

Danny Jiong Jiong Wang, Ph.D., M.S.C.E.Curriculum VitaeRevised Date: Dec 2011

- Office Address: Department of Neurology
Ahmanson-Lovelace Brain Mapping Center
660 Charles E. Young Dr South
University of California, Los Angeles
Los Angeles, CA 90025
- Education: 1989-1993 B.S. Fu Dan University, Shanghai, China (Biophysics)
1993-1998 Ph.D. University of Science and Technology of China,
Beijing, China (Biophysics)
2007-2011 M.S.C.E. (Master of Science in Clinical Epidemiology)
University of Pennsylvania, School of Medicine, Philadelphia, PA
- Fellowship: 3/99-11/00 Postdoc Research Fellow, Department of Diagnostic
Therapeutics, University of Connecticut Health Center,
Farmington, CT (Advisor: Song Lai, Ph.D.)
11/00-11/01 Postdoc Research Fellow, Departments of Neurology and
Radiology, University of Pennsylvania School of Medicine,
Philadelphia, PA (Advisor: John Detre, M.D.)
11/01-9/03 Research Associate, Departments of Neurology and Radiology,
University of Pennsylvania School of Medicine, Philadelphia, PA
- Professional Experience: 9/03-2/10 Research Assistant Professor, Department of Radiology,
University of Pennsylvania School of Medicine, Philadelphia, PA
1/06-2/10 Research Assistant Professor, Department of Neurology,
University of Pennsylvania School of Medicine, Philadelphia, PA
2/10-present Associate Professor, Department of Neurology,
UCLA David Geffen School of Medicine, Los Angeles, CA
2/11-present Associate Professor (secondary), Department of Radiology,
UCLA David Geffen School of Medicine, Los Angeles, CA
2/11-present Adjunct Associate Professor, Department of Radiology,
University of Pennsylvania School of Medicine, Philadelphia, PA
- Professional Activities: 2004-present External reviewer for Hong Kong RGC (Research Grants Council)
2006 NICHD/NIH Special Emphasis Panel/Initial Review Group
2006 CHHD-C
2008 NSF Cognitive Neuroscience Advisory Panel
2008 External reviewer for Strategic Grant, MRC UK
2009 External reviewer for BBSRC fellowship grant, BBSRC, UK
2010 Consultant for Pfizer, Inc. Groton, CT

2011	NIH Special Emphasis Panel ZRG1 OTC-K, ZDA1 GXM-A
2010-2011	UCLA Department of Neurology Graduate Education Committee
2011-2012	Legislative Assembly Member UCLA Academic Senate
2011-2012	UCLA Department of Neurology Resident Core Curriculum & Summer Stock

Awards, Honors and Membership in Honorary Societies:

1990-93	People's Scholarship
1997	HongKong Dong's Scholarship
2011	WebmedCentral Lead Faculty (Neuroradiology)

International Society of Magnetic Resonance in Medicine (Member 1998-present)
 Organization of Human Brain Mapping (Member 1999-present)
 Cognitive Neuroscience Society (Member 2005-present)

Editorial Positions:

2007-present	Editorial Board Member <u>The Open Medical Imaging Journal</u>
2011-present	Editorial Board Member <u>The Scientific World JOURNAL (Radiology Domain)</u>
2011	Guest Editor, Special issue of <u>Journal of Cognitive Science</u>
2002-present	Ad hoc Reviewer, <u>Magnetic Resonance in Medicine</u>
2003-present	Ad hoc Reviewer, <u>NMR in Biomed.</u>
2004-present	Ad hoc Reviewer, <u>American Journal of Respiratory and Critical Care Medicine.</u>
2004-present	Ad hoc Reviewer, <u>Neuroscience Letters</u>
2005-present	Ad hoc Reviewer, <u>Journal of Cerebral Blood Flow and Metabolism</u>
2005-present	Ad hoc Reviewer, <u>IEEE Transaction on Medical Imaging</u>
2006-present	Ad hoc Reviewer, <u>Journal of the International Neuropsychological</u>
2007-present	Ad hoc Reviewer, <u>NeuroImage</u>
2007-present	Ad hoc Reviewer, <u>Stroke</u>
2006-present	Ad hoc Reviewer, <u>Neuropsychopharmacology</u>
2006-present	Ad hoc Reviewer, <u>Journal of Magnetic Resonance Imaging</u>
2008-present	Ad hoc Reviewer, <u>Psychoneuroendocrinology</u>
2009-present	Ad hoc Reviewer, <u>American Journal of Neuroradiology</u>
2010-present	Ad hoc Reviewer, <u>Medical Physics</u>
2010-present	Ad hoc Reviewer, <u>American Journal of Psychiatry</u>
2010-present	Ad hoc Reviewer, <u>Human Brain Mapping</u>
2010-present	Ad hoc Reviewer, <u>American Journal of Psychiatry</u>
2011-present	Ad hoc Reviewer, <u>European Neurology</u>
2011-present	Ad hoc Reviewer, <u>Journal of Neuroscience</u>
2011-present	Ad hoc Reviewer, <u>Translational Stroke Research</u>
2011-present	Ad hoc Reviewer, <u>MAGMA</u>
2011-present	Ad hoc Reviewer, <u>PNAS</u>

Teaching:

1. "Techniques of Magnetic Resonance Imaging"
 University of Pennsylvania, BME graduate course 2004

2. University of Pennsylvania, Department of Radiology Grand Rounds
2006-2010
3. University of Pennsylvania, Center for Functional Neuroimaging and T32
training grant lecture series 2006-2010
4. ISMRM annual meeting weekend education courses 2008-2009
5. UCLA, Advanced topics in MRI 2010-present
6. UCLA Advances in MRI: Clinical MRS & Fast MRI Techniques
(BMP222) 2011-present

Research Grants and Fellowships Received:

Active:

