

BRADLEY P. SUTTON, Ph.D.

Professor, Bioengineering Department

Technical Director, Biomedical Imaging Center, Beckman Institute for Advanced Science and Technology

Bliss Faculty Scholar

Affiliate: Dept of Electrical and Computer Engineering, Neuroscience Program, Carle-Illinois College of Medicine

University of Illinois at Urbana-Champaign

My NCBI Bibliography:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/brad.sutton.1/bibliography/47376740/public/?sort=date&direction=ascending>

Loop profile: <http://loop.frontiersin.org/people/58447/overview>

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Illinois Experts profile: <https://experts.illinois.edu/en/persons/brad-sutton>

Shared research code: <http://mrfil.github.io>

Address

Bioengineering Department

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Research Interests:

- Improve the physiological information available from magnetic resonance imaging (MRI) through the development of integrated pulse sequence and image reconstruction methods to quantitatively assess brain structure and function along with its age-related changes.
- Develop methods to image cerebral vascular structure along with its age-related changes.
- Develop techniques to enable the imaging of neuromuscular coupling in the speech and swallowing system.

Education: **University of Michigan** Ann Arbor, MI 48109

Masters Degree in Biomedical Engineering, August 2001

Masters Degree in Electrical Engineering - Systems, December 2001

Ph.D. in Biomedical Engineering, December 2003

Thesis: *Physics Based Iterative Reconstruction for MRI: Compensating and Estimating Field Inhomogeneity and T2* Relaxation*

Advisors: Dr. Douglas C. Noll and Dr. Jeffrey A. Fessler

University of Illinois at Urbana-Champaign Urbana, Illinois 61801

Bachelor of Science in General Engineering, December 1998

Positions:

Aug. 2017 to present

Professor of Bioengineering and Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign.

Aug. 2014 to present

Technical Director, Biomedical Imaging Center, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign

Aug. 2012 to Aug. 2017

Associate Professor of Bioengineering and Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign.

Aug. 2012 to Aug. 2015

Associate Head of Undergraduate Studies, Bioengineering Department, University of Illinois at Urbana-Champaign

Jan. 2006 to Aug. 2012

Assistant Professor of Bioengineering and Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign.

Sept. 2003 to Jan. 2006

Research Scientist with the Biomedical Imaging Center, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign.

May 99 to Sept. 2003

Research Assistant in the Biomedical Engineering Department, The University of Michigan. Worked in the Functional MRI Laboratory under Dr. Fessler and Dr. Noll

Professional/Service Activities:

- Provost committee, Teaching Advancement Board, 2015-2018. Co-Chair 2016.
- College of Engineering, Associate Head's Committee, 8/2007 – 8/2015.
- Chief undergraduate advisor for Bioengineering Department, UIUC. Jan 2006 – August 2007.
- Associate Head of Undergraduate Studies, Bioengineering Department, August 2012-August 2015
 - Achieved a no-concerns ABET review, first review for the department
- Member, Institutional Review Board for the protection of human subjects, University of Illinois at Urbana-Champaign. IRB #2 – Biomedical. August 2012-August 2015.
- Chair graduate admissions committee, Neuroscience Program, 2015/2016.
- Advisory Committees
 - Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC.org) Community Advisory Committee, 2017
 - Internal Advisory Committee, Bioengineering Department, 2015-2017
 - Beckman Institute Faculty Advisory Committee, UIUC
 - Computational Science and Engineering Program, UIUC
 - Texas Tech NeuroImaging Institute (TTNI), Texas Tech University, Jan. 2014-2015
- Instructor for courses:
 - BIOE/ECE 480: Magnetic Resonance Imaging, Fall 2006
 - BIOE 302 (BIOE 398 BS): Quantitative Human Physiology and Modeling, Spring 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2106; Fall 2016, Fall 2017, 2018. *Developed this as a New Course.* Now required core BIOE course.

- BIOE 303: Quantitative Human Physiology Lab, Spring 2011. *Developed this as a New Course.* Now required core BIOE course.
 - BIOE 420: Introduction to Biological Control Systems, Fall 2013, 2014, 2015, Spring 2017, Spring 2018, 2019. *Developed this as a New Course.* Now a required core BIOE course.
 - BIOE 581 (BIOE 598 BS): Advanced Pulse Sequence Programming for MRI, Fall 2007, 2008, 2009, 2011. *Developed this as a New Course.*
- Web-based Instructional Materials Developed
 - <https://www.mathworks.com/academia/courseware/quantitative-human-systems-physiology/>
"Quantitative Human Systems Physiology" Courseware
Developed quantitative human physiology simulations with support from a Mathworks curriculum grant. Materials for simulation of muscle, neurophysiology, and cardiovascular systems were made available under creative commons license at link above.
- Co-Instructed:
 - BIOE 502 (BIOE 598 PRO): Professionalism, Fall 2006, 2008, Spring 2011, 2012, 2013, 2014, 2015, 2016, 2017.
 - BIOE 572: Bioinstrumentation for MEng, Spring 2016, 2017, 2018.
 - Neur 598: Neuroscience I. Fall 2015.
- Curriculum Committee for new engineering-based college of medicine, Carle/ University of Illinois at Urbana-Champaign. 2015-present.
- Organized/Co-Organized Seminars:
 - Bioengineering Seminar Series, Fall 2006 to Fall 2008.
- Guest Lecturer:
 - ECE 380/480 – Magnetic Resonance Imaging, University of Illinois at Urbana-Champaign, Spring 2004, Fall 2005.
 - Psych 593 – Methods in MRI Analysis, UIUC, Spring 2006.
 - Psych 496 FG – Critical Thinking in Brain Imaging, Spring 2007, 2012.
 - BIOE 507 – Advanced Bioinstrumentation, Spring 2012.
- Member of:
 - International Society of Magnetic Resonance in Medicine (since 1999)
 - IEEE (since 2001), Senior Member (2016).
 - American Physiological Society (since 2010)
- Associate Editor
 - AE for IEEE Trans Medical Imaging, 2014-present
- Reviewer for:
 - Optical Engineering, IEEE Transactions on Medical Imaging, IEEE Transactions on Biomedical Engineering, Magnetic Resonance in Medicine, SIAM Journal on Scientific Computing, Encyclopedia of Biomedical Engineering, Nature Communications, The Cleft Palate–Craniofacial Journal, Optical Engineering, Transactions on Neural Systems & Rehabilitation Engineering, Human Brain Mapping, Medical Physics, Journal of Magnetic Resonance Imaging, British Journal of Radiology, Journal of Neuroscience Methods, PLOS One
- Grant reviewer for:
 - NSF
 - NIH
 - NAVY SBIR/STTR
 - ANR: Agence Nationale De La Recherche. Expert reviewer, 2009, 2012

