

Department of Biomedical Engineering
University of Cincinnati
(Updated 31 December 2021)

Name: Thomas M. Talavage

Education:

| <i>Degree</i> | <i>Date</i> | <i>School</i> |
|---------------|-------------|---|
| BSCEE | May 1992 | Purdue University (<i>Highest Distinction</i>) |
| MSEE | Aug 1993 | Purdue University <i>Advisor: R.L. Kashyap</i> |
| PhD | Jun 1998 | Massachusetts Institute of Technology <i>Advisors: B.R. Rosen and J.R. Melcher</i> |

Honorary Society Memberships:

- [1] Alpha Lambda Delta (1989)
- [2] Phi Eta Sigma (1989)
- [3] Eta Kappa Nu (1991)
- [4] Tau Beta Pi (1991)
- [5] Golden Key (1992)
- [6] Phi Kappa Phi (1992)

Honors and Awards:

- [1] Purdue University Presidential Honors Award (1989)
- [2] McDonnell-Douglas Scholarship (1991-1992)
- [3] Outstanding Male Initiate, Golden Key Honor Society, Purdue Chapter (Spring 1992)
- [4] DuPont Graduate Fellowship in Electrical Engineering (1992)
- [5] Purdue University Andrews Fellowship (1992; Declined)
- [6] National Science Foundation Graduate Fellowship (1992-1996)
- [7] NIH T32 Training Grant Fellowship (1994-1998)
- [8] Ruth and Joel Spira Outstanding Teacher Award – ECE (Spring 2000)
- [9] Teaching for Tomorrow Program – Purdue University (2000-2001)
- [10] Dean Marion B. Scott Outstanding Professor Award – Tau Beta Pi, IN A (Spring 2001)
- [11] Who's Who Among America's Teachers (2002)
- [12] Motorola Excellence in Teaching Award – ECE (Spring 2003)
- [13] Outstanding Professor Award – Eta Kappa Nu, Beta Chapter (Spring 2004)
- [14] Purdue University College of Engineering Young Researcher Award (2005)
- [15] C. Holmes MacDonald Outstanding Electrical and Computer Engineering Teacher Award – Eta Kappa Nu Association (2005)

- [16] Purdue University College of Engineering Advising Award (Spring 2008)
- [17] Purdue University College of Engineering Engagement/Service Award (Spring 2008)
- [18] Outstanding Professor Award – Eta Kappa Nu, Beta Chapter (Fall 2011)
- [19] Purdue University College of Engineering Team Award – Purdue Neurotrauma Group (Spring 2013)
- [20] Weldon School of Biomedical Engineering Faculty Service Award (Fall 2013)
- [21] University Faculty Scholar, Purdue University (2015-2020)
- [22] Lead, *Engineering Healthier Brains*, Purdue University College of Engineering 2014 Preeminent Team (announced 13 Nov 2015)
- [23] Bernie Flowers Award for Outstanding Contribution to Amateur Football, Joe Tiller Chapter of the National Football Foundation (June 2016)
- [24] Fellow, American Institute for Medical and Biological Engineering (2020)

Professional Experience:

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| May 1989 – Aug 1989 | Summer programmer Pritsker Corporation, West Lafayette, IN |
| May 1990 – Aug 1990 | Summer programmer Pritsker Corporation, West Lafayette, IN |
| Aug 1998 – Aug 2005 | Assistant Professor School of Electrical & Computer Engineering Weldon School of Biomedical Engineering Purdue University |
| Jan 2004 – Dec 2007 | Adjunct Assistant Professor (20% AY effort) Department of Radiology Indiana University School of Medicine |
| Aug 2005 – Aug 2012 | Associate Professor School of Electrical & Computer Engineering Weldon School of Biomedical Engineering Purdue University |
| Aug 2012 – Aug 2020 | Professor School of Electrical & Computer Engineering Weldon School of Biomedical Engineering Purdue University |
| Nov 2007 – Aug 2020 | Founding Co-Director, Purdue MRI Facility Weldon School of Biomedical Engineering Purdue University |
| Nov 2016 – Aug 2020 | Founding Director, Engineering MRI Facility |

College of Engineering
Purdue University

Aug 2020 – Present Adjunct Professor
School of Electrical & Computer Engineering
Weldon School of Biomedical Engineering
Purdue University

Aug 2020 – Present Professor and Head
Department of Biomedical Engineering
University of Cincinnati

Research Grants and Contracts Received:

- [1] Principal Investigator (no co-PIs), PRF Showalter Grant, “Functional Magnetic Resonance Imaging (fMRI) of Human Sensory Systems,” July 1, 1999 - June 30, 2000, \$50,000.
- [2] Principal Investigator (no co-PIs), PRF Summer Faculty Grant, “Functional Magnetic Resonance Imaging (fMRI) Determination of Auditory Linguistic Threshold,” June 1, 2000 - July 31, 2000, \$5,000.
- [3] Principal Investigator (no co-PIs), PRF Research Grant, “Characterization of Reduction of Systemic Noise in fMRI,” June 1, 2001 - May 31, 2003, \$26,140.
- [4] Principal Investigator (no co-PIs), NIH/NIBIB R21 EB00524, “An fMRI-Compatible Hand Controller for Subject Interaction,” May 15, 2002 - October 31, 2003, \$112,502.
- [5] Principal Investigator (no co-PIs), General Electric Medical Systems, “Modeling of 1.5 T and 3.0 T Magnetic Resonance Imager Acoustic Noise Fields During Echo-Planar Imaging,” June 1, 2002 - May 31, 2003, \$8,662.
- [6] Principal Investigator (no co-PIs), Indiana Center for Excellence in Biomedical Imaging 21st Century Funds Pilot Award, “fMRI of Simulated Cochlear Implant Language Stimulation,” July 1, 2002 - June 30, 2003, \$31,330.
- [7] Principal Investigator (no co-PIs), American Hearing Research Foundation Grant, “Simulation and Evaluation of a Novel Rehabilitation Scheme for Cochlear-Implant Patients,” January 1, 2003 - December 31, 2003, \$18,000.
- [8] Consultant (PI: Jackson T. Gandour, Purdue), NIH/NIDCD R01 DC004585, “Functional Neuroimaging Studies of Speech Prosody,” January 1, 2003 - June 30, 2005, \$1,193,341 (Support: \$28,763).
- [9] Principal Investigator (no co-PIs), Indiana Radiology Associates, “Prof. Talavage support from IU Department of Radiology,” May 1, 2003 - December 31, 2006, \$103,140.
- [10] Co-Principal Investigator (PI: John A. Nyenhuis, Purdue), Rita Medical, “MRI Compatibility of Electrodes,” June 1, 2003 - August 30, 2004, \$7,000 (Support: \$3,000).

- [11] Principal Investigator (no co-PIs), PRF Research Grant, “Characterizing and Accounting for Acoustic Scanner Noise in Event-Related fMRI,” June 1, 2003 - May 31, 2005, \$27,978.
- [12] Principal Investigator (no co-PIs), Guidant Corporation, “Torque Measurement for Guidant Insignia I Plus Implantable Pulse Generator,” January 1, 2004 - December 31, 2004, \$4,533.
- [13] Subcontract Principal Investigator (PI: Elizabeth Thompson, IPFW), NIH/NIMH R21 MH068267, “Application of the STAP Algorithm to fMRI Data,” May 1, 2004 - April 30, 2006, \$241,413 (Subcontract: \$59,250).
- [14] Consultant (PI: Mario A. Svirsky, IUSM), NIH/NIDCD R01 DC003937, “Models of Speech Perception by Cochlear Implant Users,” September 1, 2004 - August 31, 2009, \$1,723,315 (Support: \$172,592).
- [15] Co-Investigator (PI: David A. Kareken and Gary D. Hutchins, IUSM), Eli Lilly, “Effects of AMPA potentiation on regional cerebral physiology, behavior and induced brain dysfunction: An exploratory, imaging study in healthy volunteers,” October 1, 2004 - September 30, 2005, \$450,000 (Support: \$5,000).
- [16] Co-Investigator (PI: David A. Kareken, IUSM), Alcoholic Beverage Medical Research Foundation, “Functional MRI of alcohol olfactory cues during IV ethanol infusion,” January 1, 2005 - December 31, 2005, \$50,000 (Support: \$5,000).
- [17] Co-Investigator (PI: Mario A. Svirsky, IUSM), Purdue University/Indiana University School of Medicine Collaboration in Biomedical Research Committee, “Perceptual Learning with a Distorted Sensory Input,” January 15, 2005 - December 31, 2006, \$50,000 (Support: \$19,831).
- [18] Co-Investigator (PI: Kenneth Byrd, IUSM), American Equilibration Society, “fMRI analysis in bruxers and non-bruxers,” March 1, 2005 - May 31, 2006, \$15,400 (Support: \$2,400).
- [19] Co-Investigator (PI: David A. Kareken, IUSM), NIH/NIAAA R01 AA014605, “fMRI of the mesolimbic dopamine system in risky drinkers,” August 10, 2005 - June 30, 2009, \$1,527,556 (Support: \$40,297).
- [20] Principal Investigator (co-PI: Charles A. Bouman, Purdue), NIH/NIBIB R01 EB003990, “Systematic Artifact Reduction in Auditory fMRI,” February 1, 2006 - January 31, 2011, \$1,333,244.
- [21] Co-Investigator (PI: Jeffrey Gilger, Purdue), American Psychological Foundation Esther Katz Rosen Grant, “A Neurodevelopmental Study of the Gifted and Twice Exceptional,” August 1, 2006 - July 31, 2009, \$75,000 (Support: \$18,750).
- [22] Principal Investigator (no co-PIs), NIH/NIBIB R03 EB004855, “fMRI Detection by Clustering Model Fitting Parameters,” August 1, 2007 - July 31, 2009, \$143,368.