R01 MH080892 Wang (PI) 4/15/09-2/15/14
 NIMH Pediatric template of brain perfusion
 To develop a functional template or atlas of the normal pediatric brain using arterial spin labeling
 perfusion MRI.
 Role: Principle Investigator

R01 MH080892-S1 (ARRA) Wang (PI) 10/1/09-9/30/12
 NIMH Pediatric template of brain perfusion
 To develop an integrated structural and functional template or atlas of pediatric brain using
 perfusion, diffusion, structural and functional MRI.
 Role: Principle Investigator

Wang (PI) 06/01/09-05/30/12
 Thrasher Research Fund Noninvasive Perfusion MRI in Pediatric Brain Tumor
 This project explores the feasibility for the use of ASL as a biomarker of pediatric brain tumor.
 Role: Principle Investigator (currently serve as consultant due to transfer to UCLA)

P50 AG016570-11A Wang (PI) 05/01/10-04/30/12
 UCLA ADRC Pilot Quantitative Perfusion and Oxygenation MRI in MCI and AD
 This project attempts to validate quantitative perfusion and oxygenation MRI with 15O-water
 and FDG PET in MCI and AD subjects.
 Role: Principle Investigator

HHSN275200900018C Holland/Toga (PI) 1/1/11-12/31/15
 NICHD Pediatric Functional Neuroimaging Research Network
 This project attempts to acquire and develop a database for resting state fMRI and ASL perfusion
 MRI in children 1mo to 17years old.

Past:

R01DA022807 Gee (PI) 05/1/08-04/30/11
 NIMH Advanced neuroimaging registration methods: effects of prenatal
 cocaine exposure
 To develop advanced image registration methods for analysis of perfusion, diffusion and
 structural MRI of adolescents with prenatal cocaine exposure.
 Role: Co-Investigator

P30NS045839 Detre (PI) 04/01/03-11/30/13
 NINDS Neuroscience Neuroimaging Center

This Center Core Grant provides infrastructure support for neuroimaging research.

Role: Co-Investigator

R01 MH080729 Detre (PI) 12/01/07-11/30/10

NIH Perfusion MRI for Multisite Studies of Brain Function

This project will develop and validate scaleable 3D MRI pulse sequences for imaging cerebral blood flow on multiple scanner platforms.

Role: Co-Investigator

P41RR002305-20 Reddy (PI) 06/01/05-05/31/10

NIH A Resource for Magnetic Resonance and Optical Imaging

To develop innovative MR and optical technologies for biomedical research.

Role: Co-Investigator

R01 DA014129 Hurt (PI) 5/1/07 – 4/30/12

NIDA In Utero Cocaine Use: Adolescent and Young Adult

Neurocognitive Outcome Understanding long-term effects of in-utero cocaine use using neuroimaging and behavioral methods.

Role: Co-Investigator

R01 NS057400 Cucchiara (PI) 10/1/07 – 9/30/11

NIH Circle of Willis variability and migraine

To test the hypothesis that Circle of Willis variability is associated with migraine pathophysiology.

Role: Co-Investigator

R01AT004921 Cohen (PI) 5/1/09-4/30/14

NIH Lifestyle Modification and blood Pressure Study (LIMBS)

RCT to test the effect of a structured 24 week yoga program on hypertension

Role: Co-Investigator

R21MH72576 Wang (PI) 01/01/05-11/30/07

NIMH Pediatric Template of Brain Perfusion

To explore the development a functional template or atlas of the normal pediatric brain using arterial spin labeling perfusion MRI.

Role: Principle Investigator

R21 HD049893 Wang (PI) 09/15/05-09/14/08

NICDH Hemodynamic Neuroimaging of Pediatric Stroke

To evaluate perfusion and diffusion MRI in the diagnosis and prognosis of pediatric stroke.

Role: Principle Investigator

Thrasher Research Fund Wang (PI) 02/01/04-1/31/06

ASL Perfusion MRI in Pediatric Brain Stroke

Role: Principle Investigator

Lectures by Invitation:

- Sept 8, 2011 “Arterial spin labeling perfusion MRI - present and future” “Non-contrast 4D dynamic MRA and flow imaging “– Invited talks at Biomedical institute, National Polytechnic Institute, Mexico City, Mexico
- May 12, 2011 “Arterial Spin-Labeled Perfusion Imaging in Acute Ischemic Stroke – Comparison with Dynamic Susceptibility Contrast Enhanced MRI.” Presentation at 19th Annual Meeting ISMRM, Montréal, Canada
- May 5, 2011 “Recent developments of arterial spin labeling” – Invited talk at Siemens workshop on ASL, Erlangen, Germany
- Sept 15, 2010 “Perfusion fMRI using arterial spin labeling” – Invited talk at University of California Berkeley, Berkeley, CA
- Sept 15, 2010 “Pediatric perfusion MRI using arterial spin labeling” – Invited talk at Children’s Hospital of Los Angeles (CHLA), Los Angeles, CA
- Aug 18, 2010 “Characterizing stress states using perfusion and resting fMRI” – Invited talk at The 7th International Conference on Cognitive Science (ICCS2010), Beijing, China
- Jun 11, 2010 “Translation of arterial spin labeling perfusion MRI” – Invited talk at Center for Applied Medical Research, University of Navarra, Pamplona, Spain
- Jun 7, 2010 “Translation of arterial spin labeling perfusion MRI” – Invited talk at Karolinska Institute, Stockholm, Sweden
- Jan 11, 2010 “Latest technical development and clinical applications of ASL” – Invited talk at University of Texas Health Center at San Antonio, San Antonio, TX
- Nov 13, 2009 “Latest technical development and clinical applications of ASL” – Invited talk at Washington University, St Louis, MO
- Oct 19, 2009 “Latest technical development and clinical applications of ASL” – Invited talk at Tsinghua University, Beijing, China
- Oct 17, 2009 “Latest technical development and clinical applications of ASL” – Invited talk at National Seoul University, Seoul, Korea.
- July 1, 2009 “Arterial spin labeling - perfusion and beyond” – Invited talk at Ahmanson Lovelace Brain Mapping Center of UCLA, Los Angeles, CA
- May 27, 2009 “Arterial spin labeling - perfusion and beyond” – Invited talk at Neuroimaging lab, NIDA, Baltimore, MD
- May 8, 2009 “Technical development and applications of ASL perfusion MRI” – Invited talk at University of Kentucky, Lexington, KT
- April 20, 2009 “When perfusion meets diffusion – in vivo measurement of water permeability” – Invited talk at perfusion and diffusion study group, 17th ISMRM annual conferences, Honolulu, Hawaii
- April 18, 2009 “Can we measure perfusion in patients?” – Invited educational talk at 17th ISMRM annual conferences, Honolulu, Hawaii
- Oct 23, 2008 “Updates on latest development in ASL perfusion MRI” – Invited talk at Oxford centre for functional magnetic resonance imaging of the brain, Oxford university, Oxford, UK
- July 9, 2008 “Noninvasive perfusion MRI – from bench to bedside” – Invited talk at Brain Imaging Analysis Center, Duke Medical Center, Durham, NC
- July 2, 2008 “Noninvasive perfusion MRI – from bench to bedside and biomarker for drug discovery” – Invited talk at biomedical imaging consortium, Singapore
- May 3, 2008 “Applications of ASL perfusion MRI” – Invited educational talk at 16th ISMRM annual conferences, Toronto, Canada
- Oct 15, 2007 “ASL perfusion MRI in neuroimaging of stroke and stress” – Invited talk at University of Pittsburgh Medical Center, Pittsburgh, PA