- Conferences:
 - Associate Editor, Image Reconstruction Track, Annual International Conference IEEE Engineering in Medicine and Biology Society (EMBS), Sept 2006, 2008, 2009, 2010, 2011, 2012, 2014, 2015.
 - Session Chair, Biomedical Engineering Society Annual Meeting, 2008.
 - Organizing Committee, Paul C. Lauterbur Memorial Symposium, March 2008.
 - Workshop on Dynamic Speech Imaging, University of Southern California. Co-organized international workshop with Krishna Nayak at USC. Obtained Intl Soc of Magn Reson Med recognition for workshop.
 - Workshop on Elastography, University of Illinois at Urbana-Champaign. June 2014. Chaired conference with Mike Insana and Steve Boppart.
- Other service:
 - Scientific Review Board Committee, Carle Foundation Hospital, Urbana, IL. 2008 - present

Awards/Honor Societies:

- FASEB, 2018 BioArt Winner: Fathi P, Mistry N, Jensen T, Sutton B, Pan D. 3D Image of a Human Heart.
- Beckman Institute Spirit and Vision Award, Beckman Institute for Advanced Science and Technology, 2018
- Fellow of the American Institute for Medical and Biological Engineering (AIMBE), 2018
- Distinguished Promotion Award, UIUC May 2017.
- Dean's Award for Excellence in Research, April 2017.
- Campus award for Excellence in Undergraduate Education, UIUC, April 2015.
- Bliss Faculty Scholar, College of Engineering, UIUC, 2014.
- Collins Award for Innovative Teaching, College of Engineering, UIUC, 2013
- Whitaker Foundation Graduate Fellowship Recipient (2000-2003)
- National Science Foundation Graduate Fellowship Recipient (declined)
- Hertz Foundation Finalist (1999)
- University of Illinois Bronze Tablet Recipient (1999)

Graduate Students:

M.S. Thesis Students

Student Name	Year Graduated	Thesis Title	Placement
Charles Conway	2009	Advanced applications for fast dynamic magnetic resonance imaging of speech and swallowing	UIUC research park.
Yue Zhuo	2011	Estimating, modeling, and compensating for through-voxel magnetic field susceptibility gradients in MRI	Beckman researcher, PhD student.
Thomas Paine	2011	Examination of susceptibility effects on functional and dynamic magnetic resonance imaging.	PhD Student, UIUC.
David Ho	05/2012	Field inhomogeneity induced sensitivity bias in functional MRI studies.	Patent Examiner, Washington, D.C.

Student Name	Year Graduated	Thesis Title	Placement
Hailey Wilder	2014	Magnetic resonance spectroscopy: Techniques and applications in thermometry and metabolite mapping.	
Nate Wetter	2015	Computation cloud to enable high throughput neuroimaging	Medical Engineer, JumpTrade Medical Simulation Center
Genevieve LaBelle	2016	Distortion correction in MRI using the simulated point spread function	Development programmer with Arivale

Ph.D. Thesis Students

Student Name	Year Graduated	Thesis Title	Placement
Svetlana Shinkareva	2005, Psychology UIUC (Co-advised with Hernando Ombao)	Classification and Discrimination of Brain Images.	Post-Doc, Carnegie Mellon. Then Assoc. Prof., Dept. of Psychology, University of South Carolina
Jamie Perry	2007, (co-advised with David Kuehn)	Application of MRI and 3D computer modeling in presurgical planning of cleft palate repair	Eastern Carolina University, Associate Professor and Interim Chair in the Department of Communication Sciences and Disorders.
Georgia Malandraki	2008 (co-chair, with Adrienne Perlman, Speech and Hearing Sciences)	Identifying the neural correlates of swallowing in two age groups using fMRI	Assistant Professor, Department of Speech, Language and Hearing Sciences at Purdue University
Dimitris Karampinos	Dec. 2008 Mechanical Eng., UIUC, (Co-advised with John Georgiadis)	Intravoxel incoherent motion with diffusion imaging to study microvascular blood flow	Asst. Prof. Technology University Munich, Germany
Anh Van	August 2010	Multi-contrast structural imaging for improved reliability and automation in longitudinal studies	Post-doc, Stanford University with Roland Bammer. Now: Research Scientist, Technology University Munich, Germany
Cheng Ouyang	August 2011	Dynamic imaging of microvascular blood flow with MRI	Senior Scientist, Toshiba Medical Research Institute, Chicago, IL
Curtis Johnson	08/2013 (co-advised with John Georgiadis)	Imaging the local mechanical properties of the brain with high-resolution magnetic resonance elastography.	Assistant Director, Biomedical Imaging Center, Beckman Institute, University of Illinois at Urbana-Champaign Now: Assistant Professor, University of Delaware.
Joe Holtrop	July 2016	High Resolution Diffusion Tensor Imaging	Post-doc, St. Jude Children's Hospital, Memphis TN.
Giang-Chau Ngo	12/2017	Model-based reconstruction for correcting magnetic susceptibility-induced artifacts in magnetic resonance imaging	Post-doc, Brown University Providence, RI

Student Name	Year Graduated	Thesis Title	Placement
Alex Cerjanic	5/2018 expected	Imaging cortical blood flow with intravoxel incoherent motion	

Publications:

Journal Publications:

Accessible through myNCBI:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/brad.sutton.1/bibliography/47376740/public/?sort=date&direction=ascending>