- [23] Principal Investigator, Diversity Supplement to NIH/NIBIB R01 EB003990, “Systematic Artifact Reduction in Auditory fMRI,” March 7, 2007 - January 31, 2010, \$131,750.
- [24] Co-Investigator (PI: Amit Anand, IUSM), NIH/NIMH R01 MH075025, “Dysfunctional Cortico-Limbic Activity and Connectivity in Bipolar Disorder and Lithium Effects: An fMRI Study,” March 17, 2007 - February 28, 2011, \$1,215,523 (Support: \$44,365).
- [25] Principal Investigator (co-PI: Larry J. Leverenz, Purdue), Indiana State Department of Health, Indiana Spinal Cord and Brain Injury Research Fund (Grant #203753), "Predictive Modeling of Cognitive Impairment from Head Trauma in Collegiate Football Players," January 1, 2009 - December 31, 2010, \$120,000.
- [26] Investigator (PI: Jeff C. Ko, Purdue), Purdue University Discovery Park Seed Grant Program, “A New Method for Pain Assessment – functional MRI (fMRI) as a tool to assess acute and chronic pain in animals,” January 1, 2009 – December 31, 2011, \$50,000 (Support: \$25,000).
- [27] Principal Investigator, Indiana Clinical and Translational Sciences Institute Project Development Team Grant, “Optical Stimulation of the Auditory Nerve: Characterization of Response Properties for Alternative Cochlear Implant Design,” May 1, 2009 – April 30, 2010, \$3,500.
- [28] Principal Investigator (co-PIs: Charles A. Bouman, Eric A. Nauman, Larry J. Leverenz, Dennis A. Miller, Purdue), General Electric Healthcare, "Predictive Modeling of Cognitive Impairment from Head Trauma in Collegiate Football Players," July 1, 2009 – May 31, 2011, \$50,000.
- [29] Co-Principal Investigator (PI: Carol Boushey, Purdue), NIH/NCI U01 CA130784-04S1), “Improving Dietary Assessment Methods Using the Cell Phone and Digital Imaging,” August 1, 2010 – July 31, 2012, \$133,410 (Support: \$4,540).
- [30] Co-Principal Investigator (PI: Wayne Campbell, Purdue), American Egg Board, “Effect of Increased Protein Intake with Exercise on Markers of Systemic Inflammation, Metabolic Health Status and Skeletal Muscle Adaptation in Older Adults,” January 1, 2011 – December 31, 2012, \$164,856 (Support: \$36,060).
- [31] Principal Investigator, Indiana Clinical and Translational Sciences Institute, Core Facilities Grant, “Assessment of Cognitive Function as a Possible Biomarker of Mild Traumatic Brain Injury,” July 1, 2011 – June 30, 2012, \$9,600.
- [32] Principal Investigator (co-PI: Larry J. Leverenz, Purdue), Indiana Clinical and Translational Sciences Institute, Spinal Cord and Brain Injury Research Fund (SCBI 207-5), “Predictive Modeling of Cognitive Impairment from Head Trauma in High School Athletes,” August 1, 2011 – July 31, 2013, \$120,000.
- [33] Principal Investigator, PRF Research Grant, “Predictive Modeling of Cognitive Impairment from Head Trauma in High School Athletes,” October 1, 2011 – September 30, 2012, \$17,059.

- [34] Principal Investigator, MIT Lincoln Laboratory, “Multi-modal Early Detection Interactive Classifier (MEDIC) System for Mild Traumatic Brain Injury (TBI) Assessment,” July 17, 2012 – July 18, 2013, \$35,000.
- [35] Principal Investigator (co-PI: Ulrike Dydak, Purdue), Indiana Clinical and Translational Sciences Institute, Spinal Cord and Brain Injury Research Fund (SCBI 207-32), “MR Spectroscopic Quantification of Brain Injury in High School Athletes,” August 1, 2012 – July 31, 2014, \$115,320.
- [36] Investigator, OVPR Emerging Research Incentive Grant Program. “Next-Generation Orthobiologics for Joint Repair,” August 1, 2013 – May 31, 2016, \$300,000 (Support: \$14,430).
- [37] Principal Investigator, PRF Research Grant, “Quantification of Microbleeds in Functional Impairment of Collision-Sport Athletes,” August 15, 2013 – July 31, 2014, \$17,059.
- [38] Principal Investigator (co-PIs: Eric A. Nauman, Larry J. Leverenz, Purdue), General Electric Healthcare, "Enhanced Imaging of Neurotrauma Associated with Head Trauma in High School Collision Sports," December 15, 2013 – August 14, 2014, \$100,000.
- [39] Co-Principal Investigator (PI: Michael E. Singer, BrainScope, Inc.), GE-NFL Head Health Initiative Challenge #1, “Acute Concussion Triage Using Portable EEG Assessment Trained With Imaging Biomarkers of Injury,” May 1, 2014 – May 31, 2015, \$300,000.
- [40] Co-Principal Investigator (PI: Brenna McDonald, IUSM), Indiana Clinical and Translational Sciences Institute Neuroscience Strategic Research Initiative, “Multi-site Evaluation of the Role of Deep Brain Structures in Long-term Neurological Disorder After Traumatic Brain Injury,” August 1, 2014 – July 31, 2016, \$100,000 (Support: \$88,030).
- [41] Investigator (PI: Zhongming Liu, Purdue), NIH/NIMH R01 MH104402, “Multimodal Hyperspectral Imaging of Brain Activity and Connectivity,” August 1, 2014 – April 30, 2019, \$1,927,035 (Support: \$14,124).
- [42] Principal Investigator (co-PI: Eric A. Nauman, Purdue), Allied Milk Producers, “Nutritional Intervention for Repetitive Subconcussive Events,” August 1, 2016 – May 31, 2017, \$100,000.
- [43] Co-Principal Investigator (PI: Sharlene Newman, IU-Bloomington), Indiana Clinical and Translational Sciences Institute Collaboration in Translational Research Grant, “Neurological Consequences of Middle School Contact Sports Participation,” October 1, 2015 – September 30, 2017, \$62,398 (Support: \$24,898).
- [44] Co-Investigator (PI: Joaquin Goñi Cortes, Purdue), Discovery Park – Integrative Data Science Award, “Fingerprints of the Human Brain: A Data Science Perspective,” May 1, 2018 – May 1, 2020, \$135,000 (Support: \$25,000).

- [45] Principal Investigator, Stanford University, “Effect of Helmet Type and Lineman Stance on Brain Health in Professional-Level Football Athletes,” January 1, 2019 – May 31, 2019, \$39,960.
- [46] Principal Investigator (co-PI: Joaquin Goñi, Purdue), Indiana Clinical and Translational Sciences Institute, Core Facilities Grant, “Enhancement of Multi-Site DTI Connectome Estimate,” February 1, 2019 – January 31, 2020, \$10,000.
- [47] Co-Investigator (PI: Joseph Rispoli, Purdue), Indiana State Department of Health, “MRI Validation for ISDH HBOT Project,” June 5, 2019 – June 30, 2020, \$511,946 (Support: \$81,448).

Professional Society Activities:

Organization: IEEE (Institute of Electrical and Electronic Engineers)
 - Engineering in Medicine and Biology Society (EMBS)
 - Signal Processing Society
 - Eta Kappa Nu

Activity: Student Member, 1989 –1998
 Member, 1998 – 2011
 Senior Member, 2011 – Present

Positions:

- Co-Chair, Functional Neuroimaging Track, *26th Annual International Conference of the IEEE EMBS (2004)*
- Co-Chair, Neuroimaging Symposium, *26th Annual International Conference of the IEEE EMBS (2004)*
- Session Chair, *26th Annual International Conference of the IEEE EMBS (2004)*
- Judge, Student Paper Competition, *26th Annual International Conference of the IEEE EMBS (2004)*
- Judge, Student Design Competition, *26th Annual International Conference of the IEEE EMBS (2004)*
- Session Chair, *28th Annual International Conference of the IEEE EMBS (2006)*
- Associate Editor, Biomedical Imaging and Image Processing Track, *30th Annual International Conference of the IEEE EMBS (2008)*
- Associate Editor, Biomedical Imaging and Image Processing Track, *31st Annual International Conference of the IEEE EMBS (2009)*
- Associate Editor, Biomedical Imaging and Image Processing Track, *32nd Annual International Conference of the IEEE EMBS (2010)*
- Associate Editor, Biomedical Imaging and Image Processing Track, *33rd Annual International Conference of the IEEE EMBS (2011)*
- Associate Editor, Biomedical Imaging and Image Processing Track, *34th Annual International Conference of the IEEE EMBS (2012)*

- Technical Program Committee Member, Special Sessions Co-Chair, *International Symposium on Biomedical Imaging (ISBI)* 2011
- Board of Governors for IEEE-Eta Kappa Nu (2009 – 2012)
- Chair, Communications Committee (ad-hoc), IEEE-Eta Kappa Nu Board of Governors (2013)

Organization: ISMRM (International Society for Magnetic Resonance in Medicine)

Activity: Student Member, 1995 – 1998

Member, 1998 – present

Positions:

- Secretary, Current Issues in Brain Function Study Group, 2006-2007.
- Session Chair, *16th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine* (2008)
- Educational Session Moderator, *Absolute Beginner's Guide*, at the *19th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine* (2011)

Organization: OHBM (Organization for Human Brain Mapping)

Activity: Member, 1998 – present

Organization: ARO (Association for Research in Otolaryngology)

Activity: Member, 2002 – 2018

Organization: BMES (Biomedical Engineering Society)

Activity: Member, 2015 – 2017, 2020 – present

Organization: National Neurotrauma Society

Activity: Member, 2018 – present

PhD Thesis Supervision Completed (Primary Advisor):

| <i>Name</i> | <i>Date</i> | <i>Thesis Title</i> |
|-----------------------|-------------|--|
| J. Brandon Laflen | Dec. 2003 | “Measurement and Analysis of Perceptual Coding in the Human Auditory System: Multi-Modal Studies Using Neural Activation Patterns” |
| Gregory G. Tamer, Jr. | May 2005 | “Characterizing and Accounting for Acoustic Scanner Noise in Auditory Cortex Event-Related fMRI” |
| Ashish Rao | Aug. 2005 | “Model based estimation and detection of hemodynamic response in event-related fMRI” |