- July 29, 2007 “Dynamic time course of water exchange across the blood-brain barrier revealed by diffusion weighted perfusion MRI” – Proffered talk at ISMRM workshop of perfusion and brain function, Salvador, Brazil
- July 31, 2007 “ASL perfusion MRI in cerebrovascular diseases” – Invited lecture at ISMRM workshop of perfusion and brain function, Salvador, Brazil
- May 16, 2007 “New frontiers in perfusion fMRI” – Invited lecture at University Hospital of Clinical Psychiatry, University of Bern, Switzerland
- Nov 16, 2006 “New frontiers in perfusion fMRI” – Invited lecture at Rochester Center for Brain Imaging, University of Rochester, Rochester NY
- Aug 8, 2006 “New advances in arterial spin labeling perfusion fMRI” – Invited lecture at Institute of Neuroscience, Chinese Academy of Sciences, Shanghai.
- May 4, 2006 “Perfusion fMRI of psychological stress” – Invited lecture at Rockefeller University, New York.
- Feb. 7, 2006 “Pediatric perfusion MRI using arterial spin labeling” – Invited lecture at Lawson Health Research Institute, London ON, Canada
- Jun. 29, 2005 “Perfusion fMRI in Cognitive Neuroscience” – Invited lecture at Singapore General Hospital, Singapore
- Jun. 12, 2005 “Perfusion fMRI in Cognitive Neuroscience” – Invited lecture at State Key Laboratory of Cognitive Brain Imaging, Chinese Academy of Science, Beijing, China
- May 18, 2005 “Perfusion fMRI reveals cerebral blood flow pattern under psychological stress” – 13th International Society of Magnetic Resonance in Medicine meeting, Miami.
- Apr. 29, 2005 “New frontiers in perfusion fMRI” – Invited lecture at Medical College of Wisconsin, Milwaukee, WI
- Sept 9, 2004 “New frontiers in perfusion fMRI” – Invited lecture at Emory University, Atlanta, GA
- June 20, 2004 “To spoil or not to spoil the labeling – transit time imaging in pulsed arterial spin labeling” – 12th International Society of Magnetic Resonance in Medicine meeting, Kyoto, Japan
- June 19, 2003 “Application of perfusion fMRI” – 10th Annual Conference of the Organization of Human Brain Mapping, New York
- July, 14, 2003 “Pediatric perfusion imaging using pulsed arterial spin labeling” – 11th International Society of Magnetic Resonance in Medicine meeting, Toronto
- July, 15, 2003 “Transit time imaging with flow encoding arterial spin tagging (FEAST)” – 11th International Society of Magnetic Resonance in Medicine meeting, Toronto.
- June, 11, 2002 “Comparison of Quantitative Perfusion Imaging using Arterial Spin Labeling at 1.5 and 4.0 Telsa” – 10th International Society of Magnetic Resonance in Medicine meeting, Hawaii.

Meeting session moderated:

- July 31, 2007 Clinical applications of perfusion MRI – ISMRM workshop of perfusion and brain function, Salvador, Brazil
- April 23, 2009 Arterial spin labeling techniques session - 17th ISMRM annual conferences, Honolulu, Hawaii
- Aug 18, 2010 Symposium on arterial spin labeling perfusion MRI - The 7th International Conference on Cognitive Science (ICCS2010), Beijing, China

Publication/Bibliography:

Research Publications, peer reviewed:

1. **J. Wang**, Y. Jin, F. Xiao, S. Fan and L. Chen. (1999) Attention-Sensitive Event-Related Potentials Elicited by Kinetic Forms. *Clin. Neurophysio.* **110**: 329-341.
2. **J. Wang**, T. Zhou, M. Qiu, A. Du, K. Cai, Z. Wang, C. Zhou, M. Meng, Y. Zhuo, S. Fan and L. Chen. (1999) Relationship between Ventral Stream for Object Vision and Dorsal Stream for Spatial Vision: an fMRI+ERP Study. *Human Brain Mapping* **8**(4): 170-181.
3. S. Lai, **J. Wang**, G.H. Jahng. (2001) FAIR exempting separate T1 measurement (FAIREST): a novel technique for online quantitative perfusion imaging and multi-contrast fMRI. *NMR in Biomed.* **14**:507-516.
4. R.L. Wolf, D.C. Alsop, M.L. McGarvey, J.A. Maldjian, **J. Wang**, J.A. Detre (2003) Susceptibility Contrast and Arterial Spin Labeled Perfusion MRI in Cerebrovascular Disease. *J. Neuroimage* **13**(1): 17-27.
5. **J. Wang**, D.C. Alsop, L. Li, J. Listerud, J.B. Gonzalez-At, M.D. Schnall and J.A. Detre (2002) Comparison of Quantitative Perfusion Imaging using Arterial Spin Labeling at 1.5 and 4.0 Tesla. *Magn. Reson. Med.* **48**:242-254.
6. T.F. Floyd, S.J. Ratcliffe, **J. Wang**, B. Resch, J.A. Detre. (2003) Precision of the CASL-perfusion MRI technique: global and regional cerebral blood flow within vascular territories at one hour and one week. *J. Mag. Reson. Imag.* **18**:649-655.
7. **J. Wang**, G.K. Aguirre, D.Y. Kimberg, J.A. Detre (2003) Empirical analyses of null-hypothesis perfusion fMRI data at 1.5 and 4.0 Tesla. *Neuroimage.* **19**(4):1449-1462.
8. **J. Wang**, D.C. Alsop, H.K. Song, J.A. Maldjian, K. Tang, A.E. Salvucci, J.A. Detre. (2003) Transit time imaging with flow encoding arterial spin tagging (FEAST). *Magn. Reson. Med.* **50**(3):599-607.
9. **J. Wang**, G.K. Aguirre, D.Y. Kimberg, A.C. Roc, L. Li, J.A. Detre (2003) Arterial spin labeling perfusion fMRI with very low task frequency. *Magn. Reson. Med.* **49**: 796-802.
10. Y. Zhuo, T. Zhou, H. Rao, **J. Wang**, M. Meng, M. Chen, C. Zhou, L. Chen (2003) Contributions of the visual ventral pathway to long range apparent motion. *Science* **299** (17): 417-420.
11. **J. Wang**, L. Li, A.C. Roc, D.C. Alsop, K. Tang, N. Butler, M.D. Schnall and J.A. Detre (2004) Reduced susceptibility effect in perfusion fMRI using single-shot spin-echo EPI acquisitions. *Magn. Reson. Imag.* **22**:1-7.
12. T. Durduran, G. Yu, M.G. Burnett, J.A. Detre, J.H. Greenberg, **J. Wang**, C. Zhou, A.G. Yodh (2004) Diffuse optical measurement of blood flow, blood oxygenation and metabolism in a human brain during sensorimotor cortex activation. *Optics Letters*, **29**(15): 1766-1768
13. **J. Wang**, D.J. Licht, G.H. Jahng, C.S. Liu, J.T. Rabin, J. Haselgrove, R.A. Zimmerman and J.A. Detre (2004) Pediatric perfusion imaging using pulsed arterial spin labeling. *J. Magn. Reson. Img.* **18**(4):404-413.

14. **J.Wang**, Z. Wang, G.K. Aguirre, J.A. Detre (2004) To smooth or not to smooth? – ROC analysis of perfusion fMRI data. *Magn. Reson. Imag.* **23**: 75-81
15. D.J. Licht, **J. Wang**, D.W. Silvestre, S.C. Nicolson, L.M. Montenegro, S. Tabbutt, S.M. Durning, M. Shabbout, D.M. Shera, J.W. Gaynor, T.L. Spray, R.R. Clancy, R.A. Zimmerman, J.A. Detre (2004) Preoperative Cerebral Blood Flow is Diminished in Neonates with Severe Congenital Heart Defects. *J. Thoracic & Cardiovascular Surgery.* **128**: 841-849
16. **J. Wang**, H. Rao, G.S. Wetmore, P.M. Furlan, M. Korczykowski, D.F. Dinges, J.A. Detre (2005) Perfusion functional MRI reveals cerebral blood flow pattern under psychological stress. *Proceedings of the National Academy of Sciences of U.S.A.* **102**:17804-17809.
17. A. Newberg, **J. Wang**, H. Rao, R.L. Swanson, J.S. Karp, A. Alavi, J.H. Greenberg, N. Wintering, J.A. Detre (2005) Concurrent CBF and CMRGlc Changes During Human Brain Activation by Combined fMRI-PET Scanning. *Neuroimage* **28**: 500-506
18. M. Fernández-Seara, Z. Wang, **J.Wang**, H. Rao, M. Guenther, D.A. Feinberg, J.A. Detre (2005) Continuous arterial spin labelling perfusion measurements using single shot 3D GRASE at 3T *Magn. Reson. Med.* **54**: 1241-1247
19. R.L. Wolf, **J. Wang**, S. Wang, E.R. Melhem, D.M. O'Rourke, K.D., Judy, J.A. Detre (2005) Grading of CNS neoplasms using continuous arterial spin labeled perfusion MRI at 3 Tesla. *J. Magn. Reson. Imag.* **22**: 475-482
20. Z. Wang, **J.Wang**, J.A. Detre (2005) An improved data reconstruction method for GRAPPA. *Magn. Reson. Med.* **54**: 738-742
21. Y. Zhang, H.K. Song, **J. Wang**, A. Techawiboonwong, F.W. Wehrli (2005) Spatially confined arterial spin labeling with FAIR *J. Magn. Reson. Imag.* **22**(1): 119-124
22. Z. Wang, **J.Wang**, T. Connic, G. Wetmore, J.A. Detre (2005) Continuous ASL perfusion MRI with an array coil and parallel imaging at 3T. *Magn. Reson. Med.* **54**: 732-737
23. K.S. Lawrence, **J.Wang** (2005) Effects of the apparent transverse relaxation time on cerebral blood flow measurements obtained by arterial spin labeling. *Magn. Reson. Med.* **53**:425-433
24. **J. Wang**, Y. Zhang, R.L. Wolf, A.C. Roc, D.C. Alsop and J.A. Detre (2005) Amplitude modulated continuous arterial spin labeling perfusion MRI with single coil at 3.0 Tesla- feasibility study. *Radiology* **235**:218-228
25. A.C. Roc, **J. Wang**, B.M. Ances, D.S. Liebeskind S.E. Kasner, J.A. Detre (2006) Altered Hemodynamics and Regional Cerebral Blood Flow in Patients with Hemodynamically Significant Stenoses. *Stroke* **37**:382-387
26. **J. Wang**, D.J. Licht, D.W. Silvestre, J.A. Detre (2006) Why Perfusion in Neonates with Congenital Heart Defects is Negative? -- Technical Issues Related to Pulsed Arterial Spin Labeling. *Magn. Reson. Imag.* **24**: 249-254