1. Fessler JA, Sutton BP. Nonuniform fast Fourier transforms using min-max interpolation. *IEEE Tr. Sig. Proc.*, 51(2):560-574, 2003.
2. Sutton BP, Noll DC, Fessler JA. Fast, iterative, field-corrected image reconstruction for MRI. *IEEE Tr. Med. Im.*, 22(2):178-188, 2003.
3. Sutton BP, Noll DC, Fessler JA. Dynamic field map estimation using a spiral-in/ spiral-out acquisition. *Mag Res Med* 51(6):1194-1204, 2004.
4. Noll DC, Fessler JA, Sutton BP. Conjugate phase MRI reconstruction with spatially variant sample density correction. *IEEE Tr. Med. Im.*, 24(3):325-336, 2005.
5. Sutton BP, Ciobanu L, Zhang X, Webb A. Parallel imaging for NMR microscopy at 14.1 Tesla. *Mag. Res. Med.* 54(1): 9-13, 2005.
6. Payer D, Marshuetz C, Sutton B, Hebrank A, Welsh RC, Park DC. Decreased neural specialization in old adults on a working memory task. *Neuroreport* 17(5):487-91, 2006.
7. Shinkareva SV, Ombao HC, Sutton BP, Mohanty A, Miller GA. Classification of functional brain images with a spatio-temporal dissimilarity map. *Neuroimage*. 2006 Oct 15;33(1):63-71.
8. Chee MW, Goh JO, Venkatraman V, Tan JC, Gutchess A, Sutton B, Hebrank A, Leshikar E, Park D. Age-related changes in object processing and contextual binding revealed using fMR adaptation. *J Cogn Neurosci*. 2006 Apr;18(4):495-507.
9. Gutchess AH, Hebrank A, Sutton BP, Leshikar E, Chee MW, Tan JC, Goh JO, Park DC. Contextual interference in recognition memory with age. *Neuroimage*. 2007 Apr 15;35(3):1338-47.
10. Miller GA, Elbert T, Sutton BP, Heller W. Innovative clinical assessment technologies: challenges and opportunities in neuroimaging. *Psychol Assess*. 2007 Mar;19(1):58-73.
11. Sutton BP, Ouyang C, Ching BL, Ciobanu L. Functional Imaging with FENSI: Flow-ENhanced Signal Intensity. *Magn Reson Med*. 2007 Aug; 58(2):396-401.
12. Perry JL, Kuehn DP, Goldwasser MS, Sutton BP. Using magnetic resonance imaging and 3D computer technology to improve treatment and care for individuals born with cleft palate. *Carle Selected Papers, Carle Foundation Hospital, Urbana*. 2007; 50(1): 2-6.
13. Goh JO, Chee MW, Tan JC, Venkatraman V, Hebrank A, Leshikar ED, Jenkins L, Sutton BP, Gutchess AH, Park DC. Age and culture modulate object processing and object-scene binding in the ventral visual area. *Cogn Affect Behav Neurosci*. 2007 Mar;7(1):44-52.
14. Hernando D, Haldar JP, Sutton BP, Ma J, Kellman P, Liang ZP. Joint estimation of water/fat images and field inhomogeneity map. *Magn Reson Med*. 2008 Feb 27;59(3):571-580.
15. Sutton BP, Goh J, Hebrank A, Welsh RC, Chee MW, Park DC. Investigation and validation of intersite fMRI studies using the same imaging hardware. *J Magn Reson Imaging*. 2008 Jun 25;28(1):21-28. (PMCID: PMC2785504)

16. Stone SS, Haldar JP, Tsao SC, Hwu W-MW, Sutton BP, Liang Z-P. Accelerating advanced MRI reconstructions on GPUs. *Journal of Parallel and Distributed Computing*. 2008; 68:1307-1318.
17. Erickson KI, Prakash RS, Kim JS, Sutton BP, Colcombe SJ, Kramer AF. Top-down attentional control in spatially coincident stimuli enhances activity in both task-relevant and task-irrelevant regions of cortex. *Behav Brain Res*. 2009 Jan 30;197(1):186-97. Epub 2008 Aug 29.
18. Jacob M, Sutton BP. Algebraic decomposition of fat and water in MRI. *IEEE Trans. Med. Imaging*, 2009 Feb;28(2):173-84.
19. Hien N, Sutton BP, Morrison R, Do, M. Joint Estimation and Correction of Susceptibility Artifacts for EPI functional MRI using Harmonic Retrieval. *IEEE Trans Med. Imaging*, 2009 Mar;28(3):423-34.
20. Sutton BP, Ouyang C, Karampinos DC, Miller GA. Current Trends and Challenges in MRI Acquisitions to Investigate Brain Function. *Intl J Psychophysiology*, 2009 Jul;73(1):33-42. (PMCID: PMC2707999)
21. Malandraki GA, Sutton BP, Perlman AL, Karampinos DC, Conway C. Neural activation of swallowing and swallowing-related tasks in healthy young adults: an attempt to separate the components of deglutition. *Hum Brain Mapp*. 2009 Oct;30(10):3209-26.
22. Schneider-Garces NJ, Gordon BA, Brumback-Peltz CR, Shin E, Lee Y, Sutton BP, Maclin EL, Gratton G, Fabiani M. Span, CRUNCH, and Beyond: Working Memory Capacity and the Aging Brain. *J Cogn Neurosci*. 2010 Apr;22(4):655-69.
23. Karampinos DC, Van AT, Olivero WC, Georgiadis JG, Sutton BP. High-resolution diffusion tensor imaging of the human pons with a reduced field-of-view, multishot, variable-density, spiral acquisition at 3 T. *Magn Reson Med*. 2009 Oct;62(4):1007-16.
24. Leshikar ED, Gutchess AH, Hebrank AC, Sutton BP, Park DC. The impact of increased relational encoding demands on frontal and hippocampal function in older adults. *Cortex*. 2010 Apr;46(4):507-21. Epub 2009 Jul 30. (PMID 19709652)
25. Malandraki GA, Sutton BP, Perlman AL, Karampinos DC. Age-Related Differences in Laterality of Cortical Activations in Swallowing. *Dysphagia*. 2010 Sep;25(3):238-49. Epub 2009 Sep 17. (PMID: 19760457)
26. Karampinos DC, King KF, Sutton BP, Georgiadis JG. Myofiber ellipticity as an explanation for transverse asymmetry of skeletal muscle diffusion MRI in vivo signal. *Ann Biomed Eng*. 2009 Dec;37(12):2532-46.
27. Van AT, Karampinos DC, Georgiadis JG, Sutton BP. K-space and image-space combination for motion-induced phase-error correction in self-navigated multicoil multishot DWI. *IEEE Trans Med Imaging*. 2009 Nov;28(11):1770-80.
28. Heo S, Prakash RS, Voss MW, Erickson KI, Ouyang C, Sutton BP, Kramer AF. Resting hippocampal blood flow, spatial memory and aging. *Brain Res*. 2010 Feb 22;1315C:119-127.
29. Silton RL, Heller W, Towers DN, Engels AS, Spielberg JM, Edgar JC, Sass SM, Stewart JL, Sutton BP, Banich MT, Miller GA. The time course of activity in dorsolateral prefrontal cortex and anterior cingulate cortex during top-down attentional control. *Neuroimage*. 2010, 50, 1292-1302. NIHMS175789
30. Engels AS, Heller W, Spielberg JM, Warren SL, Sutton BP, Banich MT, Miller GA. Co-occurring anxiety influences patterns of brain activity in depression. *Cogn Affect Behav Neurosci*. 2010 Mar;10(1):141-56.
31. Karampinos DC, King KF, Sutton BP, Georgiadis JG. Intravoxel partially coherent motion technique: characterization of the anisotropy of skeletal muscle microvasculature. *J Magn Reson Imaging*. 2010 Apr;31(4):942-53.