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| Sun Geun Kim | Aug. 2008 | “Neural correlates of visual and audio-visual perception using functional magnetic resonance imaging (fMRI)” |
| Javier Gonzalez Castillo | Dec. 2009 | “Application of Functional Magnetic Resonance Imaging to the Study of Language” |
| Shuowen Hu | Dec. 2009 | “Characterization and compensation of artifacts in functional magnetic resonance imaging” |
| Liang Liu | May 2010 | “Probability discriminant analysis for functional MRI and model-based tuning algorithm for MRI coil array” |
| Olumide Olulade | May 2010 | “Characterizing the Effect of Recent Acoustic History Properties on Auditory fMRI Responses” |
| Ruwan Ranaweera | Dec. 2010 | “Nonlinear Effects in Hemodynamic Response in Primary Auditory Cortex Associated with Temporal Patterns of Acoustic History” |
| Kihwan Han | May 2011 | “Methodologies to Enhance the Reliability of Functional MRI Analysis” |
| Andrea Snyder | Aug. 2011 | “Monitoring/Evaluating Disease States Using Functional Magnetic Resonance Imaging” |
| Daniel Aguiar | May 2012 | “Use of Computational Modeling of Auditory Nerve Activation Patterns for the Optimization of Cochlear Implant Electrical Stimulation Patterns” |
| Meghan Robinson | Dec. 2012 | “Functional Neuroimaging of Concussive and Sub-Concussive Head Injuries in High School Athletes and a Field Diagnostic for Detecting Them” |
| Christopher Smalt | Dec. 2012 | “Functional Magnetic Resonance Imaging (fMRI) of a Real-Time Cochlear Implant Acoustic Simulation and Auditory Modeling of the Medial Olivocochlear Efferent System” |
| Minseok Kwon | May 2014 | “Modification of Computational Auditory Scene Analysis (CASA) for Noise-Robust Acoustic Feature” |
| Victoria Poole | Aug. 2014 | “Magnetic Resonance Spectroscopy as a Tool to Track Sustained Neuro-metabolic Changes Indicating Impairment in High School Contact Sport Athletes” |

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| Il Yong Chun | Aug. 2015 | “Advances in Medical Imaging and Image Reconstruction” |
| Kausar Abbas | Aug. 2016 | “Effects of Concussive and Repetitive Subconcussive Injury in High School Football Athletes Using Resting State fMRI” |
| Trey Shenk | Dec. 2016 | “Functional MRI in the Presence of Repetitive, Sub-Concussive Impacts” |
| Diana Svaldi | Dec. 2016 | “Characterizing the Effects of Repetitive Head Trauma in Female Soccer Athletes for Prevention of Mild Traumatic Brain Injury” |
| Ikbeom Jang | May 2019 | “Diffusion Tensor Imaging Analysis for Subconcussive Trauma in Football and Convolutional Neural Network-Based Image Quality Assessment That Does Not Require a Big Dataset” |
| Sumra Bari | Aug. 2019 | “Advancements in Neuroimaging for Mild Traumatic Brain Injury and Multi-Site Reliability.” |
| Nicole Vike | Aug. 2019 | “Spectroscopic Investigation of a Novel Traumatic Brain Injury Biomarker and Analysis of Neurometabolic Changes in Youth American Football Athletes” (Co-advised by Professor Riyi Shi, BMS) |
| Andres Llico Gallardo | Aug. 2021 | "A Framework for the Development and Validation of Phenomenologically Derived Cochlear Implant Stimulation Strategies." (Co-advised by Professor George R. Wodicka, BME) |

PhD Thesis Supervision Completed (Co-Advisor):

| <i>Name</i> | <i>Date</i> | <i>Thesis Title</i> |
|----------------|-------------|---|
| John Kassebaum | May 2008 | “Application of Frequency Domain State-Space Analysis to Sleep” (Co-advisor with Professor Russell Eberhart, IUPUI ECE) |
| Lejian Huang | May 2009 | "Novel imaging-processing-based analysis of fMRI data" (Co-advisor with Professor Mary L. Comer, ECE) |

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| Catherine Strickland | Dec. 2009 | “Patient-specific three-dimensional geometric segmentation and model development for use with image-guided robotics systems for minimally invasive spine surgery” (Co-advisor with Professor Eric A. Nauman, ME) |
| Ching-Chih Wu | Dec. 2014 | “Current Steering and Electrode Spanning with Partial Tripolar Stimulation Mode in Cochlear Implants” (Co-advisor with Professor Xin Luo, SLHS) |
| M. Usman Sadiq | May 2017 | “Tomographic and Morphometric Reconstruction Analysis with Applications in Material Science and Neuroimaging” (Co-advisor with Professor Charles A. Bouman, ECE) |

Master’s Thesis Supervision Completed:

| <i>Name</i> | <i>Date</i> | <i>Thesis Title</i> |
|---------------------|-------------|--|
| Jared Brosch | Dec. 2000 | “Physiologic Noise Analysis in fMRI - Investigative Comparison Using Human Subject Data and Mechanically Induced Noise Data” |
| Ulas Ziyen | Dec. 2001 | “Removal of Respiratory Artifacts from fMRI Data” |
| James Pollaro | May 2003 | “Image Space Estimation and Removal of Undersampled Respiration Noise in Multi-Slice fMRI Data” |
| Eri Haneda | Aug. 2003 | “fMRI Evaluation of a Novel Rehabilitation Scheme for Cochlear-Implant Users” |
| Jeffrey Jackson | Aug. 2003 | “An MR-Compatible Computer Joystick Device: Design Approaches and Tradeoff Analysis” |
| Pranesh Thirukkonda | Aug. 2003 | “Simplified Model of Auditory Nerve Activation Patterns Induced by Cochlear Implants” |
| Gilbert Tseng | May 2004 | “Characterization of Acoustic Noise Generated by Magnetic Resonance Imaging” |
| Ruwan Ranaweera | May 2005 | “Time-Frequency Features in Electroencephalography for Brain-Computer Interfacing” |

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| Shrestha Basu Mallick | Dec. 2005 | “Technique for High Spatial Resolution, Focused Electrical Stimulation of Electrically-Excitable Tissue” (Physics; co-advised with Prof. Ian Shipsey) |
| Chad Lau | May 2006 | “Sensiomotor Integration in Dexterous Control of Objects with Precision Grip” (co-advised with Dr. Kristine Mosier, IUSM Department of Radiology) |
| Olumide Olulade | Aug. 2006 | “Characterizing the Effect of Acoustic Imaging Noise and Acoustic Time History in Auditory Cortex Functional Magnetic Resonance Imaging” |
| N. Ellen Taylor | May 2007 | “Evaluation of a Noiseband-Based Cochlear Implant Simulator” |
| Angela Hoffa | May 2008 | “fMRI of the Visual System for Application to Schizophrenia” |
| Joseph Santos | Dec. 2008 | "Novel Pre-Surgical Screening for Cochlear Implant Candidates" |
| Joshua Hayden | May 2009 | “Diffusion weighted imaging in auditory functional magnetic resonance imaging” |
| Minseok Kwon | Aug. 2009 | “Characterization of acoustic imaging noise-induced hemodynamic response as a function of noise intensity in human auditory cortex fMRI at 3.0T” |
| Josh Speciale | May 2010 | “Sparse Representation of Parallel MRI Reconstruction” |
| Peter McKinnis | Aug. 2010 | “Analysis of Respiration Compensation Techniques in fMRI” |
| Allan Diaz | Dec. 2013 | “Detection of Brain Abnormalities in Football Players through Diffusion Weighted Imaging” |
| Aditya Balasubramanian | May 2014 | “Developing a Hardware Platform for a Low-Power, Low-Cost, Size-Constrained Biomechanical Telemetry System” |
| Blaine Gardner | May 2014 | “Developing an Embedded System Solution for High-speed, High-capacity Data Logging for a Size-constrained, Low-power, Biomechanical Telemetry System and Investigating Components for Optimal Performance” |

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| Brandon Coventry | Aug. 2014 | “Particle Swarm Optimization Using Multiple Neighborhood Connectivity and Winner Take All Activation Applied to Biophysical Models of Inferior Colliculus Neurons” (co-advised with Prof. Edward Bartlett, Biomedical Engineering) |
| Jeffery King | Dec. 2014 | “Developing a Practical Wireless Monitoring Solution for a Size Constrained, Low-Power, Biomechanical, Sports Telemetry System” |
| Chetas Joshi | May 2015 | “Cerebrovascular Reactivity Alterations Due to Subconcussive Repetitive Head Trauma in Asymptomatic High School Football Athletes” |
| Xianglun Mao | May 2015 | “Individual Analysis of T2*-Weighted Gradient Echo Imaging in Asymptomatic and Symptomatic Athletes” |
| Hyung Suk Kim | Dec. 2016 | “Implementing a Wireless Monitoring Solution for a Biomechanical Telemetry System” |
| Soon Ho Kwon | Dec. 2016 | “Improvement of a Biomechanical Telemetry System Hardware Platform” |
| Xiaoyu Ji | May 2021 | "Effects on Seed-Based Resting State FMRI of One Season of Exposure to Middle School and High School Football Subconcussive Head Accelerations" |
| Ruihong Lyu | May 2021 | "Seed-Based Analysis on Multi-Site Reliability of Resting State FMRI Data" |
| Somosmita Mitra | Aug. 2021 | "Multiplanar Conditional Generative Adversarial Networks" |

Master’s and PhD Thesis Students Currently Being Supervised:

| <i>Name</i> | <i>Degree</i> | <i>Status</i> |
|------------------|---------------|---|
| Brad Fitzgerald | Ph.D. | (Began August 2018; ECE; passed QE) |
| Pratik Kashyap | Ph.D. | (Began August 2014; ECE; passed QE, prelim) |
| Antonia Susjnar | Ph.D. | (Began August 2019; PULSe; Co-advisor with Prof. Joseph Rispoli, BME) |
| T. Arthur Terlep | Ph.D. | (Began January 2019; ECE; passed QE; Co-advisor with Prof. Mark R. Bell, ECE) |