27. Z. Wang, **J. Wang**, V. Calhoun, H. Rao, J.A. Detre A.R. Childress (2006) Strategies for reducing large fMRI data sets for independent component analysis. *Magn. Reson. Imag.* **24**:591-596
28. H. Rao, **J. Wang**, K. Tang, W. Pan, J.A. Detre (2006) Imaging Brain Activities during Natural Vision by ASL Perfusion fMRI. *Human Brain Mapping* **28**(7):593-601
29. S. Wang, R.L. Wolf, J. Woo, **J. Wang**, D. O'Rourke, R. Subhojit, E.R. Melhem, H Poptani (2006) Actinomycotic Brain Abscess: Combined Findings of Diffusion, Perfusion and MR Spectroscopy. *Neuroradiology* **48**:346-50.
30. B.M. Ances, A.C. Roc, **J. Wang**, M. Korczykowski, J. Okawa, J. Stern, J. Kim, R. Wolf, K. Lawler, D.L. Kolson, J.A. Detre (2006) Caudate blood flow and volume are reduced in HIV⁺ neurocognitively impaired patients. *Neurology* **66**: 862-866
31. C.E. Jones, R.L. Wolf, J.A. Detre, B. Das, P.K. Saha, **J. Wang**, Y. Zhang, H.K. Song, A.L. Wright, E.R. Mohler III, R.M. Fairman, E.L. Zager, O.C. Velazquez, M.A. Golden, H.D. Aronow, F.W. Wehrli (2006) Unilateral spin labeling provides detailed information on the hemodynamics of brain blood flow in patients with carotid artery disease before and after endarterectomy. *NMR in Biomedicine* **19**: 198-208
32. J. Kim, J. Whyte, **J. Wang**, H. Rao, K. Tang, J.A. Detre (2006) Continuous ASL perfusion fMRI investigation of higher cognition: quantification of tonic CBF changes during sustained attention and working memory tasks. *Neuroimage* **31**:376-385
33. I.R. Olson, H. Rao, K. Sledge, **J. Wang**, J.A. Detre, G.K. Aguirre (2006) Continuous Sequence Learning Studied with Perfusion fMRI *Brain and Cognition* **60**:262-271
34. W.-C. Wu, M.A. Fernández-Seara, J.A. Detre, F.W. Wehrli, **J. Wang** (2007) A theoretical and experimental investigation of the tagging efficiency of pseudo-continuous arterial spin labeling. *Magn. Reson. Med.* **58**(5):1020-7
35. Z. Wang, A.R. Childress, **J. Wang**, J.A. Detre (2007) Support vector machine learning-based fMRI data group analysis. *Neuroimage* **36**(4):1139-1151
36. S. Chawla, S. Wang, R.L. Wolf, J.H. Woo, **J. Wang**, D.M. O' Rourke, K.D. Judy, M.S. Grady, E.R. Melhem, H. Poptani (2007) Arterial Spin Labeling and Magnetic Resonance Spectroscopy in Differentiation of Gliomas *AJNR* **28**(9):1683-9
37. Wang Z., Aguirre G.K., Rao H., **Wang J.**, Fernandez-Seara M.A., Childress A.R. Detre J.A. (2007) Empirical optimization of ASL data analysis using an ASL data processing toolbox: ASLtbx. *Magn Reson Imaging* **26**(2):261-9
38. H. Rao, **J. Wang**, M. Korczykowski, J. Giannetta, D. Shera, B. Avants, J. Gee, J.A. Detre, H. Hurt (2007): Altered resting brain function in prenatally cocaine-exposed teenagers: a CASL perfusion fMRI study. *Pediatrics* **120**(5):e1245-54
39. T.R. Franklin, Z. Wang, **J. Wang**, N. Sciortino, D. Harper, Y. Li, R. Ehrman, K. Kampman, C.P. O'Brien, J.A. Detre, A.R. Childress (2007) Limbic activation to cigarette smoking cues

independent of nicotine withdrawal: a perfusion fMRI study. *Neuropsychopharmacology* **32**: 2301-2309.

