

VITAE:

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Edward J. Golob

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Education

1999-2001 Postdoctoral fellow (NIH Training Grant)
 Department of Neurology
 University of California, Irvine

1993-1999 Ph.D., Experimental Psychology
 Department of Psychology
 Dartmouth College

1987-1991 B.A., Psychology
 Capital University
 Columbus, OH.

Academic Positions

2004-Present Assistant Professor
 Department of Psychology, Program in Neuroscience,
 Tulane Center for Aging (2007-Present)
 Tulane University

2005-Present Visiting Research Professor
 Department of Neurology
 University of California, Irvine

2001-2004 Assistant Researcher
 Institute for Brain Aging and Dementia
 University of California, Irvine

Research Interests

- spatial cognition
- auditory system
- attention and working memory
- normal aging
- Alzheimer's disease and other cognitive disorders

Technical Experience

- Event-related potentials and EEG recording in humans
- Transcranial magnetic stimulation in humans
- Extracellular single-unit recording in freely behaving rats
- Stereotaxic surgery, neurotoxic lesions, and electrode implantation

Membership in Professional Societies

- Society for Neuroscience
- Association for Research in Otolaryngology (ARO)
- International Evoked Response Audiometry Study group

Grants and Contracts

Current

NSF (2009-2014). Principal Investigator. "CAREER: Cortical processing of auditory spatial information". \$515,733 direct costs.

Tulane Research Enhancement Fund (2008-2009). Principal investigator. "Cognition and brain function in healthy aging". \$16,800 total costs.

Louisiana State University (2008-2009). Co-Investigator. Cognitive effects of electrical stimulation of the subthalamic nucleus. \$50,000 total costs.

Completed

NIH R01 (2002-2007). Co-investigator. "Cognitive and neurophysiological changes in mild cognitive impairment". \$700,000 direct costs.

UC Irvine Health Sciences Research Imaging Center (2002). Principal Investigator. "Functional neuroanatomy of episodic memory in mild cognitive impairment". \$4,000 total costs.

Courses

Undergraduate:

- Cognitive Neuroscience
- Cognitive Neuroscience lab

Graduate:

- Cognitive Neuroscience
- Cognitive Psychology

Student thesis advising (completed degree)

- Stefanie Rader (2004 – 2006, M.S. Neuroscience, 2006)
- Laura Manning (2004 – present, M.S. Psychology, 2007)
- Kate Yurgil (2006 – present, M.S. Psychology, 2008)
- John Holmes (2006 – 2009, M.S. Psychology, 2009)
- Carolyn Pauker (2005 – 2006, B.S. Neuroscience 2006, undergraduate honors)

- Steven Bright (thesis 2006, recipient of Arnold Gerall Prize in Neuroscience) (2006 – 2007, B.S. Neuroscience, 2007, undergraduate honors thesis 2007, recipient of Arnold Gerall Prize in Neuroscience)
- Thomas Eskew (2008 – 2009, B.S. Psychology, 2009, undergraduate honors thesis 2009, recipient of Rosa Cahn Hartman prize in Psychology)

Administrative experience

Department of Psychology, Tulane University

- Graduate training committee (2004 – Present)
- Colloquium committee (2006 – Present)
- Academic appeals committee (2007 – Present)
- Various faculty search committees

Tulane Center for Aging

- Colloquium committee (2008 – Present)
- Seminar series coordinator

Publications

Golob E.J., Ringman J.M., Irimajiri R., Bright S., Schaffer B., Medina L.D., Starr A (In Press). Cortical event-related potentials in preclinical familial Alzheimer's disease. *Neurology*.

Wang H., **Golob E.J.**, Bert A., Nie K, Chu Y., Dick M, Mandelkern M., Su MY (2009). Alterations in regional brain volume and individual MRI-guided perfusion in mild cognitive impairment correlated with memory function. *Journal of Geriatric Psychiatry and Neurology*, 22(1): 35-45.

Mock J.R., Foundas A.L., **Golob E.J.** (Submitted). Modulation of sensory and motor cortex activity during speech preparation: an ERP and TMS study.

Yurgil K. & **Golob E.J.** (Submitted). Neural activity before and after conscious perception of a multistable stimulus.

Irimajiri R., **Golob E.J.**, Starr A (2008). ApoE genotype and auditory cortical sensory and cognitive potentials in healthy older females. *Neurobiology of Aging*.