32. John R, Rezaeipoor R, Adie SG, Chaney EJ, Oldenburg AL, Marjanovic M, Haldar JP, Sutton BP, Boppart SA. In vivo magnetomotive optical molecular imaging using targeted magnetic nanoprobles. *Proc Natl Acad Sci* 2010 May 4;107(18):8085-90
33. Goh JO, Leshikar ED, Sutton BP, Tan JC, Sim SK, Hebrank AC, Park DC. Culture differences in neural processing of faces and houses in the ventral visual cortex. *Soc Cogn Affect Neurosci*. 2010 Jun;5(2-3):227-35.
34. Suzuki A, Goh JO, Hebrank A, Sutton BP, Jenkins L, Flicker BA, Park DC. Sustained happiness? Lack of repetition suppression in right-ventral visual cortex for happy faces. *Soc Cogn Affect Neurosci*. 2011 Sep;6(4):434-41. (PMID: 20584720).
35. Warren, S.L., Bost, K.K., Roisman, G.I., Levin Silton, R., Spielberg, J.M., Engels, A.S., Choi, E., Sutton, B.P., Miller, G.A., & Heller, W. Effects of adult attachment and emotional distractors on brain mechanisms of cognitive control. *Psychological Science*. 2010, 21(12), 1818-1826. (PMID: 21098213)
36. Sutton BP, Conway CA, Bae Y, Seethamraju R, Kuehn DP. Faster dynamic imaging of speech with field inhomogeneity corrected spiral fast low angle shot (FLASH) at 3 T. *J Magn Reson Imaging*. 2010 Nov;32(5):1228-37. (PMID: 21031529)
37. Spielberg JM, Miller GA, Engels AS, Herrington JD, Sutton BP, Banich MT, Heller W. Trait approach and avoidance motivation: Lateralized neural activity associated with executive function. *Neuroimage*. 2011 Jan 1;54(1):661-70. (PMID: 20728552)
38. Silton, R.L., Heller, W., Towers, D.N., Engels, A.S., Edgar, J.C., Spielberg, J.M., Sass, S.M., Stewart, J.L., Sutton, B.P., Banich, M.T., & Miller, G.A. Depression and anxious apprehension distinguish frontocingulate cortical activity during top-down attentional control. *J Abnorm Psychol*. 2011 May;120(2):272-85.
39. Malandraki GA, Perlman AL, Karampinos DC, Sutton BP. Reduced somatosensory activations in swallowing with age. *Hum Brain Mapp*. 2011 May;32(5):730-43. (PMID: 20960572)
40. Perry J, Kuehn D, Sutton B, Goldwasser M, Jerez AD. Craniometric and velopharyngeal assessment of infants with and without cleft palate. *Journal of Craniofacial Surgery*, 2011 22(2), 499-503. PMID: 21403534
41. Chee MW, Zheng H, Goh JO, Park D, Sutton BP. Brain Structure in Young and Old East Asians and Westerners: Comparisons of Structural Volume and Cortical Thickness. *J Cogn Neurosci*. 2011 May; 23(5):1065-79. (PMID: 20433238, Pub-med in process)
42. Vo LTK, Walther DB, Kramer AF, Erickson KI, Boot WR, Voss MW, Prakash PS, Lee H, Fabiani M, Gratton G, Simons DJ, Sutton BP, Wang MY. Predicting Individuals' Learning Success from Patterns of Pre-Learning MRI Activity. *PLoS ONE*. 2011 6(1): e16093. doi:10.1371/journal.pone.0016093
43. Bae Y, Kuehn D, Conway C, Sutton B. Real-Time Magnetic Resonance Imaging of Velopharyngeal Activities with Simultaneous Speech Recordings. *Cleft Palate Craniofac J*. 2011 Nov;48(6):695-707. (PMID: 21214321)
44. Perry J, Kuehn D, Sutton B, Goldwasser M, Jerez A. MRI and 3D Computer Modeling of the Levator Veli Palatini Muscle Before and After Primary Palatoplasty. *Cleft Palate Craniofac J*. 2010 Feb 17. [Epub ahead of print] (PMID: 20163255)
45. Ouyang C., Sutton BP. Pseudo-Continuous Transfer Insensitive Labeling Technique. *Magn Reson Med*. 2011 Sep;66(3):768-76. (PMID: 21381103)
46. Paine T.L., Conway C.A., Malandraki G.A., Sutton B.P. Simultaneous Dynamic and Functional MRI Scanning (SimulScan) of Natural Swallows. *Magn Reson Med*, 2011 May;65(5):1247-52.
47. Bae Y, Kuehn D, Sutton B, Conway C, Perry J. Three-dimensional magnetic resonance imaging of velopharyngeal structures. *Journal of Speech-Language and Hearing Research*. *J Speech Lang Hear Res*. 2011 Dec;54(6):1538-45. (PMID: 22052285)

48. Van AT, Hernando D, Sutton BP. Motion-induced phase error estimation and correction in 3D diffusion tensor imaging. *IEEE Trans Med Imaging*. 2011 Nov;30(11):1933-40. (PMID: 21652284)
49. Ouyang C., Sutton BP. Localized blood flow imaging using quantitative FENSI. *Magn Reson Med*. 2012 Mar;67(3):660-8. (PMID: 21713979)
50. Sadeh N, Spielberg JM, Heller W, Herrington JD, Engels AS, Warren SL, Crocker LD, Sutton BP, Miller GA. Emotion disrupts neural activity during selective attention in psychopathy. *Soc Cogn Affect Neurosci*. 2013 Mar;8(3):235-46. (PMID: 22210673)
51. Versluis MJ, Sutton BP, de Bruin PW, Børnert P, Webb AG, van Osch MJ. Retrospective image correction in the presence of nonlinear temporal magnetic field changes using multichannel navigator echoes. *Magn Reson Med*. 2012 Dec;68(6):1836-45. (PMID: 22362637)
52. Goh JO, Hebrank AC, Sutton BP, Chee MW, Sim SK, Park DC. Culture-related differences in default network activity during visuo-spatial judgments. *Soc Cogn Affect Neurosci*. 2013 Feb;8(2):134-42. (PMID: 22114080)
53. Johnson CL, Chen DD, Olivero WC, Sutton BP, Georgiadis JG. Effect of off-frequency sampling in magnetic resonance elastography. *Magn Reson Imaging*. 2012 Feb;30(2):205-12. (PMID: 22055750)
54. Perry JL, Kuehn DP, Sutton BP. Morphology of the Levator Veli Palatini Muscle Using Magnetic Resonance Imaging. *Cleft Palate Craniofac J*. 2013 Jan;50(1):64-75. (PMID 22023112)
55. Chen Y, Sutton B, Conway C, Broglio SP, Ostojic-Starzewski M. Brain Deformation under Mild Impact: Magnetic Resonance Imaging-Based assessment and Finite Element Study. *Intl J of Numerical Analysis and Modeling, Series B*. 2012, 3(1): 20-35.
56. Spielberg JM, Miller GA, Warren SL, Engels AS, Crocker LD, Sutton BP, Heller W. Trait motivation moderates neural activation associated with goal pursuit. *Cogn Affect Behav Neurosci*. 2012 Jun;12(2):308-22. (PMID: 22460723)
57. Voss M, Heo S, Prakash R, Erickson K, Alves H, Chaddock L, Szabo A, Mailey E, Wojcicki T, White S, Gothe N, McAuley E, Sutton B, Kramer A. The influence of aerobic fitness on cerebral white matter integrity and cognitive function in older adults: Results of a one-year exercise intervention. *Hum Brain Mapp*. 2013 Nov;34(11):2972-85.
58. Johnson CL, McGarry MD, Van Houten EE, Weaver JB, Paulsen KD, Sutton BP, Georgiadis JG. Magnetic resonance elastography of the brain using multishot spiral readouts with self-navigated motion correction. *Magn Reson Med*. 2013 Aug;70(2):404-12.
59. McGarry MD, Van Houten EE, Johnson CL, Georgiadis JG, Sutton BP, Weaver JB, Paulsen KD. Multiresolution MR elastography using nonlinear inversion. *Med Phys*. 2012 Oct;39(10):6388-96.
60. Crocker LD, Heller W, Spielberg JM, Warren SL, Bredemeier K, Sutton BP, Banich MT, Miller GA. Neural mechanisms of attentional control differentiate trait and state negative affect. *Front Psychol*. 2012;3:298.
61. Spielberg JM, Miller GA, Warren SL, Engels AS, Crocker LD, Banich MT, Sutton BP, Heller W. A brain network instantiating approach and avoidance motivation. *Psychophysiology*. 2012 Sep;49(9):1200-14.
62. Erickson KI, Weinstein AM, Sutton BP, Prakash RS, Voss MW, Chaddock L, Szabo AN, Mailey EL, White SM, Wojcicki TR, McAuley E, Kramer AF. Beyond vascularization: aerobic fitness is associated with N-acetylaspartate and working memory. *Brain Behav*. 2012 Jan;2(1):32-41.
63. Ouyang C, Sutton BP. Optimizing pTILT perfusion imaging in the presence of off-resonance frequency. *J Magn Reson Imaging*. 2013 Jul;38(1):210-6.