Graduate Research Project Course Supervision:

| <i>Name</i> | <i>Proj. Type</i> | <i>Date</i> | <i>Title</i> |
|-----------------|-------------------|------------------------------------|--|
| Allene Manning | EE 696 | Dec. 1998 | “Functional Magnetic Resonance Imaging” |
| Teju Prasad | ECE 696 | Dec. 2000 | “Auditory fMRI” |
| Delphina Han | ECE 696 | May 2001 | “Auditory fMRI” |
| P. Thirukkonda | ECE 696 | May 2002 | “fMRI of Hearing and Language” |
| Yi-Shao Liu | ECE 696 | Dec. 2002 | “fMRI Noise Cancellation” |
| Chih-Hsin Huang | ECE 696 | Dec. 2003 | “Generation of acoustic stimuli from a modeled cochlear implant-induced neural activation pattern” |
| Martin Beckmann | ECE 696 | Dec. 2008 | “MRI Pulse Sequence Programming” |
| Ching-Chih Wu | ECE 696 | Dec. 2008 | “Cochlear Implant Simulation” |
| Candice Gentry | BME 696 | Dec. 2009 May 2010 Dec. 2010 | “Functional MRI” |
| Nate Elder | ECE 696 | May 2011 | “fMRI of Visual Perception” |
| Thilo Balke | ECE 696 | May 2015 | “MRI in Neurotrauma” |

Undergraduate Research Project Course Supervision:

| <i>Name</i> | <i>Proj. Type</i> | <i>Date</i> | <i>Title</i> |
|-------------------|-------------------|-----------------------|---|
| Jared Brosch | EE 496 | Dec. 1998 May 1999 | “fMRI Analysis Tools” “fMRI Data Analysis” |
| Arjun Sinha | EE 496 | Dec. 1999 | “Auditory Cortex Interconnectivity” |
| Ashish Tiwari | EE 496 | Dec. 1999 | “Magnetic Resonance Imaging Simulation” |
| W. Aaron Kay | EE 496 | May 2000 | “Overview of the Olfactory System” |
| Christopher Hiatt | ECE 496 | Dec. 2000 | “Functional Magnetic Resonance Imaging” |
| G.K. Viswanathan | ECE 496 | Dec. 2000 | “Auditory fMRI” |
| Jeffrey Jackson | ECE 496 | Dec. 2000 | “MRI Controller” |
| Gilbert Tseng | ECE 496 | Dec. 2000 | “MRI Controller” |

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|-------------------|---------|------------------------------------|--|
| James Telecsan | ECE 496 | Dec. 2000 | “MRI Controller” |
| James Pollaro | ECE 496 | May 2001 | “MRI Controller” |
| Eric Tkaczyk | ECE 496 | May 2001 | “MRI Simulator” |
| Daniel Dickinson | ECE 496 | Aug. 2001 | “Optical Joystick” |
| Erik Douglas | ECE 496 | Dec. 2001 | “fMRI of Nonsense Words” |
| Bryce Lobdell | ECE 496 | May 2002 | “MATLAB Simulation of MRI” |
| Stephen Cauley | ECE 496 | May 2002 May 2003 | “Event-Related fMRI Analysis” |
| Michael Parker | ECE 496 | May 2002 | “Conversion of Data for Use with the Talairach Coordinate System” |
| Jeremy Nethercutt | ECE 496 | Aug. 2002 May 2003 Dec. 2003 | “MRI Cortex Reconstruction” |
| Nick Anderson | ECE 496 | Dec. 2002 | “fMRI Joystick Optics” |
| Santiago Duarte | ECE 496 | Dec. 2002 | “fMRI of Language” |
| Xiaobo Shi | ECE 496 | Dec. 2002 May 2003 | “fMRI Noise Cancellation” “Noise Cancellation Analysis” |
| Fan Lee | ECE 496 | Aug. 2003 Dec. 2003 | “Simulation of CI Stimulation” “Auditory Nerve Modeling” |
| Stephen Foldes | ECE 496 | Dec. 2003 | “Waveguide Stimulation” |
| Ka Ki Ng | ECE 496 | May 2005 | “Investigating Trial Location Variability in ER-fMRI of Visual Cortex” |
| Himani Shah | ECE 496 | Dec. 2005 | “fMRI of Motion Perception” |
| Akshay Kothari | ECE 496 | May 2006 | “fMRI Respiration Compensation” |
| Eric Naglich | ECE 496 | May 2006 | “Practical Guide to the Design of a 1.5 Tesla Receive-Only Auditory Cortex MRI coil” |
| Dan Gazanfari | ECE 496 | Aug. 2007 Aug. 2008 | “Cochlear Implants” “Evaluation of Acoustic Simulations of Cochlear Implants” |
| Meenal Patel | BME 498 | May 2008 | “Functional MRI of the Auditory Cortex” |

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|------------------|----------------------------------|------------------------------------|--|
| | | Dec. 2008 | "fMRI of Auditory System" |
| Namita Agrawal | BME 296 | Dec. 2008 | "fMRI of Audio-Visual Integration" |
| Tiffany Sukwanto | ECE 496 | Dec. 2008 | "Functional MRI Research" |
| Sukyoun Choi | ECE 496 | May 2010 | "Functional MRI Applications" |
| Alexander Gaul | ECE 496 | May 2010 Dec. 2010 | "fMRI Analysis" |
| Keith Mier | ECE 496 | May 2010 | "fMRI Analysis" |
| Allan Diaz | ECE 496 | Aug. 2011 | "Parallel Imaging Reconstruction" |
| Jeff King | ECE 496 | Dec. 2011 May 2012 Dec. 2012 | "Football Telemetry" "Sports Telemetry" |
| Paul Rosenberger | ECE 496 | Dec. 2011 May 2012 | "Football Telemetry" "Sports Telemetry" |
| Ashley Eidsmore | ECE 496 | May 2012 | "Sports Telemetry" |
| Jake Gilfix | ECE 496 | May 2012 | "Sports Telemetry" |
| Xiaodong Li | ECE 496 | May 2012 | "MRI of Brain Trauma" |
| Caroline Trippel | ECE 496 | May 2012 | "Laser Excitation of Tissue" |
| Wudi Zhou | ECE 496 | May 2012 | "Sports Telemetry" |
| Zheyang Zhu | ECE 496 | May 2012 Aug. 2012 | "fMRI of Sports Injury" |
| JunSang Jin | ECE 496 | Dec. 2012 | "MRI of MTBI" |
| Sheik Dawood | ECE 496 | May 2013 | "fMRI of mTBI" |
| Hannah Prost | BIOL 294 BIOL 494 BIOL 494 | May 2013 Dec. 2013 May 2014 | "fMRI of mTBI" |
| Ruofei Chen | ECE 496 | May 2013 Dec. 2013 | "DTI of mTBI" |
| Sijia Qiu | ECE 496 | May 2013 Dec. 2013 | "DTI of mTBI" "Imaging of mTBI" |
| Michael Reutman | ECE 496 | Dec. 2013 | "MRI of mTBI" |
| Soon Ho Kwon | ECE 496 | May 2014 Aug. 2014 Dec. 2014 | "MRI Image Analysis" "Telemetry Analysis" "Impact Telemetry" |

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|----------------------|--------------------|------------------------------------|--|
| Hyung Suk Kim | ECE 496 | Aug. 2014 Dec. 2014 | “Telemetry Analysis” “Wireless Telemetry” |
| Ali Alrashoudi | ECE 296 | Dec. 2014 May 2015 Aug. 2015 | “Telemetry and Imaging” “Wireless Telemetry” “Neurotrauma Imaging” |
| Allen Chien | ECE 496 | Dec. 2014 May 2015 Dec. 2015 | “Wireless Telemetry” |
| Mikhiel Desai | ECE 296 | Dec. 2014 May 2015 Dec. 2015 | “Impact Telemetry” “Wireless Telemetry” |
| Sahil Sanghani | ECE 496 | Dec. 2014 | “Wireless Telemetry” |
| Chase Haddix | BME 296 BME 498 | May 2015 Dec. 2015 | “Optical Nerve Stim” |
| Shuhui Tang | ECE 496 | May 2015 | “Telemetry and Imaging” |
| Rui Tian | ECE 496 | May 2015 Dec. 2015 | “Telemetry and Imaging” “TBI Neuroimaging” |
| Matt Leiter | ECE 496 | May 2015 | “Telemetry Apps” |
| Aaron Anderson | ECE 496 | May 2017 | “MRI Joystick” |
| Lucas Miller | ECE 496 | Dec. 2017 | “MRI Joystick” |
| Eva Highberg | BIOL 294 | Dec. 2018 | “Imaging of Brain Injury” |
| Poshitha Bandrupalli | ECE 296 | May 2019 | “Neuroimaging of TBI” |
| Nicky Marino | ECE 496 | May 2019 | “Data Modeling for TBI” |
| Mitch Arndt | ECE 496 | May 2020 | “Football Impact Monitoring” |

Summer Undergraduate Research Experience Supervision:

| <i>Name</i> | <i>Institution</i> | <i>Program</i> | <i>Duration</i> |
|-----------------|--------------------|----------------|-----------------|
| Kelly Bratic | Univ. Pittsburgh | REU (BME) | May-Aug 2001 |
| Alex Espinosa | Rose-Hulman | REU (BME) | May-Aug 2002 |
| Karen Hardy | Kettering Univ. | REU (BME) | May-Aug 2003 |
| N. Ellen Taylor | Rose-Hulman | REU (BME) | May-Aug 2004 |
| Adeshola Lawal | Univ. Minnesota | SURF (ECE) | May-Aug 2005 |
| Joseph Santos | UPR-Mayaguez | SURF (ECE) | May-Aug 2005 |

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|-------------------|--------------------|---------------------------------------|--|
| Angela Hoffa | Purdue Univ. | REU (BME) SURF (BME) SURF (BME) | May-Aug 2005 May-Aug 2006 May-Aug 2007 |
| Rachel Lenhart | Univ. Tennessee | REU (BME) | May-Aug 2006 |
| Matteo Mannino | Purdue Univ. | SURI (ECE) | May-Aug 2006 |
| Mehmet Gunal | Purdue Univ. | SURF (ECE) | May-Aug 2006 |
| Namita Agrawal | Purdue Univ. | SURF (BME) | May-Aug 2008 |
| Hecmarie Melendez | UPR-Piedras | SROP (BME) | May-Jul 2011 |
| Samantha Tulisiak | St. Mary's College | HHMI (BME) | May-Jul 2011 |
| Daniel Wodicka | Johns Hopkins | SURF (BME) | May-Aug 2011 |
| Paul Rosenberger | Purdue Univ. | SURF (ECE) | May-Aug 2012 |