Rader S.K., Holmes, J.L., **Golob E.J.** (2008). Auditory event-related potentials during a spatial working memory task. *Clinical Neurophysiology*, 119: 1176-1189.

Golob E.J., Irimajiri R., Starr A. (2007). Auditory cortical activity in amnesic mild cognitive impairment: relationship to subtype and conversion to dementia. *Brain*, 130(3): 740-52.

Irimajiri R., Michalewski H.J., **E.J. Golob**, Starr A. (2007). Cholinesterase inhibitors affect somatosensory but not visual cortical activities in amnesic mild

- cognitive impairment. *Brain Research*, 1145:108-16.
- Wang H., **Golob E.J.**, Su M.Y. (2006). Vascular volume and blood-brain barrier permeability in hippocampus and cerebellum measured with dynamic contrast-enhanced MRI in mild cognitive impairment. *Journal of Magnetic Resonance Imaging*, 24(3): 695-700.
- Bennett I.J., **Golob E.J.**, Parker E.S., Starr A. (2006). Memory evaluation in mild cognitive impairment using recall and recognition tasks. *Journal of Clinical and Experimental Neuropsychology*, 28(8): 1408-1422.
- Scalise A., Pittaro-Cadore I., **Golob E.J.**, Gigli G.L. (2006). Cortical excitability and restless legs syndrome: Neurophysiological findings. *Sleep*, 29(6): 770-775.
- Golob E.J.**, Ovasapyan V., Starr A. (2005). Event-related potentials accompanying motor preparation and stimulus expectancy in the young, young-old and oldest-old. *Neurobiology of Aging*, 26(4): 531-542
- Bassett J.P., Zugaro M.B., Muir G.M., **Golob E.J.**, Wiener S.I., Muller R.U., Taube J.S. (2005). Passive movements of the head do not abolish anticipatory firing properties of head direction cells. *Journal of Neurophysiology*, 93(3): 1304-1316.
- Irimajiri R., **Golob E.J.**, Starr A. (2005). Auditory brainstem, middle- and long-latency evoked potentials in mild cognitive impairment. *Clinical Neurophysiology*, 116(8): 1918-29.
- Golob E.J.** & Starr A. (2004). Serial position effects in auditory event-related potentials during working memory retrieval. *Journal of Cognitive Neuroscience*, 16(1): 40-52.
- Golob E.J.** & Starr A. (2004). Visual encoding differentially affects event-related potentials during working memory retrieval. *Psychophysiology*, 41(2): 186-192.
- Bennett I.J., **Golob E.J.**, Starr A. (2004). Age-related differences in auditory event-related potentials during a cued attention task. *Clinical Neurophysiology*, 115(11): 2602-2615.
- Stackman R.W., **Golob E.J.**, Bassett J. P., Taube J.S. (2003). Passive transport disrupts directional path integration by rat head direction cells. *Journal of Neurophysiology*, 90(5): 2862-2874.
- Golob E.J.**, Pratt H., Starr A. (2002). Preparatory slow potentials and event-related potentials in an auditory cued attention task. *Clinical Neurophysiology*, 113(10): 1544-1557.
- Golob E.J.**, Johnson J.K., Starr A. (2002). Auditory event-related potentials during