40. Y. Fan, H. Rao, H. Hurt, J. Giannetta, M. Korczykowski, D. Shera, B.B. Avants, J.C. Gee, **J. Wang**, D. Shen (2007) Multivariate examination of brain abnormality using both structural and functional MRI. *Neuroimage* **36**(4):1189-99
41. **J. Wang**, M. Korczykowski, H. Rao, Y. Fan, J. Pluta, R.C. Gur, B.S. McEwen, J.A. Detre (2007) Gender difference in neural responses to psychological stress. *Social Cognitive & Affective Neuroscience* **2**(3): 227-239.
42. B.B. Avants, H. Hurt, J. Giannetta, C.L. Epstein, D. Shera, H. Rao, **J. Wang**, J.C. Gee (2007) Effects of Heavy In-Utero Cocaine Exposure on Adolescent Caudate nucleus: A Structural MRI study *Pediatric Neurology* **37**(4):275-279.
43. G. Yu, T.F. Floyd, T. Durduran, C. Zhou, **J. Wang**, J.A. Detre, A.G. Yodh (2007) Validation of diffuse correlation spectroscopy for muscle blood flow with concurrent arterial-spin-labeling perfusion. *Optical Express* **15**, 1064-1075
44. W.A. Kofke, P.A. Blissitt, H. Rao, **J. Wang**, K. Addya, J.A. Detre (2007) Remifentanyl-Induced Cerebral Blood Flow Effects in Normal Humans: Dose and ApoE Genotype Effects. *Anesthesia & Analgesia* **105**(1):167-75
45. M.A. Fernández-Seara, **J. Wang**, Z. Wang, M. Korczykowski, M. Guenther, D.A. Feinberg, J.A. Detre (2007) Imaging mesial temporal lobe activation during scene encoding: comparison of fMRI using BOLD and ASL. *Human Brain Mapping* **28**(12):1391-400
46. H. Rao, S.J. Gillihan, **J. Wang**, M. Korczykowski, G.M.V. Sankoorikal, K.A. Kaercher, E.S. Brodtkin, J.A. Detre, M.J. Farah (2007) Genetic Variation in Serotonin Transporter Alters Resting Brain Function in Healthy Individuals. *Biological Psychiatry* **62**(6): 600-606
47. **J. Wang**, K.S. Lawrence, M. Fernández-Seara, S. Wang (2007) When perfusion meets diffusion – in vivo measurement of water permeability in human brain. *J Cerebral Blood Flow & Metabolism*. **27**(4):839-49.
48. W.-C. Wu, B. Edlow, **J. Wang**, J.A. Detre (2008) Physiological modulations in arterial spin labeling perfusion magnetic resonance imaging. *IEEE Transactions on Medical Imaging* **28**(5):703-9
49. M.A. Fernández-Seara, B. Edlow, A. Huong, **J. Wang**, D.A. Feinberg, J.A. Detre (2008) Minimizing Acquisition Time of ASL at 3T. *Magn. Reson. Med.* **59**(6):1467-71
50. W.-C. Wu, **J. Wang**, J.A. Detre, F.W. Wehrli, E. Mohler, S.J. Ratcliffe, T.F. Floyd. (2008) Hyperemic Flow Heterogeneity within the Calf, Foot, and Forearm Measured with Continuous Arterial Spin Labeling MRI. *Am J Physiol Heart Circ Physiol* **294**(5):H2129-36
51. W.-C. Wu, **J. Wang**, J.A. Detre, T.F. Floyd (2008) Transit Delay and Flow Quantification in Muscle with Continuous Arterial Spin Labeling Perfusion-MRI *J. Magn Reson Imaging* **28**(2):445-52

52. R.L. Wolf, **J. Wang**, J.A. Detre, E.L. Zager, R.W. Hurst (2008) Arteriovenous shunt visualization in AVMs with arterial spin labeling MRI. *AJNR*. **29**(4):681-7
53. Detre JA, **Wang J**, Wang Z, Rao H. (2009) Arterial spin-labeled perfusion MRI in basic and clinical neuroscience. *Curr Opin Neurol*. **22**(4):348-55
54. P.J. Gianaros, L.K. Sheu, A.M. Remo, I.C. Christie, H.D. Critchley, **J. Wang** (2009) Heightened resting neural activity predicts exaggerated stressor-evoked blood pressure reactivity. *Hypertension* **53**(5):819-25..
55. L. Yan, Y. Zhuo, Y. Ye, S.X. Xie, J. An, G.K. Aguirre, **J. Wang** (2009) Physiological origin of low frequency drift in BOLD fMRI. *Magn. Reson. Med*. **61**(4):819-27
56. J. Chen, D.J. Licht, S.E. Smith, S.C. Agner, S. Mason, S. Wang, D.W. Silvestre, J.A. Detre, R.A. Zimmerman, R.N. Ichord, **J. Wang**. (2009) Arterial spin labeling perfusion MRI in pediatric arterial ischemic stroke – initial experiences. *J. Magn Reson Imaging* **29**(2):282-290 .
57. H. Horn, A. Federspiel, M. Wirth, T. Müller, R. Wiest, **J. Wang**, W. Strik (2009) Structural and Metabolic Changes in Language Areas Linked to Formal Thought Disorder. *British Journal of Psychiatry* **194**:130-138.
58. Lim J, Wu W-C, **Wang J**, Detre JA, Dinges DF, Rao H (2010) Imaging Brain Fatigue from Sustained Mental Workload: An ASL Perfusion Study of the Time-On-Task Effect. *NeuroImage* **49**(4):3426-35.
59. H. Rao, L. Betancourt, J.M. Giannetta, N.L. Brodsky, M. Korczykowski, B.B. Avants, J.C. Gee, **J. Wang**, H. Hurt, J.A. Detre, M.J. Farah (2010) Early Parental Care Is Important for Hippocampal Maturation: Evidence from Brain Morphology in Humans. *Neuroimage* **49**(1):1144-50
60. Gillihan SJ, Rao H, **Wang J**, Detre JA, Breland J, Sankoorikal GM, Brodtkin ES, Farah MJ (2010) Serotonin transporter genotype modulates amygdala activity during mood regulation. *Soc Cogn Affect Neurosci*. **5**(1):1-10.
61. Durduran T, Zhou C, Buckley EM, Kim MN, Yu G, Choe R, Gaynor JW, Spray TL, Durning SM, Mason SE, Montenegro LM, Nicolson SC, Zimmerman RA, Putt ME, **Wang J**, Greenberg JH, Detre JA, Yodh AG, Licht DJ. (2010) Optical measurement of cerebral hemodynamics and oxygen metabolism in neonates with congenital heart defects. *J Biomed Opt*. **15**(3):037004.
62. Yan L, Wang S, Zhuo Y, Wolf RL, Stiefel MF, An J, Ye Y, Zhang Q, Melhem ER, **Wang DJ** (2010) Non-contrast dynamic MRA with high spatial and temporal resolution using TrueFISP based spin tagging with alternating radiofrequency (TrueSTAR). *Radiology* **256**(1):270-9
63. Wu W, Jain V, Li C, Gianatte M, Hurt H, Wehrli FW, **Wang DJ** (2010) In vivo venous blood T1 measurement using inversion-recovery TrueFISP *Magn. Reson. Med*. **64**(4):1140-1147