64. Gai J, Obeid N, Holtrop JL, Wu XL, Lam F, Fu M, Haldar JP, Hwu WM, Liang ZP, Sutton BP. More IMPATIENT: A Gridding-Accelerated Toeplitz-based Strategy for Non-Cartesian High-Resolution 3D MRI on GPUs. *J Parallel Distrib Comput.* 2013 May 1;73(5):686-697.
65. Fabiani M, Gordon BA, Maclin EL, Pearson MA, Brumback-Peltz CR, Low KA, McAuley E, Sutton BP, Kramer AF, Gratton G. Neurovascular coupling in normal aging: A combined optical, ERP and fMRI study. *Neuroimage.* 2014 Jan 15;85 Pt 1:592-607.
66. Johnson CL, McGarry MD, Gharibans AA, Weaver JB, Paulsen KD, Wang H, Olivero WC, Sutton BP, Georgiadis JG. Local mechanical properties of white matter structures in the human brain. *Neuroimage.* 2013 Oct;79:145-52.
67. Perry JL, Sutton BP, Kuehn DP, Gamage JK. Using MRI for Assessing Velopharyngeal Structures and Function. *Cleft Palate Craniofac J.* 2014 Jul;51(4):476-85.
68. Perry JL, Kuehn DP, Sutton BP, Gamage JK. Sexual Dimorphism of the Levator Veli Palatini Muscle: An Imaging Study. *Cleft Palate Craniofac J.* 2014 Sep;51(5):544-52. doi: 10.1597/12-128. Epub 2013 Jun 19. PMID: 23782419
69. Warren SL, Crocker LD, Spielberg JM, Engels AS, Banich MT, Sutton BP, Miller GA, Heller W. Cortical organization of inhibition-related functions and modulation by psychopathology. *Front Hum Neurosci.* 2013 Jun 13;7:271.
70. McGarry MDJ, Johnson CL, Sutton BP, Van Houten EEW, Georgiadis JG, Weaver JB, Paulsen KD. Including Spatial Information in Nonlinear Inversion MR Elastography Using Soft Prior Regularization. *IEEE Trans Med Imaging* 2013;32:1901ñ1909.
71. Ouyang C, Sutton BP. Regional perfusion imaging using pTILT. *J Magn Reson Imaging.* 2014 Jul;40(1):192-9.
72. Johnson CL, Holtrop JL, McGarry MD, Weaver JB, Paulsen KD, Georgiadis JG, Sutton BP. 3D multislabs, multishot acquisition for fast, whole-brain MR elastography with high signal-to-noise efficiency. *Magn Reson Med.* 2014. 71(2): 477ñ485. (PMID: 24347237)
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75. Bae Y, Kuehn DP, Conway C, Sutton BP. A Temporal Investigation of Nasalization and Velopharyngeal Port Opening. Paper presented at American Speech-Language-Hearing Association (ASHA) Convention, New Orleans, LA.
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80. Zhuo Y, Sutton BP. Iterative image reconstruction model including susceptibility gradients combined with Z-shimming gradients in fMRI. Proceedings of IEEE Eng in Med and Biol Conf, 2009. p5721-5724.
81. Sutton BP, Conway CA, Bae Y, Brinegar C, Liang Z-P. Dynamic imaging of speech and swallowing with MRI. Proceedings of IEEE Eng in Med and Biol Conf, 2009. p6651-6654.
82. Zhuo Y, Wu X-L, Haldar JP, Hwu W-M, Liang Z-P, Sutton BP. Accelerating iterative field-compensated MR image reconstruction on GPUs. Submitted to International Sym. Biomedical Imaging, 2010.
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86. Van AT, Sutton BP. Multicontrast 3D structural imaging to improve automatic brain extraction and segmentation. Submitted to Intl Soc Magnetic Resonance in Medicine, 2010.
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92. Perry J, Sutton B, Kuehn D, Brockenbrough J (2011). New MRI Techniques for Assessing Velopharyngeal Structure and Function. Poster Session at American Cleft Palate-Craniofacial Association Conference (ACPA), San Juan, PR.
93. Perry J, Kuehn D, Sutton B, Brockenbrough J (2011). Assessment of the Levator Veli Palatini Muscle Using 3D Technology Vector-Spline Tracks. Show and tell format at American Cleft Palate-Craniofacial Association Conference (ACPA), San Juan, PR.
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96. Van AT, Hernando D, Holtrop J, Sutton BP. Motion-induced phase error correction in 3D diffusion-weighted imaging. Submitted to Intl Soc. Magn Reson Med, 2011.
97. Van AT, Sutton BP. 3D Magnetic susceptibility correction with application to diffusion-weighted imaging. Submitted to Intl Soc. Magn Reson Med, 2011.
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100. Wu XL, Gai J, Lam F, Fu M, Haldar JP, Zhuo Y, Liang ZP, Hwu WM, Sutton BP. IMPATIENT MRI: Illinois Massively Parallel Acceleration Toolkit for Image reconstruction