- target detection are abnormal in mild cognitive impairment. *Clinical Neurophysiology*, 113(1): 151-161.
- Golob E.J.** & Taube J.S. (2002). Influence of aversive reinforcement on reorientation in a spatial working memory task. *Behavioural Brain Research*, 136(1): 309-316.
- Golob E.J.**, Miranda G.G., Johnson J.K., Starr A. (2001). Sensory cortical interactions in aging, mild cognitive impairment, and Alzheimer's disease. *Neurobiology of Aging*, 22(5): 755-763.
- Golob E.J.**, Stackman R.W., Wong A.C., & Taube J.S. (2001). On the behavioral significance of head direction cells: Neural and behavioral dynamics on spatial reference and working memory tasks. *Behavioral Neuroscience*, 115(2): 285-304.
- Golob E.J.** & Starr A. (2000). Age-related qualitative differences in auditory cortex responsiveness as a function of memory load. *Clinical Neurophysiology*, 111(12): 2234-2244.
- Golob E.J.** & Starr A. (2000). Effects of stimulus sequence on event-related potentials and reaction time during target detection in Alzheimer's disease. *Clinical Neurophysiology*, 111(8): 1438-1449.
- Golob E.J.** & Taube J.S. (1999). Head direction cells in rats with hippocampal or overlying neocortical lesions: Evidence for impaired angular path integration. *Journal of Neuroscience*, 19(16): 7198-7211.
- Golob E.J.** & Taube J.S. (1998). Recordings of postsubiculum head direction cells following lesions of the laterodorsal thalamic nucleus. *Brain Research*, 780(1): 9-19.
- Goodridge J.P., Dudchenko P.A., Worboys K.A., **Golob E.J.**, & Taube J.S. (1998). Cue control and head direction cells. *Behavioral Neuroscience*, 112(4): 749-761.
- Golob E.J.** & Taube J.S. (1997). Head direction cells and episodic spatial information in rats without a hippocampus. *Proceedings of the National Academy of Sciences, U.S.A.*, 94, 7645-7650.
- Taube J.S. & **Golob E.J.** (1997). Computational functions of the hippocampus: Does it encode all episodic memories? *Molecular Psychiatry*, 2(6), 442-445.
- Taube J.S., Goodridge J.P., **Golob E.J.**, Dudchenko P.A., & Stackman R.W. (1996). Processing the head direction cell signal: A review and commentary. *Brain Research Bulletin*, 40(5-6), 477-484.

Book Chapters

Golob E.J., Pratt H., Starr A. (2009). Learning and memory in normal aging: Event-related potentials, EEG, and reaction time. pp. 107-201. in *New Encyclopedia of Neuroscience*. Larry R. Squire (Editor-in-Chief). Elsevier.

Starr A. & **Golob E.J.** (2006). Cognitive Factors Modulating Auditory Cortical Potentials. in *Auditory Evoked Potentials: Basic Principles and Clinical Application*. Robert Burkhard, Manny Don, Jos Eggermont (Eds.). Lippincott Williams & Wilkins.

Blair H.T., Sharp P.E., Cho J., Goodridge J.P., Stackman R.W., **Golob E.J.**, Taube J.S. (1998). Path integration in the rat head-direction circuit. In: *Advances in Neural Information Processing Systems*. Vol. 10. D.S. Touretzky, M.C. Mozer, M.E. Hasselmo (Eds.). MIT Press.

Abstracts

Manning L.M. & Golob E.J. (2009). Representation of key in non-verbal working memory: an event-related potential study. *Cognitive Neuroscience Society*.

Holmes J.L. & Golob E.J. (2008). Auditory object codes and spatial attention: an event-related potential analysis. *Society for Neuroscience Abstracts*, 34.

Nelson J.T. & Golob E.J. (2008). The effect of repetitive TMS to the left dorsolateral prefrontal cortex on auditory event-related potentials. *Society for Neuroscience Abstracts*, 34.

Mock J.R., Foundas A.L., Golob E.J. (2008). The influence of speech-motor programming on auditory cortical responses. *Society for Neuroscience Abstracts*, 34.

Smith L.M. & Golob E.J. (2008). Assessment of stimulus-feature selectivity in self-monitoring using the Lombard effect. *American Speech-Language-Hearing Association*.

Holmes J.L. & Golob E.J. (2007). The influence of spatial attention and sound location on auditory event-related potentials. *Society for Neuroscience Abstracts*, 33.

Autin K.M. & Golob E.J. (2007). Pre and post stimulus activity in dichotic listening: an auditory ERP study. *Society for Neuroscience Abstracts*, 33.

Autin K.M. & Golob E.J. (2007). Auditory event-related potentials and perceptual judgments of speech. XX Biennial Symposium of the International Evoked Response Audiometry Study Group.

Starr A., Golob E.J., Irimajiri R, Michalewski H.J. (2007). Sensory cortical changes accompany aging, mild cognitive decline, and dementia. XX Biennial Symposium of the International Evoked Response Audiometry Study Group.

