (2008). **ConTrack: Finding the most likely pathways between brain regions using diffusion tractography.** *Journal of Vision*, 8(9):15,1-16; doi:10.1167/8.9.15. (PMID: 18831651)
- Schwartzman, A., Dougherty, R.F., Lee, J., Ghahremani, D. & Taylor, J.E. (2008). **Empirical Null and False Discovery Rate Analysis in Neuroimaging.** *NeuroImage*, doi:10.1016/j.neuroimage.2008.04.182. (PMID: 18547821)
- Greicius, M.D., Supekar, K., Menon, V. & Dougherty, R.F. (2008). **Resting-State Functional Connectivity Reflects Structural Connectivity in the Default-Mode Network.** *Cerebral Cortex*, doi: 10.1093/cercor/bhn059. (PMID: 18403396)
- Schwartzman, A., Dougherty, R.F., & Taylor, J.E. (2008). **False discovery rate analysis of brain diffusion direction maps.** *The Annals of Applied Statistics*, 2(1):153-175.
- Dougherty, R.F., Ben-Shachar, M., Deutsch, G.K., Hernandez, A., Fox, G.R., & Wandell, B.A. (2007). **Temporal-callosal pathway diffusivity predicts phonological skills in children.** *Proceedings of the National Academy of Sciences,* 104(20):8556-61. (PMID: 17483487)
- Ben-Shachar, M., Dougherty, R.F., Deutsch, G.K., & Wandell, B.A. (2007). **Contrast Responsivity in MT+ Correlates with Phonological Awareness and Reading Measures in Children.** *NeuroImage,* (PMID: 17689981)
- Ben-Shachar, M., Dougherty, R.F., & Wandell, B.A. (2007). **White matter pathways in reading.** *Current Opinion in Neurobiology,* 17(2):258-70. (PMID: 17379499)
- Chase C., Dougherty, R.F., Ray, N., Fowler, S. & Stein, J. (2007). **L/M speed-matching ratio predicts reading in children.** *Optom Vis Sci.* 84(3):229-36. (PMID: 17435537)

- Ben-Shachar, M., Dougherty, R.F., Deutsch, G.K. & Wandell, B.A. (2007). **Contour and word form processing in the human ventral occipito-temporal cortex.** *Cerebral Cortex,* 17 (7), pgs. 1604-1611. (PMID: 16956978)

2005 - 2006:

- Dougherty, R.F., Ben-Shachar, M., Bammer, R., Brewer, A.A., & Wandell, B.A. (2005). **Functional Organization of Human Occipital-callosal Fiber Tracts.** *Proceedings of the National Academy of Sciences,* 102(20):7350-7355. (PMID: 15883384)
- Dougherty, R.F., Ben-Shachar, M., Deutsch, G., Potanina, P., Bammer, R. & Wandell, B.A. (2005). **Occipital-Callosal Pathways in Children: Validation and Atlas Development.** *Annals of the New York Academy of Sciences,* v1064, pgs. 98-112. (PMID: 16394151)
- Schwartzman, A., Dougherty, R.F. & Taylor, J.E. (2005). **Cross-subject comparison of principal diffusion direction maps.** *Magnetic Resonance in Medicine,* 53 (6):1423-1431. (PMID: 15906307)
- Deutsch, G.K., Dougherty, R.F., Bammer, R., Siok, W.T., Gabrieli, J.D. & Wandell, B.A. (2005). **Children's reading performance is correlated with white matter structure measured by diffusion tensor imaging.** *Cortex*, 41 (3), 354-63. (PMID: 15871600)
- Wandell, B.A. & Dougherty, R.F. (2006). **Computational Neuroimaging: Maps and tracts in the human brain.** *Proceedings of the SPIE,* v6057, #605701.
- Wandell, B.A., Brewer, A.B. & Dougherty, R.F. (2005). **Visual field map clusters in human cortex.** *Philosophical Transactions of the Royal Society, Series B (London),* 360, 693-707. (PMID: 15937008)
- Cornelissen F.W., Wade A.R., Vladusich T., Dougherty R.F. & Wandell B.A. (2006). **No functional magnetic resonance imaging evidence for brightness and color filling-in in early human visual cortex.** *Journal of Neuroscience,* 26 (14), pgs. 3634-41. (PMID: 16597716)
- Sherbondy A., Akers D., Mackenzie R., Dougherty R., Wandell B. (2005). **Exploring connectivity of the brain's white matter with dynamic queries.** *IEEE Trans Vis Comput,* 4, 419-430. (PMID: 16138552)
- Parrish, E.E., Giaschi, D.E., Boden, C. & Dougherty, R. (2005). **The maturation of form and motion perception in school age children.** *Vision Research,* 45 (7), 827-837. (PMID: 15644223)
- Ho, C.S., Giaschi, D.E., Boden, C., Dougherty, R., Cline, R., Lyons, C. (2005). **Deficient motion perception in the fellow eye of amblyopic children.** *Vision Research,* 45 (12), 1615-1627. (PMID: 15781077)

2004 and earlier:

- Akers, D., Sherbondy, A., Mackenzie, R., Dougherty, R., & Wandell, B.A. (2004). **Exploration of the Brain's White Matter Neural Pathways with Dynamic Queries.** *Proc. IEEE Visualization* (VIS'04), pgs. 377-384.
- Edwards, V.T., Giaschi, D.E., Dougherty, R.F., Edgell, D., Bjornson, B.H., Lyons, C. & Douglas, R.M. (2004). **Psychophysical indices of temporal processing abnormalities in children with developmental dyslexia.** *Developmental Neuropsychology,* 25 (3), 321-354. (PMID: 15148002)
- Dougherty, R.F, Brewer, A.A, Koch, V., Fischer, B., Modersitzki, J. & Wandell, B.A. (2003). **The Position, Surface Area and Visual Field Representation of Visual Areas V1/2/3 in Human Visual Cortex.** *Journal of Vision,* 3 (10), 586-598. (PMID: 14640882)
- Huk, A.C., Dougherty, R.F., Heeger, D.J. (2002). **Retinotopy and Functional Subdivision of Human Areas MT and MST.** *Journal of Neuroscience,* 22, pgs. 7195-205. (PMID: 12177214)
- Press, W.A., Brewer, A., Dougherty, R.F., Wade, A.R., & Wandell, B.A. (2001). **Visual Areas and Spatial Summation in Human Visual Cortex.** *Vision Research,* 41, pgs. 1321-1332. (PMID: 11322977)
- Dougherty, R.F., Press, W.A. & Wandell, B.A. (1999). **Perceived speed of colored stimuli.** *Neuron,* 24, pgs. 893-899. (PMID: 10624952)

- Dougherty, R.F., Cynader, M., Bjornson, B.H., Edgell, D. & Giaschi, D.E. (1998). **Dichotic pitch: A new stimulus distinguishes normal and dyslexic auditory function.** *Neuroreport,* 9, pgs. 3001-3005. (PMID: 9804305)
- Mayer, M.J., Dougherty, R.F. & Hu, L. (1995). **A covariance structure analysis of flicker sensitivity.** *Vision Research,* 35, pgs. 1575-1583. (PMID: 7667915)
- Mayer, M.J., Ward, B., Klein, R., Talcott, J.B. & Dougherty, R.F. (1994). **Flicker sensitivity and fundus appearance in pre-exudative age-related maculopathy.** *Investigative Ophthalmology and Visual Science,* 35, pgs. 1138-1149. (PMID: 8125725)

Teaching experience

- Lecturer, *Computational Neuroimaging Analysis Methods* (PSYCH204a, Fall 2009, Fall 2010)
- Lecturer, *Art and Perception* (Continuing Studies ARTH202, Winter 2007)
- Lecturer, *Reading: Science, Education, and Politics* (PSYCH 12n, Fall 2001)
- Lecturer, *Reading: Science, Education, and Politics* (HUMBIO 153, Spring 2004).
- Many guest lectures for Intro to Psychology (PSYCH 1), Cognitive Neuroscience (PSYCH 202), and Computational Neuroimaging Analysis Methods (PSYCH 204b)

Mentoring

- PhD thesis committee, Jordan Nechvatal (Department of Psychiatry, Stanford University)
- Jennifer Yoon: co-mentor for NSF pre-doctoral fellowship titled “White matter connections of the face processing network in children and adults”. (NSF 1F31 MH88232-01)
- Co-mentoring several PhD students (Jason Yeatman, Reno Bowen, and Andreas Rauschecker)
- Nikol Stikov, PhD: co-mentored PhD thesis work on bound-pool fraction imaging. Nikola is now a postdoc at the Montreal neurological Institute in Montreal, Canada.
- Armin Schwartzman, PhD: co-mentored PhD thesis work on the statistics of diffusion tensors. Armin is now an Assistant Professor at Harvard School of Public Health.
- External committee member, Eric Ortigoza's Masters Thesis (Medical College of South Carolina)

Software and Algorithm Development

- Lead developer for various open-source neuroimaging and behavioral research packages, including the MR Diffusion Tensor analysis package *mrDiffusion* and the diffusion simulation package *dSim* (see http://vistalab.stanford.edu/software/).

Community Outreach

- Presentation to teachers and administrators at the Menlo School in Menlo Park, CA. (April 2009)
- KQED Quest television segment, “Watching the Brain at Work: MRIs and Beyond,” (aired September 2007; http://www.kqed.org/quest/television/view/590)
- Guest lectures at Monroe Middle School in Campbell, CA on neuroscience, with an interactive brain lab using post-mortem brains (Spring 2004)

Selected Invited Talks

- San Jose Museum of Art (October 2009)
- University of California, Merced (September 2009)
- DTI Workshop at the Conference on Neurocognitive Development, Berkeley, CA (July 2009)
- Learning and the Brain Conference, San Francisco, CA (February 2009)
- Child Study Center at Penn State University, State College, PA (November 2008)
- Sage center, University of California, Santa Barbara (August 2007)
- Society of Mathematical Psychology, Symposium on fMRI data analysis (July 2007)
- Computer Science, University of California, Santa Cruz (April 2007)
- San Jose Museum of Art (March 2007)

- Asilomar Regional Reading Conference (March 2007)
- OSA Fall Vision Meeting, Vision and Reading Symposium (October 2006)
- Medical College of South Carolina, Charleston, SC (September 2006)
- Rochester Center for Brain Imaging, University of Rochester (December 2005)
- International Dyslexia Association, Symposium on biological aspects of reading (November 2005)
- Redwood Neuroscience Institute (June 2004)
- Oxiopia, University of California, Berkeley (April 2003)