- with ENhanced Throughput in MRI. Submitted to Intl Soc Magnetic Resonance in Medicine 2011.
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 105. LaConte S, Lisinski J, Sutton B. Support Vector Machines Can Decode Speech Patterns from High Speed Dynamic Spiral FLASH Images of the Mouth. Intl Soc. Magn Reson Med, 2011. p 139.
 106. Perry J, Sutton B, Kuehn D, Gamage J. Sexual dimorphism of the levator veli palatini muscle: Imaging study. Presented at American Speech-Language-Hearing Association, 2012.
 107. Bae Y, Kuehn D, Sutton B. Muscle tissue distribution in healthy adult soft palates. Presented at the American Speech-Language-Hearing Association, 2012.
 108. MCGARRY M, PATTISON A, HOUTEN E, JOHNSON C, SUTTON B, GEORGIADIS J, WEAVER J, PAULSEN K. Analysis of viscoelastic and poroelastic behavior in MR elastography. Intl Soc Magn Res Med, 2012. p. 2519.
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119. Perry J, Kuehn D, Sutton B, Gamage J (May, 2013). Does race or sex matter? MRI analyses of the velopharyngeal mechanism in three different adult populations. 12th International Congress for Cleft Lip/Palate and Related Craniofacial Anomalies.
120. Holtrop JL, Sutton BP. Diffusion Weighted Imaging with Whole Brain Coverage and Sub-Microliter Voxels. Intl Soc Magn Reson Med, 2013. p. 2064.
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126. Sutton BP, Amos JR, Ramirez Garcia, MA, Bailey JL. Works in progress: Development of integrated computer simulations and laboratory exercises for teaching human physiology. American Society of Engineering Education, Atlanta, 2013. Won best poster award in Biomedical Engineering Division.
127. Burdwood EN, Infantolino ZP, Crocker LD, Spielberg JM, Sutton BP, Banich MT, Heller W, Miller GA. Differences between anxious apprehension and anxious arousal in resting-state fMRI activity. Society for Psychophysiological Research, Florence, Italy 2013.
128. Infantolino ZP, Crocker LD, Spielberg JM, Niznikewicz MA, Roberts KT, Sutton BP, Banich MT, Miller GA, Heller W. Neural mechanisms of motivation in the face of emotional distraction. Society for Psychophysiological Research, Florence, Italy 2013.
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130. Johnson CL, Holtrop JL, Christodoulou A, McGarry MD, Weaver JB, Paulsen KD, Liang ZP, Georgiadis JG, Sutton BP. Accelerating MR Elastography with Sparse Sampling and Low-Rank Reconstruction. Intl Soc Magn Reson Med, Milan, 2014. p. 325.
131. Okamoto RJ, Johnson CL, McGarry MD, Badachhape AA, Sutton B, Georgiadis JG, Bayly PV. Comparison of MR Elastography Inversion Methods on High-Resolution Measurements in the Human Brain. Intl Soc Magn Reson Med, Milan, 2014. p. 4269.
132. Larsen RJ, Newman M, Ma C, Sutton B. A Method for Quantifying Average Metabolite Concentrations in Anatomically-Defined Brain Regions. Intl Soc Magn Reson Med, Milan, 2014. p. 67.
133. Anderson AT, Johnson CL, Holtrop JL, Van Houten EEW, McGarry MD, Paulsen KD, Sutton B, Georgiadis JG. Multi-Direction Excitation for Magnetic Resonance Elastography to Increase the Fidelity of Mechanical Properties. Intl Soc Magn Reson Med, Milan, 2014. p. 1687.

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136. Giang-Chau Ngo, Holtrop JL, Maojing Fu, Fan Lam, Sutton BP. High temporal resolution functional MRI with partial separability model. *Conf Proc IEEE Eng Med Biol Soc*. 2015 Aug;2015:7482-5. doi: 10.1109/EMBC.2015.7320122.
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138. Holtrop JL, Sutton BP. Diffusion Weighted Imaging Using Multi-Shot Spiral with a Simultaneous Multi-Slice Excitation. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 2893.
139. Labelle GM, Sutton BP. Distortion Correction Using Simulated Point-Spread Functions. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 3780.
140. Wetter NC, Hubbard EA, Motl RW, Sutton BP. Fully-Automated Single-Image T2 White Matter Hyperintensity Mapping and Quantification with FSL. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 1408.
141. Cerjanic AM, Holtrop JL, Sutton BP. High Resolution IVIM Parameter Maps in the Presence of Rician Noise. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 2812.
142. Fu M, Holtrop JL, Perry J, Kuehn D, Liang ZP, Sutton BP. High-Resolution Full-Vocal-Tract 3D Dynamic Speech Imaging. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 569.
143. Ngo GC, Sutton BP. K-Space Based Estimation for R2* Mapping. *Intl Soc Magn Reson Med*, Toronto, 2015. p 334.
144. Anderson AT, Johnson CL, Holtrop JL, Van Houten EEW, McGarry MDJ, Paulsen KD, Sutton BP, Georgiadis JG. Property Differences in White Matter Structures Due to Distinct Wave Propagation Directions in MR Elastography. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 1058.
145. Johnson CL, Schwarb H, McGarry MDJ, Sutton BP, Cohen NJ. Viscoelasticity of Subcortical Gray Matter Structures. *Intl Soc Magn Reson Med*, Toronto, 2015. p. 1059.
146. Cerjanic A, Grant E, Gagoski B, Drottar M, Francel T, Matos A, Carruthers C, Litt J, Larsen R, Sutton BP. Measuring longitudinal changes in cerebral blood flow and blood volume in neonates with the intravoxel incoherent motion method. *Intl Soc Magn Reson Med*, Singapore 2016. p. 1403.
147. Johnson CL, Holtrop JL, Anderson AT, Sutton BP. Brain MR elastography with multiband excitation and nonlinear motion-induced phase error correction. *Intl Soc Magn Reson Med*, Singapore 2016. p. 1951.
148. Cerjanic A, Holtrop JL, Ngo GC, Leback B, Arnold G, Van Moer M, Labelle G, Fessler JA, Sutton BP. PowerGrid: A open source library for accelerated iterative magnetic resonance image reconstruction. *Intl Soc Magn Reson Med*, Singapore, 2016.
149. Johnson C, Matijevich E, Cullum E, McGarry M, Paulsen K, Sutton B, Wszalek T, Olivero W. MR Elastography of Intracranial Tumors: Initial Experience with High-Resolution Imaging and Nonlinear Inversion. *Intl Soc Magn Reson Med*, Singapore 2016. p. 1943.
150. Fu M, Woo J, Barlaz M, Shosted R, Liang ZP, Sutton B. Spatiotemporal-Atlas-Based High-Resolution Dynamic Speech MRI. *Intl Soc Magn Reson Med*, Singapore 2016.
151. Fournet G, Ciobanu L, Li JR, Cerjanic A, Sutton B, Le Bihan D. The IVIM Signal: A Combination of Two Vascular Pools. *Intl Soc Magn Reson Med*, Singapore 2016. p. 3330.