Courses Developed:

- Purdue University
 - BME/ECE 528 — Measurement and Stimulation of the Nervous System (2002)
 - ECE 695T/BME 695R — Magnetic Resonance Imaging (2008)
 - BME 595 — Functional MRI Applications (RET Module; 2009)
 - BME 595 — Medical Imaging and Diagnostic Technology (2013)
 - ECE 20002 — EE Fundamentals II (2018)

Courses “In Charge Of”:

- Purdue University
 - ECE 255 — Electronic Devices Analysis and Design (1999–2014)
 - ECE 400 — ECE Senior Seminar (2003–2007)
 - ECE 520 — Topics in Bioengineering (1998–2004)
 - ECE 528 — Measurement and Stimulation of the Nervous System (2002–2013)
 - BME 595 — Functional MRI Applications (2009–2010)
 - ECE 695T — Magnetic Resonance Imaging (2008–2012)

School Committee Activities:

- Committee: ECE Qualifying Exam Committee
Activity: Member, 1998 – 2000
Member, 2002 – 2004
Member, 2007 – 2018
- Committee: ECE Curriculum Committee
Activity: Member, 1999 – 2002

- Committee: BME Curriculum Committee
Activity: Member, 2003 – 2008
- Committee: ECE Graduate Committee
Activity: Member, 2004 – 2007
Chair, 2018 – 2020
- Committee: BME MD/PhD Committee
Activity: Chair, 2005 – 2010
Member, 2010 – 2017
- Committee: ECE External Review Committee (Ad Hoc)
Activity: Member, 2005 – 2006
- Committee: ECE Strategic Planning Committee
Activity: Member, 2007 – 2009
- Committee: BME External Review Committee (Ad Hoc)
Activity: Member, 2008 – 2009
- Committee: BME Graduate Committee
Activity: Chair, 2011 – 2017

Engineering-Wide Committee Activities:

- Committee: First Year Engineering
Activity: Member (BME), 2003 – 2009
- Committee: Faculty Affairs Committee
Activity: Member (ECE), 2010 – 2013
- Committee: Engineering Area Primary Committee
Activity: Member (BME), 2017 – 2020

University-Wide Committee Activities:

- Committee: Healthcare Engineering Signature Area Committee
Activity: Member (BME), 2006 – 2015
- Committee: Computational Life Sciences Graduate Program Committee
Activity: Member (ECE), 2007 – 2016
- Committee: University Senate
Activity: Member (ECE), 2013 – 2016

Research Book Contributions and Books Published:

- [1] J.R. Melcher, **T.M. Talavage** and M.P. Harms, “Functional MRI of the Auditory System,” Chapter 32 in *Functional MRI*, C.T.W. Moonen, P.A. Bandettini, eds., Springer-Verlag, Mauer, Germany, 1999.
- [2] **T.M. Talavage**, I.S. Johnsrude and J. Gonzalez-Castillo, “Hemodynamic Imaging: Functional Magnetic Resonance Imaging,” Chapter 6 in *Springer Handbook of Auditory Research, Vol. 43: The Human Auditory Cortex*, D. Poeppel, T. Overath, A. Popper, R. Fey, eds., Springer-Verlag, Mauer, Germany, 2012.
- [3] E.A. Nauman and **T.M. Talavage**, “Subconcussive Trauma,” Chapter 24 in *Handbook of Clinical Neurology, Vol. 158: Sports Neurology*, B. Hainline, R.A. Stern, eds., Elsevier, Amsterdam, Netherlands, 2018.
- [4] B. Cappuccilli, N. Leiva-Molano, **T.M. Talavage** and E.A. Nauman, "The Role of Playing Surfaces in Mitigating the Deleterious Effects of Head Impacts in Field Sports," Chapter 7 in *Concussions in Athletics – From Brain to Behavior, 2nd ed.*, S.M. Slobounov and W.J. Sebastianelli, eds., Springer-Verlag, Mauer, Germany, 2021.
- [5] **T.M. Talavage**, E.A. Nauman and T.A. Lee, "Multi-Modal Approaches to Preventing Asymptomatic Repetitive Head Injury in Adolescent Athletes," Chapter 17 in *Concussions in Athletics – From Brain to Behavior, 2nd ed.*, S.M. Slobounov and W.J. Sebastianelli, eds., Springer-Verlag, Mauer, Germany, 2021.

Serial Journal Articles:

- [1] P. W. Woodruff, R. R. Benson, P. A. Bandettini, K. K. Kwong, R. J. Howard, **T. Talavage**, J. Belliveau, and B. R. Rosen, “Modulation of auditory and visual cortex by selective attention is modality-dependent,” *NeuroReport*, vol. 7, no. 12, pp. 1909-13, Aug 1996, 10.1097/00001756-199608120-00007.
- [2] A. R. Guimaraes, J. R. Melcher, **T. M. Talavage**, J. R. Baker, P. Ledden, B. R. Rosen, N. Y. Kiang, B. C. Fullerton, and R. M. Weisskoff, “Imaging subcortical auditory activity in humans,” *Human Brain Mapping*, vol. 6, no. 1, pp. 33-41, Jul 1998, 10.1002/(SICI)1097-0193(1998)6:1<33::AID-HBM3>3.0.CO;2-M.
- [3] R. R. Benson, D. B. FitzGerald, L. L. LeSueur, D. N. Kennedy, K. K. Kwong, B. R. Buchbinder, T. L. Davis, R. M. Weisskoff, **T. M. Talavage**, W. J. Logan, G. R. Cosgrove, J. W. Belliveau, and B. R. Rosen, “Language dominance determined by whole brain functional MRI in patients with brain lesions,” *Neurology*, vol. 52, no. 4, pp. 798-809, Mar 1999, 10.1212/WNL.52.4.798.
- [4] **T. M. Talavage**, W. B. Edmister, P. J. Ledden, and R. M. Weisskoff, “Quantitative assessment of auditory cortex responses induced by imager acoustic noise,” *Human Brain Mapping*, vol. 7, no. 2, pp. 79-88, Feb 1999, 10.1002/(SICI)1097-0193(1999)7:2<79::AID-HBM2>3.0.CO;2-R

- [5] W. B. Edmister, **T. M. Talavage**, P. J. Ledden, and R. M. Weisskoff, “Improved auditory cortex imaging using clustered volume acquisitions,” *Human Brain Mapping*, vol. 7, no. 2, pp. 89-97, Feb 1999, 10.1002/(SICI)1097-0193(1999)7:2<89::AID-HBM2>3.0.CO;2-N.
- [6] **T. M. Talavage**, P. J. Ledden, R. R. Benson, B. R. Rosen, and J. R. Melcher, “Frequency-dependent responses exhibited by multiple regions in human auditory cortex,” *Hearing Research*, vol. 150, no. 1-2, pp. 225-44, Dec 2000, 10.1016/S0378-5955(00)00203-3.
- [7] J. R. Brosch, **T. M. Talavage**, J. L. Ulmer, and J. A. Nyenhuis, “Simulation of human respiration in fMRI with a mechanical model,” *IEEE Transactions on Biomedical Engineering*, vol. 49, no. 7, pp. 700-7, Jul 2002, 10.1109/TBME.2002.1010854.
- [8] X. Li, J. Gandour, **T. Talavage**, D. Wong, M. Dzemidzic, M. Lowe, and Y. Tong, “Selective attention to lexical tones recruits left dorsal frontoparietal network,” *NeuroReport*, vol. 14, no. 17, pp. 2263-6, Dec 2003, 10.1097/01.wnr.0000097045.56589.31.
- [9] **T. M. Talavage**, M. I. Sereno, J. R. Melcher, P. J. Ledden, B. R. Rosen, and A. M. Dale, “Tonotopic organization in human auditory cortex revealed by progressions of frequency sensitivity,” *Journal of Neurophysiology*, vol. 91, no. 3, pp. 1282-96, Mar 2004, 10.1152/jn.01125.2002.
- [10] **T. M. Talavage**, and W. B. Edmister, “Nonlinearity of FMRI responses in human auditory cortex,” *Human Brain Mapping*, vol. 22, no. 3, pp. 216-28, Jul 2004, 10.1002/hbm.20029.
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- [26] S. Hu, O. Olulade, J. Gonzalez-Castillo, J. Santos, S. Kim, G. G. Tamer, Jr., W. M. Luh, and **T. M. Talavage**, "Modeling hemodynamic responses in auditory cortex at 1.5 T

- using variable duration imaging acoustic noise,” *Neuroimage*, vol. 49, no. 4, pp. 3027-38, Feb 2010, 10.1016/j.neuroimage.2009.11.051.
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Submitted Serial Journal Articles:

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- [2] N.L. Vike, S. Bari, K. Stetsiv, L. Papa, E.A. Nauman, **T.M. Talavage**, S. Slobounov and H.C. Breiter, "Metabolomic measures of altered energy metabolism mediate the relationship of inflammatory miRNAs to motor control in collegiate football athletes."
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- [280] T.M. Talavage, T. Lee, R. Lycke and E. Nauman, “Necessity for Personalized Sensor Systems for Accurate Measurement of Head Acceleration Events in Youth Contact Sports,” *NeuroTrauma 2018*, Toronto, Canada, 11-16 August, 2018.