- Golob E.J., Irimajiri R., Starr A. (2007). Auditory cortical activity is abnormal in early cognitive decline and anticipates subsequent conversion to dementia. 5th International Symposium and Workshop on "Objective Measures in Cochlear and Brainstem Implants".
- Golob E.J., Manning L.M., & Rader S.K. (2006). ERP correlates of attention and working memory. *International Organization for Psychophysiology*.
- Golob E.J. & Rader S.K (2006). Influence of sound location and behavioral relevance on auditory event-related potentials. *Society for Neuroscience Abstracts*, 32.
- Rader S.K., Manning L.K., & Golob E.J. (2006). Auditory event-related potentials and processing of speech and musical sounds during passive listening and target detection. *Society for Neuroscience Abstracts*, 32.
- Manning L.K., Brown L.E., & Golob E.J. (2005). Lateralization of auditory processing for speech and music: an event-related potential analysis. *Society for Neuroscience Abstracts*, 31.
- Rader S.K., & Golob E.J. (2005). Auditory event-related potentials during a spatial working memory task. *Society for Neuroscience Abstracts*, 31.
- Irimajiri R., Golob E.J., Michalewski H.J., & Starr A (2005). Cholinesterase inhibitors influence both memory functions and sensory (auditory, somatosensory) evoked cortical potentials in mild cognitive impairment. *Society for Neuroscience Abstracts*, 31.
- Golob E.J. (2004). Event-related potentials and mild cognitive impairment. *Clinical Electroencephalography*, 35(4), 211.
- Irimajiri R., Golob E.J., & Starr A. (2004). Auditory event-related potentials in mild cognitive impairment. *Cognitive Neuroscience Society*.
- Wang H, Chu Y, Bert A, Chang V, Golob E, Hill MA, Mandelkern M, Nalcioglu O, & Su MY (2004). Regional cerebral hypoperfusion of medial temporal lobe in mild cognitive impairment. *Neurobiology of Aging*, 25(S2).
- Wang H., Su MY, Chu Y, Bert A, Golob E, Mandelkern M, Chang V, Nalcioglu O. (2004). Regional cerebral hypoperfusion of medial temporal lobe in mild cognitive impairment. *International Society of Magnetic Resonance in Medicine*, 12.
- Golob E.J. (2003). Neurophysiological analysis of processing speed reductions in aging and mild cognitive impairment. *Clinical Electroencephalography*, 34(3), 172.
- Bennett I., Golob E.J., Ovasapyan V., & Starr A. (2003). Age-related differences in

- auditory event-related potentials during a cued attention task. *Society for Neuroscience Abstracts*, 29.
- Golob E.J., & Starr A (2002). Processing speed in aging: Event-related potentials in stimulus evaluation and response preparation. *Society for Neuroscience Abstracts*, 28.
- Ovasapyan V., Golob E.J., & Starr A. (2002). Changes in pre-stimulus slow potentials in normals between 60 and 100 years of age. *Society for Neuroscience Abstracts*, 28.
- Starr A., & Golob E.J. (2002). Event-related potentials in mild cognitive impairment. *International Journal of Psychophysiology*. 45(1-2), 35.
- Golob E.J., & Starr A. (2001). Primacy and recency effects during working memory retrieval. *Society for Neuroscience Abstracts*, 27.
- Ovasapyan V., Golob E.J., & Starr A. (2001). Pre-stimulus potentials in target detection consist of motor preparation and stimulus expectancy components. *Society for Neuroscience Abstracts*, 27.
- Taube J.S., & Golob E.J. (2001). Influence of aversive reinforcement on reorientation in a spatial working memory task. *Society for Neuroscience Abstracts*, 27.
- Golob E.J., Miranda G.G., & Starr A. (2000). Neurophysiological examination of cortical disconnection in Alzheimer's disease. *Society for Neuroscience Abstracts*, 26: 1545.
- Golob E.J., Wong A.C., & Taube J.S. (1998). On the behavioral relevance of head direction cells. *Society for Neuroscience Abstracts*, 24: 1913.
- Bassett J.P., Golob E.J., Muller R.U., & Taube J.S. (1998). Anticipatory time intervals of head direction cells increase during passive movement. *Society for Neuroscience Abstracts*, 24: 1912.
- Golob E.J., & Taube J.S. (1997). Response of head direction cells to a novel landmark cue. *Society for Neuroscience Abstracts*, 23: 504.
- Blair H.T, Sharp P.E., Goodridge J.P., Stackman R.W., Golob E.J., & Taube J.S. (1997). Experimental evidence for a path integrator in the rat head-direction circuit. *Proceedings of the Computational Neurosciences Conference CNS 97*.
- Golob E.J., & Taube J.S. (1996). Head direction cells are less responsive to idiothetic cues in rats with hippocampal lesions. *Society for Neuroscience Abstracts*, 22: 1873.