152. Ferradal SL, Gagoski B, Jaimes C, Francel T, Matos A, Larsen R, Sutton B, Grant PE, Zollei L. Structural and functional thalamo-cortical connectivity in healthy newborn infants. Organ for Human Brain Mapping, Geneva, Switzerland. 2016.

Other Publications:

1. fMRI figure of motor task that has been included in many textbooks, including: Essentials of Psychology, by Douglas Bernstein, 4th, 5th, and 6th editions, Wadsworth/Cengage Publishing. Also figure used in Psychology, 1st edition and 1e edition, Douglas Bernstein. Cengage Learning Australia publisher.
2. Quantitative Human Physiology Models using Matlab. Sutton BP, Ramirez M. <https://www.mathworks.com/academia/courseware/quantitative-human-systems-physiology/>
3. Youtube video of fast, dynamic speech MRI with ~0.5 M views: <https://youtu.be/OCvJiqKZbz4>

Invited Talks:

1. Sutton, B. "BioImaging; Dynamic Magnetic Resonance Imaging of Muscle Function during Speech." Midwest Biomedical Engineering Conference, University of Michigan, 2006.
2. Sutton, B. "MRI and CT from Basic Principles to Image Formation to Research Applications." Carle Foundation Hospital, Fall Conference 2005.
3. Kuehn, D., Perry, J., Goldwasser, M., & Sutton, B. (2007). Computer modeling and MRI in the characterization and treatment of cleft palate. Bench to Bedside Seminar Series, Carle Clinic, Urbana, IL. Carle Clinic, Urbana, IL 2007
4. Sutton, B. Quantitative Human Physiology with Modeling using Matlab. Computational Biology Workshop, NCSA, University of Illinois at Urbana-Champaign, 2007
5. Sutton B. Imaging functionally related blood flow with FENSI and diffusion. Regional Symposium on MRI, University of Michigan, Ann Arbor, 2007
6. Sutton B. Magnetic Resonance Spectroscopy and Breast Cancer. Mills Breast Cancer Institute Pathfinders Symposium, Carle Foundation Hospital, Urbana, IL, 2007
7. Sutton B. Imaging functionally related blood flow with FENSI and diffusion. Fall Bioengineering Seminar Series, University of Illinois at Urbana-Champaign, 2007
8. Panel: Integrated signal interpretation for the study of swallowing; 16th Annual Dysphagia Research Society Meeting; Isle of Palms, South Carolina; 2008.
9. Assessing neuromuscular coupling during speech and swallowing with MRI. Baylor College of Medicine, Houston, TX. October 24, 2008.
10. Off-resonance effects and correction. Intl. Soc. Magnetic Resonance in Medicine, Honolulu, HI. April 22, 2009.
11. Imaging microvascular cerebral blood flow with MRI. Illinois Institute of Technology, Chicago, IL. May 8, 2009.
12. Fast dynamic imaging of speech and swallowing with MRI. IEEE Eng Med Biol Conference, Minneapolis, MN. Sept. 2009.
13. Multimodal imaging of the neuromuscular system with magnetic resonance imaging. Engineering Neuroscience and Health Seminar Series, University of Southern California. November 16, 2009.
14. Image Reconstruction: Off-resonance effects and correction. Intl Soc of Magnetic Resonance in Medicine. Stockholm, Sweden. May 3, 2010

15. MRI-based characterization of neuromuscular function for speech and swallowing. American Speech Language Hearing Association Annual Conference Philadelphia, PA Nov.18-20, 2010.
16. Imaging microvascular blood flow with MRI. University of Illinois Chicago, Sept. 2010.
17. Multimodal Imaging of the Neuromuscular System with MRI. Big Ten speaker exchange program, University of Madison, Wisconsin. Oct. 18. 2010.
18. Improving the spatial resolution and sensitivity of functional brain imaging with MRI. Northwestern University. October 2012.
19. Imaging motions big and small with MRI: Dynamic imaging of speech and magnetic resonance elastography of the brain. Virginia Tech Carilion Research Institute, June 2, 2013.
20. Improving the spatial resolution of diffusion and elastography imaging of the brain. Texas Tech University, October 25, 2013.
21. Dynamic Imaging of Speech with MRI. University of Southern California. February 18, 2014
22. Dynamic and Functional Imaging of Speech and Swallowing. Gordon Center for Medical Imaging, Mass General Hospital. Jan. 22, 2016.
23. Advanced magnetic resonance elastography for medial temporal lobe epilepsy. Clinical and translational neuroscience workshop. Carle Foundation Hospital. April 9, 2016.
24. New methods for dynamic and functional imaging of speech and swallowing with MRI. Haskins Lab. Oct. 13, 2016.
25. Developing High Resolution Diffusion Imaging for Structure, Blood Flow, and Stiffness in the Brain. Shanghai Jiao Tong University, Shanghai, China. Nov. 15, 2016.
26. Low Rank Methods. International Society of Magnetic Resonance in Medicine. Weekend Educational: Image Reconstruction. June 17, 2018, Paris, France.
27. Strategies for Reconstructing MRI Images from Limited, Distorted Data using Field Map Measurements, Low Rank Constraints, and Lots of Computation. American Association of Physics in Medicine. July 30, 2018. Nashville, TN.

GRANT SUPPORT:

ACTIVE

1R21HD095314-01 (PI: **Sutton**)
NIH/NICHD

08/17/2018-08/16/2020

Measuring CSF shunt flow with MRI using flow enhancement of signal intensity (Shunt-FENSI)
This is the current project. In this project we will develop and apply a novel imaging technology to measure the slow flow in CSF shunts. This will enable characterizing the normal ranges and quantitatively measuring blockages in shunts in children.

1R03CA235109-01 (PI: Gaba)
NIH/NCI

02/01/2019-01/31/21

Validation of an Advanced Magnetic Resonance Imaging Protocol for Tracking Liver Cancer and Cirrhosis in a Transgenic Porcine Tumorigenic Platform

This project proposes to develop, adapt, optimize, and validate a magnetic resonance imaging (MRI) and elastography (MRE) protocol for the early detection, diagnosis, and characterization of hepatocellular carcinoma (HCC) and quantification of liver cirrhosis using an Oncopig Cancer Model (OCM) platform to facilitate discovery and therapeutic response monitoring.

1R01AG059878-01 (PI: Fabiani & Gratton) 8/15/2018-4/30/2023 0.06 calendar NIA \$446,689

Optical measures of cerebral arterial function as predictors of brain and cognitive aging
This project aims at assessing the longitudinal influence of a number of risk factors (arteriosclerosis measured with pulse-DOT, pre-diabetic status, cholesterol, smoking, cardiorespiratory fitness measured with VO2max, stress) on brain tissue loss and cognitive decline, in older adults aged 50-70 years.