- [281] Y. Zou, T. Lee, R.J. Lycke, I. Jang, N.L. Vike, E.A. Nauman, T.M. Talavage and J.V. Rispoli, “High-G head collisions are associated with short-term white matter microstructural deficits in high school football athletes,” *NeuroTrauma 2018*, Toronto, Canada, 11-16 August, 2018. {**Oral Presentation**}
- [282] I. Jang, T. Lee, T.E. Shenk, V.N. Poole, E.A. Nauman, L.J. Leverenz and T.M. Talavage, “Low-Magnitude Hits Matter: Single-Season Longitudinal DTI Study on Asymptomatic High School Football Players,” *27th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine*, Montreal, Quebec, Canada, 10-13 May, 2019. {**E-Poster**}
- [283] M. Bhomia, S. Slobounov, H. Breiter, A. Walter, T. Brean, P. Seidenberg, J. Bailes, S. Bravo, B. Johnson, D. Kaufman, D. Molfese, T. Talavage, D. Zhu, B. Knollmann-Ristchel and L. Papa, “Elevated werum microRNA levels correlates with neurocognitive outcomes after sports concussion,” *NeuroTrauma 2019*, Pittsburgh, PA, 29 June-3 July, 2019, #B05-05.
- [284] A.F. Llico and T.M. Talavage, “Improved Neural Responses in Cochlear Implants Using a Physiologically Based Stimulation Strategy: Preliminary Results,” *43rd MidWinter Meeting of the Association for Research in Otolaryngology*, San Jose, CA, 25-29 January, 2020.
- [285] P. Kashyap and T.M. Talavage, “Region based T1-weighted MRI volumetric changes in high school contact sport athletes,” *15th Annual NABIS Conference on Brain Injury (ABI2020)*, New Orleans, LA, 26-29 February, 2020.
- [286] S. Bari, N. Vike, E. Nauman, J. Goñi and T. Talavage, “Brain Fingerprint Analysis using resting state fMRI in Asymptomatic High-School Football Athletes,” *The 26th Annual Meeting of the Organization for Human Brain Mapping (Virtual Conference)*, 23 June-3 July, 2020, #1193.
- [287] S. Mitra, S. Bari, T. Talavage and C. Brinton, “Generative Adversarial Networks to Model Scanner Noise for Improving Multi-Site Data Harmonization,” *The 26th Annual Meeting of the Organization for Human Brain Mapping (Virtual Conference)*, 23 June-3 July, 2020, #1250.
- [288] B. Fitzgerald, S. Bari, T.A. Terlep and T. Talavage, “Towards site-to-site harmonization of T1-weighted MRI,” *The 26th Annual Meeting of the Organization for Human Brain Mapping (Virtual Conference)*, 23 June-3 July, 2020, #1581.
- [289] T.A. Terlep, S. Bari, B. Fitzgerald and T. Talavage, “Assessment of Site-to-Site Constant Differences in Resting-State Functional Connectomes,” *The 26th Annual Meeting of the Organization for Human Brain Mapping (Virtual Conference)*, 23 June-3 July, 2020, #1259.
- [290] J. Yao, H.C. Yang, J. Wang, Z. Liang, N. Vike, T. Lee, J. Rispoli, E. Nauman, T. Talavage and Y. Tong, “Multi-perfusion Information to Assess the Impact of Sub-concussive on High School Football Players,” *The 26th Annual Meeting of the*

Organization for Human Brain Mapping (Virtual Conference), 23 June-3 July, 2020, #2130.

- [291] J. Yao, B. Fitzgerald, C. Clark, T. Talavage, B. Frederick and Y. Tong, "Studying the Dynamic Pattern of Low Frequency Oscillation in RS-fMRI Data Using a Carpetplot," *The 26th Annual Meeting of the Organization for Human Brain Mapping (Virtual Conference)*, 23 June-3 July, 2020, #2133.
- [292] B.S. Coventry, J.T. Sick, T.M. Talavage, K.M. Stantz and E.L. Bartlett, "Short-wave Infrared Neural Stimulation Drives Graded Sciatic Nerve Activation Across a Continuum of Wavelengths," *42nd Annual International IEEE EMBS Conference*, 20 July 2020, pp. 3581-3585.
- [293] Y. Zou, W. Zhu, H.C. Yang, N.L. Vike, D.O. Svaldi, T.E. Shenk, V.N. Poole, G.G. Tamer, Jr., L.J. Leverenz, U. Dydak, E.A. Nauman, T.M. Talavage and J.V. Rispoli, "Development of an unbiased population-specific brain atlas for adolescent collision-sport athletes," *28th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (Virtual Conference)*, 8-13 August, 2020, #1784.
- [294] B. Fitzgerald, K. Abbas, T. Talavage, and J. Goni, "Improving T1-weighted MRI brain images by optimizing differential identifiability," *29th Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine*, 15-20 May 2021.

Invited Lectures:

- [1] "Functional Magnetic Resonance Imaging of Sensory Systems," Anatomy Seminar Series, Department of Anatomy, Indiana University School of Medicine, Indianapolis, IN, April 1, 1999.
- [2] "Auditory fMRI: Neurophysiology and Applications to Language Perception," DeVault Otologic Research Laboratory, Indiana University School of Medicine, Indianapolis, IN, May 16, 2000.
- [3] "Use of fMRI for the Study of Audition and Language Perception," Speech Research Laboratory, Indiana University, Bloomington, IN, February 8, 2002.
- [4] "Medical Imaging Research Activities at Purdue University," General Electric Medical Systems, Applied Sciences Laboratory, Waukesha, WI, March 1, 2002.
- [5] "Current ECE Research in Medical Imaging at Purdue University," General Electric Medical Systems, Applied Sciences Laboratory, Waukesha, WI, February 27, 2004.
- [6] "fMRI Evaluation of a Novel Cochlear Implant Rehabilitation Strategy: Improving Adaptation to Basalward Shift for Speech Perception in CI Users," General Electric Medical Systems, Applied Sciences Laboratory, Waukesha, WI, February 27, 2004.
- [7] "Auditory fMRI: Results, Problems and Solutions," Speech Research Laboratory, Indiana University, Bloomington, IN, December 14, 2004.

- [8] “Auditory Neuroscience with fMRI: Problems and Solutions,” Biophysics Seminar Series, Department of Biophysics, Medical College of Wisconsin, Milwaukee, WI, March 4, 2005.
- [9] “Auditory fMRI: Neurophysiology to Perception,” Grand Rounds, Department of Otolaryngology-Head and Neck Surgery, University of Cincinnati College of Medicine, Cincinnati, OH, March 9, 2005.
- [10] “Brain Mapping of Frequency Tonotopy in the Auditory Cortex,” *Workshop on the Functional Organization of the Laminar Structure of the Auditory Cortex*, Johns Hopkins University, Baltimore, MD, February 4, 2006.
- [11] “Auditory Neuroengineering,” MD/PhD Seminar Series, Indiana University School of Medicine, Indianapolis, IN, March 23, 2006.
- [12] “fMRI of Auditory Neurophysiology: Tonotopy and Related Issues,” Department of Biomedical Engineering, Illinois Institute of Technology, Chicago, IL, October 20, 2006.
- [13] “Inverse and Iterative Solutions in Neuroimaging and Neuroscience,” MIND Institute, Albuquerque, NM, December 7, 2007.
- [14] “Audio-Visual Integration Benefit During Degraded Speech Perception: Behavioral Measures from an fMRI Study,” Speech Research Laboratory, Indiana University, Bloomington, IN, April 4, 2008.
- [15] “Neuroimaging at Purdue: A Vision for the Future,” *2nd Annual Indiana Neuroimaging Symposium*, Indianapolis, IN, April 25, 2008.
- [16] “Inverse Solutions: The Purdue MRI Facility and You,” *3rd Annual Purdue/Korean Institute of Science and Technology Global Research Laboratory Symposium*, Seoul, South Korea, June 2, 2008.
- [17] “Neuroimaging Correlates of Neurocognitive Evaluation of High School Football Players,” *Purdue University-University of Pittsburgh Medical Center Summit on Concussion in Sports*, West Lafayette, IN, February 28, 2010. [Talavage]
- [18] “Neuroimaging Correlates of Neurocognitive Evaluation of High School Football Players,” Department of Radiology, Wayne State University, Detroit, MI, April 20, 2010. [Talavage]
- [19] “Functional Impairments in High School Football Players: How do we detect occult injury and minimize future risk?” Center for the Study of Learning, Georgetown University, Washington, D.C., November 3, 2010. [Talavage]
- [20] “Functional Impairments in High School Football Players: How do we detect occult injury and minimize future risk?” Section on Functional Imaging Methods, NIMH, NIH, Washington, D.C., November 4, 2010. [Talavage]
- [21] “Neurological Impairment in Football Players: Detecting injury and minimizing future risk,” *Research in 5*, Purdue University Science Journalism Laureates Reception, West Lafayette, IN, November 4, 2010. [Nauman (for Talavage)]

- [22] “Predictive Modeling of Cognitive Impairment from Head Trauma,” *The 63rd Annual Eastern Athletic Trainers’ Association Convention*, Philadelphia, PA, January 10, 2011. [Breedlove (for Talavage)]
- [23] “Use of Computer-Based Neurocognitive Testing to Identify Impairments in Patients Without Symptoms,” *2011 Big Sky Athletic Training and Sports Medicine Conference*, Big Sky, MT, February 1, 2011. [Leverenz, Talavage (for Nauman)]
- [24] “Use of Computer-Based Neurocognitive Testing to Identify Impairments in Patients Without Symptoms,” Kiwanis Club, West Lafayette, IN, February 24, 2011. [Leverenz, Nauman, Talavage]
- [25] “Can We Play Football Safely? Lessons learned from studying High School football players,” Carmel Chamber of Commerce, Carmel, IN, March 9, 2011. [Talavage, Breedlove]
- [26] “Can We Play Football Safely? Lessons learned from studying High School football players,” *Science on Tap Lafayette*, Lafayette, IN, April 21, 2011. [Leverenz, Nauman, Talavage]
- [27] “Neurology and Neurotrauma Research at Purdue,” *Big Ten/CIC Head Injury Summit*, Chicago, IL, April 30, 2011. [Nauman, Leverenz, Talavage]
- [28] “Neuroimaging of Concussive and Subconcussive Injury: Probing Neurological Health in High School Athletes,” *Speech and Hearing Biosciences Technology Program Seminar*, MIT-Harvard Division of Health Sciences and Technology, Cambridge, MA, May 31, 2011. [Talavage]
- [29] “Acute Head Injury: Biomechanics,” *21st Annual Practical Pediatrics for the Primary Care Physician*, St. Paul, MN, September 16, 2011. [Talavage]
- [30] “How Many Hits is Too Many? Head Collisions in High School Football,” *Silicon Valley Symposium*, San Francisco, CA, September 28, 2011. [Talavage]
- [31] “CRASH: High School Football Head Injuries,” *Purdue University President’s Council “Back to Class,”* September 30, 2011. [Leverenz, Nauman, Talavage]
- [32] “Subconcussive Blows in High School Football: Identifying the Problem,” Lafayette Rotary Club, West Lafayette, IN, October 4, 2011. [Leverenz, Talavage]
- [33] “Biomechanical Linkage of History of Head Collisions to Neurophysiological Impairments in High School Athletes,” *2011 Big Sky Athletic Training and Sports Medicine Conference*, Big Sky, MT, February 2, 2012. [Talavage, Nauman]
- [34] “Neuroimaging of Concussive and Subconcussive Injury: Potential Clinical Application,” *2012 Keystone Symposium on Clinical and Molecular Biology of Acute and Chronic Traumatic Encephalopathies*, Keystone, CO, February 27, 2012. [Talavage]
- [35] “Sub-Concussive and Concussive mTBI in High School Contact Sport Athletes,” *2012 Indiana Spinal Cord and Brain Injury Research Conference*, Indianapolis, IN, June 8, 2012. [Talavage]