- Golob E.J., & Taube J.S. (1995). Head direction cells recorded from rats with hippocampal lesions. *Society for Neuroscience Abstracts*, 21: 945.
- Golob E.J., & Taube J.S. (1994). Head direction cells recorded from the postsubiculum in animals with lesions of the lateral dorsal thalamic nucleus. *Society for Neuroscience Abstracts*, 20: 805.
- Schmidt H.S., Golob E.J., & Torello M.W. (1992). Alpha intrusion in sleep and its relationship to excessive waking alpha and depression. *Sleep Research*, 21:258.
- Schmidt H.S., Golob E.J., & Torello M.W. (1992). Enuresis associated with idiopathic central nervous system hypersomnolence: Treatment with protriptyline. *Sleep Research*, 21:308.

Invited Lectures

- “Influence of speech motor programming on auditory and motor cortex responsiveness”. Israel Society for Neuroscience. Eilat, Israel. 12-08
- “Mild Cognitive impairment and dementia: a multidisciplinary approach”. Invited symposium presented at “Brain and behavior: Advances in Neuroimaging” conference. Tulane University. 12-07
- “Cortical processing of speech and sound location information in humans”. Center for Cognitive Science. University of Louisiana, Lafayette. 10-07
- “ERP correlates of attention and working memory”. Invited symposium presented at International Organization of Psychophysiology meeting. Istanbul, Turkey. 08-06.
- “Memory, aging, and early Alzheimer’s disease: A cognitive neuroscience perspective”. Program in Neuroscience seminar. Tulane University. 10-04.
- “Event-related potentials and mild cognitive impairment”. Invited symposium presented at EEG and Clinical Neuroscience Society Conference. Irvine, CA. 09-04.
- “Working Memory and Age-Related Changes in Brain Function”. Department of Psychology. University of South Florida. 01-04.
- “Working Memory and Age-Related Changes in Brain Function”. Department of Psychology. Texas A&M University. 01-04.
- “Working Memory and Age-Related Changes in Brain Function”. Department of Psychology. Tulane University. 12-03.
- “Neurophysiological analysis of processing speed reductions in aging and mild cognitive impairment”. Invited symposium presented at EEG and Clinical Neuroscience

- Society Conference. Houston, TX. 09-03.
- “Working Memory and Age-Related Changes in Brain Function. Department of Psychology and Kennedy Center. Vanderbilt University. 12-02.
- “Event-related potentials and mild cognitive impairment”. Alzheimer’s Disease Research Centers of California Annual Conference. Lake Arrowhead, CA. 10-02.
- “Event-related potentials and mild cognitive impairment”. Invited symposium presented at International Organization of Psychophysiology meeting. Montreal, Canada. 07-02.
- “Cortical Interactions, Working Memory, and Age-related Changes in Brain Function” School of Psychology, Georgia Institute of Technology. 01-02.
- “Electrophysiological dynamics of working memory retrieval”. Perception Group, Department of Cognitive Sciences, University of California, Irvine. 05-01.
- “Electrophysiological changes in mild cognitive impairment and dementia”. Co-presented with Arnold Starr at Grand Rounds, Department of Neurology, University of California, Irvine. 10-00.
- “Auditory cortical activity during working memory tasks”. Presented at “Things Auditory” Group, Department of Neurobiology and Behavior, University of California, Irvine. 05-00.
- “Strategies for early diagnosis of Alzheimer’s disease using cognitive evoked potentials”. Co-presented with Arnold Starr at Texas Tech University. 11-99

Referee:

- Grants: National Science Foundation, Neurological Foundation of New Zealand, Israel Science Foundation, Wellcome Trust
- Journals: Neurobiology of Aging, Clinical Neurophysiology, Journal of the American Medical Association (JAMA), Cerebral Cortex, Biological Psychology, Neuroimage, Behavioural Brain Research, Neurology, Psychophysiology, Neuroscience Letters, Audiology and Neurotology, Neuropsychology, Journal of Neurology Neurosurgery and Psychiatry, Journal of Psychophysiology International Journal of Psychophysiology, Neuropsychologia