2013-04950 ANGC1302 (PI: **Sutton**) 05/16/2013-8/16/2019
Total funds: \$1,672,000

Abbott Nutrition Grand Challenge, Center for Nutrition, Learning and Memory
This project will develop and apply methods to characterize brain development in infants.

Jump Applied Research for Community Health through Engineering and Simulation
JUMP-ARCHES (PI: **Sutton**) 08/16/2016-10/15/2018

Developing MRI Acquisitions and Protocols to Enable Automatic Segmentation of Cardiac and Brain Images

Total Funds: \$136,862

This project is developing new ways to acquire and process MRI data to enable fully automated image segmentation pipelines in pediatric cardiac and brain clinical cases.

National Institutes of Health, (PI: Erickson, McAuley) 09/01/2016-08/31/2021
IGNITE: Investigating Gains in Neurocognition in an Intervention Trial of Exercise.

Total Funds: \$442,619 (Total Costs of Sub Contract)

This project evaluates neural biomarkers in a multi-site clinical trial to examine the impact of exercise on cognition.

Illinois Health Science Institute (PI: Sutton and Huston) 08/16/2017-05/15/2019
Measuring CSF shunt flow with MRI using a flow enhancement of signal intensity (Shunt-FENSI)

Total Funds: \$50,000

This project develops a method to image the volumetric flow of CSF in shunts.

PAST GRANT FUNDING

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	#PI's and lead PI if not this prof
6/2005-6/2010	Influence of Fitness on Brain and Cognition	NIA	2,923,970	5, PI: Kramer

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	#PI's and lead PI if not this prof
1/2006 - 12/2006	Computer Modeling and Magnetic Resonance Imaging in the Treatment of Speech Disorders in Individuals Born with Cleft Palate	UIUC Campus Research Board	10,494	PI: Sutton
01/2006 ñ 01/2007	Muscle Imaging and Speech Animation Using MRI Input Data	Beckman Institute Seed Grant	\$18,710	2, PI: Kuehn
01/2006-12/2007	Developing novel methods for neuroimage analysis with applications to cultural psychology	Beckman Institute Seed Grant	\$94,748	3, PI: Wang
09/15/2002-06/30/2007	Neurovascular Coupling in Aging -- Optical Methods	NIH/NIA, R01	2,784,277	5, PI: Fabiani
9/30/05 - 6/30/2010	Cognitive Neuroscience of Aging, Culture and Cognition	NIH/NIA, R01	2,238,185	5, Park Subcontract PI: Sutton
01/01/2008 - 06/30/2009	Cognitive Neuroscience of Aging, Culture, and Cognition	NIH/ subcontract	132,600	PI: Sutton
2007-2011	Imagery, Visual Memory & Aging: A Neuroimaging Approach	NIH/NIA, R01	2,492,163	5, PI: Park
2003-2008	Training in Cognitive Psychophysiology. Training Grant	NIH/NIMH, T32	1,036,260	PI: Miller
07/2000 - 06/2010	Mechanisms of Attentional Bias in Psychopathology	NIH/NIMH, R01	1,622,579	5, PI: Heller
09/01/2006 - 06/30/2006	Neuroimaging of Dedifferentiation and Memory Across the Lifespan	NIH/NIA, R01	2,721,659	5, PI: Park
01/01/2008 - 06/30/2009	Neuroimaging of Dedifferentiation and Memory Across Lifespan	NIH/ Subcontract	306,016	PI: Sutton
03/2007 - 03/2010	An integrated Approach to Improving Measurement Accuracy of Magnetic Resonance Brain Images to Support Change Detection in Large Cohort Studies	ASTAR/SBIC	520,000	3, PI: Chee
05/2007 - 04/2012	A cognitive neuroscience approach for enhancing warfighter training and performance	ONR MURI	6,500,000	5, PI: Kramer

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	#PI's and lead PI if not this prof
09/01/2007-- 8/31/2012	Interdisciplinary Behavioral Science Center: Determinants of executive function and dysfunction	NIH/NIMH, P50	1,450,000	8, PI: Banich (U Colorado)
10/2008	Imaging swallowing of Cough Syrup, Proctor and Gamble	Proctor and Gamble	50,000	Wszalek and Sutton PIs
06/05/2009 - 05/31/2012	MRI analyses of the velopharyngeal mechanism among different adult populations	NIH/NIDCD, R03	\$435,307	PI: Perry, Subcontract PI: Sutton
09/30/09- 09/29/2011	Challenge Grant: Brain and behavioral correlates of fitness, cerebrovascular health and aging	NIH/NIA, RC1	1,000,000	3, PI: Fabiani
2/2010 - 2/2011	"Demyelination in Motor Pathways of the Central Nervous System Predicts Motor Control Reductions in Health Aging	Center on Health, Aging, and Disability. University of Illinois at Urbana-Champaign		PIs: Sutton, Loucks, Sosnoff
7/1/2010 - 6/30/2012	1R21EB010095-01A1 Controlling sensitivity bias in functional MRI studies due to field inhomogeneity	NIH R21, NIBIB	\$404,995	PI: Sutton, 2 co-investigators
7/1/2010- 6/30/2012	1R21EB009768-01A1 Accelerating advanced MRI reconstructions on GPUs	NIH R21, NIBIB	\$405,470	PI: Sutton, 1 co-investigator
7/1/2010- 6/30/2011	Age-related demyelination in motor pathways predicts reductions in fine motor control	American Federation for Aging Research	\$75,000	PI: Sutton, 2 co-investigators
2/17/2011 - 09/01/2012	Impact of perinatal choline availability on Composition, Structure, and Function of the Brain	Division of Nutritional Sciences Vision 20/20 research program, UIUC	\$25,000	PI: Dilger, 2 co-investigators.
08/07/2012- 05/31/2015	1 R56MH097973-01: Application of multi-distance diffuse optical tomography to the study of human brain	NIH/NIMH	\$932,241	PI: Gratton, 2 co-PI's
05/16/2012- 05/15/2015	Nutritional Intake, Cognitive Function, and Measures of Brain Aging	Center for Nutrition, Learning and Memory. Abbott Nutrition Grand Challenges	\$1,315,148	PI: Barbey, 4 co-investigators

Years (Inclusive)	Brief Title or Description	Source of Funds	Total Funding	#PI's and lead PI if not this prof
05/16/2012-05/15/2013	Probing the Effect of Brain Metabolism on Cognitive Function	Center for Nutrition, Learning, and Memory. Abbott Nutrition Grand Challenges	\$174,285	PI: Larsen, 4 co-PI's
08/16/2013-08/15/2017	CRCNS: Computational Imaging of the Aging Cerebral Microvasculature (COMPAGE)	NIH/NIBIB R01EB018107-01 / ANR – collaborative funding from French	\$394,115 + match on French ANR	PI: Sutton