- [36] “Subconcussive Impacts in High School Athletes,” Indiana Football Officials Association Clinic, Franklin, IN, June 23, 2012. [Leverenz, Talavage]
- [37] “Sub-Concussive and Concussive mTBI in High School Contact Sport Athletes,” *2012 Orthopedic Symposium for Physicians and Medical Professionals*, Methodist Sports Medicine, Indianapolis, IN, October 5, 2012. [Talavage]
- [38] “How Many Hits is Too Many? Neurophysiological Consequences of Head Collisions in Football,” *Delaware Center for Neuroscience Research Brain Buzz, a Public Talk*, Dover, DE, October 10, 2012. [Talavage]
- [39] “Neuroimaging of Concussive and Subconcussive Injury: Probing Neurological Health in High School Athletes,” Delaware State University, Dover, DE, October 11, 2012. [Talavage]
- [40] “Sub-concussive and Concussive mTBI in Contact Sport Athletes,” *Purdue West Coast Partnership “Discovery with Delivery” Symposium*, San Jose, CA, November 7, 2012. [Talavage]
- [41] “Sub-concussive Impacts on High School Athletes,” Purdue Alumni Association, Columbus, OH, May 29, 2013. [Leverenz, Talavage]
- [42] “Imaging Effects of Sub-Concussive Blows in High School Athletes: Can We Play Sports Safely?” DeVault Otologic Research Laboratory, Indianapolis, IN, June 12, 2013. [Talavage]
- [43] “MRI of mTBI in High School Collision Sports,” *TBI Summer School*, Wayne State University, Detroit, MI, June 14, 2013. [Talavage]
- [44] “Purdue Neurotrauma Group: Study of Collegiate Athletes 2013-2014,” *Big Ten/CIC/Ivy League Summit on Traumatic Brain Injury*, Chicago, IL, July 18, 2013. [Talavage]
- [45] “Pre-Clinical Neuroimaging of Repetitive Head Collisions in High School and Collegiate Athletes,” General Electric Healthcare, Waukesha, WI, September 16, 2013. [Talavage, Leverenz]
- [46] “Preventing Traumatic Brain Injury in High Impact Sports,” *President’s Colloquia at Westwood*, West Lafayette, IN, October 2, 2013. [Talavage]
- [47] “Pre-Clinical Neuroimaging of Effects of Repetitive Blows to the Head in High School Athletes,” *3rd Indiana Neuroimaging Symposium*, Bloomington, IN, October 25, 2013. [Talavage]
- [48] “Sub-concussive Impacts in High School Athletes,” *Science with a Twist*, Indianapolis, IN, February 20, 2014. [Leverenz, Nauman, Talavage]
- [49] “From Cochlear Implants to Concussions: Using Imaging to Reshape Clinical Practice,” Wright State University, Dayton, OH, March 19, 2014.
- [50] “Functional MRI and Auditory Neurophysiology: Techniques, Findings and Implications,” Northern Illinois University, DeKalb, IL, April 2, 2014.

- [51] “Making Collision Sports Safer: Redefining Concussion and How We Treat Head Injuries,” University of Puerto Rico-Mayaguez, Mayaguez, PR, April 10, 2014. [Talavage]
- [52] “Concussions and Other Effects of Repetitive Head Blows in High School Athletes,” Annual Retreat of the North Central Indiana School Study Council, Nashville, IN, June 27, 2014. [Talavage]
- [53] “The Role of Medical Imaging in the Re-Characterization of Mild Traumatic Brain Injury,” Indiana University, Bloomington, IN, March 2, 2015. [Talavage]
- [54] “Engineering Healthier Brains: Re-shaping how youth sports affects brain health,” Purdue University Sigma Xi Chapter, West Lafayette, IN, April 8, 2015. [Talavage]
- [55] “Redefining Traumatic Brain Injury – Prevention, Protection, Repair,” Purdue Alumni Club of Boone County, Thorntown, IN, April 28, 2015. [Leverenz, Nauman, Talavage]
- [56] “Redefining Traumatic Brain Injury – Prevention, Protection, Repair,” Purdue Alumni Club of Tippecanoe County, Lafayette, IN, June 17, 2015. [Leverenz, Nauman, Talavage]
- [57] "Medical Imaging to Re-Characterize 'Concussion' for Improved Diagnosis and Prevention," *Concussion: A National Challenge*, National Academy of Engineering-Institute of Medicine Regional Meeting, Cleveland, OH, June 24, 2015. [Talavage]
- [58] “Concussion Neuroimaging Consortium (CNC): Vision and Mission,” *2015 BIG/CIC/Ivy League TBI Summit*, Chicago, IL, July 15, 2015. [Talavage]
- [59] “Engineering Healthier Brains: Re-shaping how youth sports affects brain health,” Scientech, Indianapolis, IN, August 17, 2015. [Talavage]
- [60] “Toward Healthier Brains in Collision Sports: Medical Imaging and Health Monitoring,” Ohio State University, Columbus, OH, September 24, 2015. [Talavage]
- [61] “Application of Structural Health Monitoring for Characterization, Treatment and Prevention of Repetitive Strain Injuries in the Brain,” *Concussion Neuroimaging Consortium Symposium*, Lincoln, NE, October 20, 2015. [Talavage, Nauman]
- [62] “Engineering Healthier Brains: Re-shaping how youth sports affect brain health,” *Rad Science: Skate Park Physics*, Indiana State Museum, Indianapolis, IN, October 22, 2015. [Leverenz, Nauman, Talavage]
- [63] “Heads Up: Concussion in Contact Sports,” 2016 Indiana Academy of Science Annual Meeting, Indianapolis, IN, March 26, 2016. [Leverenz, Nauman, Talavage]
- [64] “Sub-Concussive Mild TBI in High School Athletes: A Neuroimaging Study,” *From Biomechanics to Behavior: A Multidisciplinary Approach to Explosive and Concussive Traumatic Brain Injury*, Purdue University Integrative Neuroscience Center, West Lafayette, IN, May 11, 2016. [Talavage]
- [65] “Concussion Neuroimaging Consortium (CNC): Update on Multi-University Study,” *2016 BIG/CIC/Ivy League TBI Summit*, Philadelphia, PA, July 14, 2016. [Talavage]
- [66] “Sub-Concussive Mild TBI in High School and Collegiate Athletes: A Neuroimaging Study,” in “Using Multi-Modal Neuroimaging as a Clinically Relevant Biomarker of

- Repetitive Head Trauma, Mild Traumatic Brain Injury and Recovery” at *93rd Annual Conference of the American Congress of Rehabilitation Medicine*, Chicago, IL, November 3, 2016. [Talavage]
- [67] “Engineering Healthier Brains and Beyond” at *Purdue University President’s Council Pregame*, West Lafayette, IN, November 19, 2016. [Leverenz, Nauman, Talavage]
- [68] “Do Changes in Neurovascular Coupling Provide Earliest Evidence of Accumulation of Subconcussive Trauma?” at *2017 Big Sky Athletic Training and Sports Medicine Conference*, Big Sky, MT, February 7, 2017. [Talavage]
- [69] “Biomechanics and Neurovascular Coupling: Elucidating the Earliest Evidence of Accumulation of Subconcussive Injury?” at *2017 BIG/CIC/Ivy League TBI Summit*, Chicago, IL, July 19, 2017. [Nauman, Talavage]
- [70] “Structural Health Monitoring in Youth Athletes: Neuroimaging and biomechanical assessment to develop predictive models for injury intervention and prevention” at *2nd International Conference on Pediatric Acquired Brain Injury*, Rome, Italy, September 20, 2017. [Talavage]
- [71] “Engineering in Healthcare: Neuroimaging and Predictive Modeling for Injury Intervention and Prevention,” Iowa Institute for Biomedical Imaging, Iowa City, Iowa, February 12, 2018. [Talavage]
- [72] “Neurodegenerative Consequences of Repeated Head Collisions: Thinking Short-Term for Long-Term Gains in Athlete Health,” Purdue Institute for Integrative Neurosciences, West Lafayette, IN, July 18, 2018. [Talavage]
- [73] “Purdue Concussion Research: Thinking Short-Term for Long-Term Gains in Athlete Health,” Lafayette Daybreak Rotary Club, Lafayette, IN, August 23, 2018. [Talavage]
- [74] “Sub-concussive Mild TBI in High School Athletes: A neuroimaging study,” *2nd Purdue University-Indiana University Joint Symposium on Brain and Spinal Cord Injury Research*, West Lafayette, IN, September 24, 2018. [Talavage]
- [75] “Prospective Monitoring of Sub-concussive Mild TBI: Findings and Application to Post-Injury Prognosis,” Neuroscience, Neurotrauma and Neurodegeneration Working Group (N3WG), Fort Detrick, MD, January 23, 2019. [Talavage]
- [76] “How We Can Continue to Play Football (and other collision-based sports),” Third NCAA-DOD Grand Alliance Concussion Conference, Madison, WI, April 24, 2019. [Talavage]
- [77] “CNC Yearly Update: Inflammatory, Vascular, and Axonal Systems in HAEs and Concussion,” at *2019 BIG/CIC/Ivy League TBI Summit*, Chicago, IL, July 16, 2019. [Talavage]
- [78] “A Decade in Brain Injury – Research and Education at the Interface of Engineering and Medicine,” Department of Biomedical Engineering Seminar Series, University of Cincinnati, Cincinnati, OH, November 5, 2019. [Talavage]

- [79] “Engineering Healthier Brains – Aiming for ‘First, Best, Only’ in a Multi-Disciplinary World,” Department of Electrical Engineering Seminar Series, University of Texas at Arlington, Arlington, TX, March 3, 2020. [Talavage]

Published Reviews:

- [1] Y. Fu, T.M. Talavage and J.X. Cheng, “New imaging techniques in the diagnosis of multiple sclerosis,” *Expert Opinion on Medical Diagnosis* vol. 2, pp. 1055–1065, September 2008.
- [2] J. Gonzalez-Castillo, O.A. Olulade and T.M. Talavage, “Using fMRI to Study Auditory Comprehension,” *Imaging in Medicine* vol. 4, pp. 137-143, February 2012. {**Invited**}
- [3] T.M. Talavage and D.A. Hall, “How Challenges in Auditory fMRI Led to General Advancements for the Field,” *NeuroImage* Special Issue: Twenty Years of Functional MRI: The Science and the Stories, vol. 62, pp. 641-647, August 15, 2012. {**Invited**}
- [4] T.M. Talavage, J. Gonzalez-Castillo and S.K. Scott, “Auditory Neuroimaging with fMRI and PET,” *Hearing Research* vol. 307, pp. 4-15, January 2014. {**Invited**}
- [5] E.A. Nauman, T.M. Talavage and P.S. Auerbach, “Mitigating the Consequences of Subconcussive Head Injuries,” *Annual Reviews of Biomedical Engineering*, vol. 22, pp. 387-407, June 2020, 10.1146/annurev-bioeng-091219-053447. {**Invited**}

Patents:

- [1] J.B. Laflen and T.M. Talavage, “Technique for High Spatial Resolution, Focused Electrical Stimulation of Electrically-Excitable Tissue,” Patent #7,697,980, Issue Date: 13 April 2010.
- [2] E. Nauman, E.L. Breedlove, A.D. Zakrajsek, T.M. Talavage, “Dynamic Load-Absorbing Materials and Articles.” Patent #9,056,983, Issue Date: 16 June 2015.
- [3] E. Nauman, E.L. Breedlove, A.D. Zakrajsek, T.M. Talavage, “Dynamic Load-Absorbing Materials and Articles.” Patent #9,839,250, Issue Date: 12 December 2017.

Invited Summaries and Public Statements:

- [1] T.M. Talavage, “Medical Imaging to Recharacterize Concussion for Improved Diagnosis in Asymptomatic Athletes,” in *The Bridge*, National Academy of Engineering, vol. 46, no. 1., pp. 85-90, Spring 2016. (Special issue: *Concussion: A National Challenge*)
- [2] United States Congress House Committee on Energy and Commerce. *Concussions in Youth Sports: Evaluating Prevention and Research. May 13, 2016*. 114th Congress, 2nd session. Washington: GPO, 2016 (statement of **Thomas M. Talavage**). (<https://www.congress.gov/video/?409522-1/house-committee-examines-concussions-youth-sports>)
- [3] T.M. Talavage, E.A. Nauman and R.E. Hannemann, “What Do We Do About Contact Sports?” in *Developmental and Behavioral News*, Section on Developmental and

Behavioral Pediatrics, American Academy of Pediatrics, vol. 26, no. 1, pp. 3-5, Fall 2016.

Activities as a Referee:

Conferences:

- [1] International Society for Magnetic Resonance in Medicine
- [2] International Magnetics (INTERMAG)
- [3] IEEE Engineering in Medicine and Biology Society
- [4] Organization for Human Brain Mapping
- [5] International Conference on Communications, Circuits and Systems
- [6] International Conference on Image Processing
- [7] International Symposium on Biomedical Imaging

Journals:

- [1] Cerebral Cortex
- [2] IEEE Transactions on Medical Imaging
- [3] IEEE Transactions on Biomedical Engineering
- [4] Human Brain Mapping
- [5] NeuroImage
- [6] Hearing Research
- [7] Neuroscience Letters
- [8] Journal of the Acoustical Society of America
- [9] IEEE Transactions on Magnetics
- [10] Brain Research
- [11] Proceedings of the National Academy of Sciences USA
- [12] Audiology and Neurootology
- [13] Magnetic Resonance in Medicine
- [14] Laser Surgery in Medicine
- [15] Technology in Cancer Research and Treatment
- [16] Journal of Speech, Language and Hearing Research
- [17] Journal of Magnetic Resonance Imaging
- [18] Journal of Magnetic Resonance
- [19] Journal of Electronic Imaging
- [20] Journal of Neurotrauma
- [21] Concepts in Magnetic Resonance A
- [22] Journal of Neuroscience Methods
- [23] Medical Physics

- [24] Sensors
- [25] Frontiers in Neuroscience
- [26] International Journal of Biomedical Imaging
- [27] Brain Connectivity
- [28] Developmental Neuropsychology
- [29] International Journal of Sports Medicine
- [30] Brain Imaging and Behavior
- [31] Clinical Journal of Sports Medicine
- [32] Annals of Biomedical Engineering
- [33] Journal of Athletic Training
- [34] NeuroImage: Clinical
- [35] SIAM Journal on Imaging Sciences (SIIMS)

Proposals:

- [1] NSF STS Program (2001)
- [2] United States - Israel Binational Science Foundation (2006)
- [3] NIH T90 (2006)
- [4] NIH MEDI, invited reviewer (2007)
- [5] NIH NIDCD F31/F32 (2007, 2013, 2014, 2015, 2016, 2017, 2018)
- [6] NIH NIDCD Tinnitus (2008)
- [7] NIH NIDCD R03 (2009, 2011)
- [8] NIH NIDCD L30 (2010, 2012)
- [9] NIH NIDCD SBIR (2011)
- [10] NIH ANIE, mail reviewer (2012)

Books:

- [1] Wiley Encyclopedia of Biomedical Engineering

Theses:

- [1] External Reader, PhD Thesis, Swinburne University of Technology, Melbourne, Australia (2004, 06)

Editorial Positions:

- [1] Associate Editor, *IEEE Transactions on Biomedical Engineering* (2011 – 2013)

Short Courses and Workshops Attended:

- [1] Purdue University Racial Diversity Workshop, Fall 2000

- [2] Neural Interfaces Workshop, National Institutes for Health, National Institute for Neurological Disorders and Stroke (NIH-NINDS), Bethesda, MD, November 15-17, 2004.
- [3] Boston University-Cleveland Clinic Chronic Traumatic Encephalopathy Conference, Las Vegas, NV, October 2012. {**Invited Attendee**}
- [4] NIH Pediatric Concussion Workshop, October 13-14, 2016.

Other Activities:

Administrative

- [1] Area Chair, Communications, Networking, Signal and Image Processing (2006 – 2012)
- [2] Area Chair, Biomedical Imaging and Sensing (2012 – 2018)
- [3] Member, Working Group on Concussion Research, Committee on Institutional Cooperation (CIC) (2011 – 2016)
- [4] Member, NCAA Concussion Task Force (2013 – 2014)
- [5] Scientific Advisory Board Member, NCAA-DOD CARE Consortium (2014 – 2018)
- [6] Member, Concussion Neuroimaging Consortium (2014 – Present)

Advising

- Student Organizations
 - [1] Tau Beta Pi (Indiana Alpha Chapter): Advisor (1999 – 2009)
 - [2] Purdue University IEEE Student Chapter: Branch Counselor (1999 – 2007)
 - [3] Eta Kappa Nu (Beta Chapter): Advisor (2000 – 2001), Head Advisor (2001 – 2020)
- Academic Programs
 - [1] Mentor, HORIZONS Student Support Program, Purdue University, Fall 2007, 2008.

Consulting

- [1] Q30 Innovations (2017-Present)

Conference Oral Session Moderator

- [2] *26th Annual International Conference of the IEEE EMBS* (2004)
- [3] *VIII International Conference on Cochlear Implants* (2004)
- [4] *28th Annual International Conference of the IEEE EMBS* (2006)
- [5] *Computational Imaging V* (2007)
- [6] *16th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine* (2008)
- [7] Educational Session Moderator, *Absolute Beginner's Guide*, at the *19th Scientific Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine* (2011)

Internal Workshops and Symposiums

- [1] Co-Chair, Neuroimaging Symposium, *26th Annual International Conference of the IEEE EMBS* (2004)

- [2] Coordinator, Medical Imaging Track, Healthcare Engineering Workshop, Purdue University, 26 September 2006
- [3] Co-Organizer and Moderator, Purdue MRI Facility Dedication Symposium, 2 November 2007.

Research Coverage in the Media

- [1] J. Krizen, "Purdue and Jeff High School teaming up," WLF Channel 18 News, West Lafayette, IN, 7 August 2009.
- [2] E. Weddle, *Lafayette Journal & Courier*, 21 August 2009.
- [3] K. Mayer, "Head Injury Study Scores Early Touchdown," *Purdue ECE Impact*, Spring 2010.
- [4] A. Deiro, "Football hits affect without symptoms," WLF Channel 18 News, West Lafayette, IN, 3 October 2010.
- [5] D. Rancken & B. Petrie, KRLD 1080, Dallas, TX, 4 October 2010. [Live interview]
- [6] R. Huppke, "Friday night lights' risk: 1,800 hits to the head: New study warns of undiagnosed brain injuries in high school players," *Chicago Tribune/Los Angeles Times*, 6 October 2010.
- [7] N. Baird, "Purdue study sheds light on football-related trauma," *Lafayette Journal & Courier*, 7 October 2010.
- [8] N. Newell, "Study: Brain damage possible without concussion symptoms," *Indianapolis Star*, 7 October 2010.
- [9] D. MacAnally, "Purdue researchers track football concussions," WTHR Channel 13 News, Indianapolis, IN, 8 October 2010.
- [10] K. Woznicki, "Football players hurt brain without concussions," WebMD.com, 12 October 2010. (<https://www.webmd.com/fitness-exercise/news/20101012/football-players-hurt-brain-without-concussions#1>)
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