64. **Wang DJ**, Bi X, Avants BB, Meng T, Zuehlsdorff S, Detre JA (2010) Estimation of Perfusion and Arterial Transit Time in Myocardium using Free-breathing Myocardial ASL with Navigator-echo *Magn. Reson. Med.* 64(5):1289-95
65. Kim J, Whyte J, Patel S, Avants B, Europa E, **Wang J**, Slattery J, Gee JC, Coslett HB, Detre JA. (2010) Resting CBF alterations in chronic traumatic brain injury: An arterial spin labeling perfusion fMRI study. *J Neurotrauma.* 27(8):1399-411
66. Wey HY, **Wang DJ**, Tuong TQ (2011) Baseline CBF, and BOLD, CBF, and CMRO₂ fMRI of visual and vibrotactile stimulations in baboons. *J Cerebral Blood Flow & Metabolism.* 31(2):715-24.
67. **Wang DJ**, Rao H, Korczykowski M, Pluta J, Wintering N, Newberg AB (2011) Neural Correlates of Meditation Effects on Stress and Well Being. *Psychiatry Research: Neuroimaging* 191(1):60-7
68. Chen Y, **Wang DJ**, Detre JA. (2011) Test-Retest Reliability of Arterial Spin Labeling with Common Labeling Strategies. *J. Magn Reson Imaging* 33(4):940-9
69. Chen Y, Wan H, Korczykowski M, Wang Z, **Wang DJ**, Detre JA. (2011) Arterial Spin Labeling phMRI After a Single Dose of Oral Citalopram. *Clinical Pharmacology & Therapeutics* 89(2):251-8.
70. Gillihan SJ, Rao H, Brennan L, **Wang DJ**, Detre JA, Sankoorikal GM, Brodtkin ES, Farah MJ. (2011) Serotonin transporter genotype modulates the association between depressive symptoms and amygdala activity among psychiatrically healthy adults. *Psychiatry Res.* 193(3):161-7
71. Yan L, Wang B, Zhuo Y, **Wang DJ**. Loss of coherence of BOLD fMRI in visual cortex of aged subjects. *The Open Medical Imaging Journal* 2011, 5, (Suppl 1-M6) 105-111

Research Publications, peer reviewed (in press):

72. Zou Q, Gu H, **Wang DJ**, Yang Y. Quantification of Load Dependent Brain Activity in Parametric N-Back Working Memory Task using Pseudo-Continuous Arterial Spin Labeling (pCASL) Perfusion Imaging. *Journal of Cognitive Science* (in press)
73. Kilroy E, Liu CY, Yan L, Kim YC, Dapretto M, Mendez MF, **Wang DJ**. Relationships between Cerebral Blood Flow and IQ in Typically Developing Children and Adolescents *Journal of Cognitive Science* (in press)
74. Chen Y, **Wang DJ**, Detre JA. Comparison of arterial transit times estimated using arterial spin labeling. *MAGMA.* (in press)
75. St Lawrence KS, Owen D, **Wang DJ**. A two-stage approach for measuring vascular water exchange and arterial transit time by diffusion-weighted perfusion MRI. *Magn. Reson. Med.* (in press)
76. Yan L, Li C, Kilroy E, Wehrli FW, **Wang DJ**. Quantification of arterial blood volume using multi-phase balanced SSFP based ASL. *Magn. Reson. Med.* (in press)

77. **Wang DJ**, Alger JR, Qiao JX, Hao Q, Hou S, Fiaz R, Gunther M, Pope WB, Saver JL, Salamon N, Liebeskind DS. The Value of Arterial Spin-Labeled Perfusion Imaging in Acute Ischemic Stroke – Comparison with Dynamic Susceptibility Contrast Enhanced MRI. *Stroke (in press)*
78. Jain V, Duda J, Avants B, Giannetta M, Xie SX, Roberts T, Detre JA, Hurt H, Wehrli FW, **Wang DJ**. Precision and Accuracy of Pseudo-Continuous Arterial Spin Labeled Perfusion MRI in Typically Developing Children. *Radiology (in press)*
79. Kim J, Whyte J, Patel S, Europa E, **Wang J**, Coslett HB, Detre JA. Methylphenidate modulates sustained attention and cortical activation in survivors of traumatic brain injury: a perfusion fMRI study. *Psychopharmacology (Berl)*. (in press)

Research Publications, peer reviewed (submitted):

80. Yu S, Yan L, Yao Y, Wang S, Yang M, Wang B, Zhuo Y, Ai L, Miao X, Zhao J, **Wang DJ** Non-contrast Dynamic MRA in Intracranial Arteriovenous Malformation (AVM): Comparison with time of flight (TOF) and digital subtraction angiography (DSA). *Magn. Reson. Imag.* (under review)

Editorials, Reviews, Chapters:

1. **J. Wang**, J.A. Detre. Arterial Spin Labeling Perfusion MRI in Stroke. In *clinical MR Neuroimaging: Diffusion, Perfusion and Spectroscopy*, Eds. J.H. Gillard, A.D. Waldman and P. Barker, Cambridge University Press, Cambridge. 2005: p207-222.
2. G. Aguirre, J.A. Detre, **J. Wang**. Perfusion based Functional Neuroimaging. In *International Review of Neurobiology*, Vol 66. *Neuroimaging Part A*. Ed. M. Glabus, Academic Press San Diego 2005: 66 p213-234.
3. **J. Wang**, D.J. Licht (2006) Pediatric perfusion MRI with arterial spin labeling *Neuroimaging Clinics of North America* **16**: 149-167
4. J.A. Detre, **J. Wang**. (2002) Technical aspects and utility of fMRI based on BOLD and ASL contrast. *Clin. Neurophysiol.* **113**:621-634.
5. **J. Wang**, H. Rao, J.A. Detre. Arterial spin labeling perfusion MRI in developmental neuroscience. In *Neuroimaging in Developmental Clinical Neuroscience*, Eds. J. Rumsey, M. Ernst, Cambridge University Press, Cambridge. p326-343
6. Fernandez-Seara MA, Chen J. **J. Wang**, J.A. Detre. Arterial Spin Labeling Perfusion MRI in Stroke. In *clinical MR Neuroimaging: Diffusion, Perfusion and Spectroscopy*, 2nd edition Eds. J.H. Gillard, A.D. Waldman and P. Barker, Cambridge University Press, Cambridge. p215-234.
7. Detre JA, **Wang J**, Wang Z, Rao H. Arterial spin-labeled perfusion MRI in basic and clinical neuroscience. *Curr Opin Neurol*. 2009 22(4):348-55
8. Goff DA, Buckley EM, Durduran T, **Wang J**, Licht DJ. Noninvasive cerebral perfusion imaging in high-risk neonates. *Semin Perinatol*. 2010 Feb;34(1):46-56.

9. Wu WC, St Lawrence KS, Licht DJ, **Wang DJ**. Quantification issues in arterial spin labeling perfusion magnetic resonance imaging. *Top Magn Reson Imaging*. 2010;21(2):65-73.
10. **Wang DJ**, Chen Y, Fernández-Seara MA, Detre JA. Potentials and challenges for arterial spin labeling in pharmacological magnetic resonance imaging. *J Pharmacol Exp Ther*. 2011;337(2):359-66.
11. Detre JA, Rao H, **Wang DJ**, Chen YF, Wang Z. Applications of arterial spin labeled MRI in the brain. *J Magn Reson Imaging*. 2012 (in press)

Research Publications, non-peer reviewed:

1. Noninvasive Perfusion MRI on the Horizon **J. Wang**, D.J. Licht, R.L. Wolf *Medical Imaging* 2007 May.

Research Publications, peer reviewed (in preparation):

1. Liu CY, Priya A, Yan L, Kilroy E, Alger JR, Ringman J, **Wang DJ**. Complexity and synchronicity of resting state BOLD fMRI in normal aging and familial Alzheimer's disease.
2. Yan L, Smith RX, **Wang DJ**. Non-contrast 4D dynamic MRA using multi-bolus TrueFISP based Spin Tagging with Alternating Radiofrequency (TrueSTAR).

Abstracts: (Please list only those in the past 3 years.)

1. Chen Y, Newberg AB, Wang J, Rao H, An H, Greenberg J, Wintering N, Tolles V, Detre JA (2009) Caffeine effects on resting-state oxygen and glucose metabolism: a combined MR and PET study. *Proceeding of the 17th ISMRM meeting* p 793
2. Yan L, Zhuo Y, Ye Y, Xie S, An J, Aguirre G, Wang J (2009) Physiological origin of low frequency drift in BOLD fMRI. *Proceeding of the 17th ISMRM meeting* p 1590
3. Wu W-C, Wang J (2009) Ultrafast blood T1 mapping with SSFP imaging *Proceeding of the 17th ISMRM meeting* p 2687
4. Yan L, Wen D, Xue R, Wang J, Zhuo Y (2009) Phase angle tilting (PAT) for distortion correction caused by susceptibility in EPI. *Proceeding of the 17th ISMRM meeting* p 2782
5. Yan L, Zhuo Y, Wang B, Xue R, Aguirre G, Wang J (2009) Age effects on low frequency physiological fluctuations in resting BOLD fMRI. *Proceeding of the 17th ISMRM meeting* p3228
6. Yan L, Zhuo Y, Wang J (2009) Quantitative dynamic MRA using ASL based TrueFISP. *Proceeding of the 17th ISMRM meeting* p 3635
7. Yan, L., Zhuo, Y., Wang, B., Xue, R., Aguirre, G., and Wang, J., Age effects on low frequency physiological fluctuations in resting state BOLD fMRI. 15th Annual Meeting of OHBM 2009.

8. Chen Y, Minkoff D, Wang J, Detre JA (2009) CSF suppression improves signal stability of ASL time series. *Proceeding of the 17th ISMRM meeting* p 3651
9. Yan, L., Zhuo, Y., An, J., and Wang, J., Dynamic MR angiography and microvascular flow imaging with high temporal resolution using TrueFISP based Spin Tagging with Alternating Radiofrequency (TrueSTAR). In: Proc 18th Annual Meeting ISMRM, Stockholm; 2010.
10. Yan, L., Zhuo, Y., Wang, B., Li, C., and Wang, J., Correlation between venous blood T1 and BOLD fMRI in young and elderly subjects. In: Proc 18th Annual Meeting ISMRM, Stockholm; 2010.
11. Wang, S., Yan, L., Zhuo, Y., Wolf, R., Stiefel, M., An, J., Melhem, E., and Wang, J., Non-contrast Dynamic MRA using TrueFISP based Spin Tagging with Alternating Radiofrequency (TrueSTAR) in Cerebral Arteriovenous Malformation. In: Proc 18th Annual Meeting ISMRM, Stockholm; 2010.
12. Yan, L., Zhuo, Y., An, J., and Wang, J., Perfusion functional MRI with high temporal resolution using TrueFISP based STAR. 16th Annual Meeting of OHBM 2010.
13. Yan, L., Spunt, R., Kilroy, E., Gunther, M., Lieberman, M., And Wang, J., GRASE functional MRI with high temporal resolution and reduced susceptibility artifacts. 17th Annual Meeting of OHBM 2010.
14. Yan, L., Li C., Kilroy, E., Wehrli, F., and Wang, J., Quantification of arterial and microvascular cerebral blood volume using multiphase TrueFISP based ASL. In: Proc 18th Annual Meeting ISMRM, Stockholm; 2010.
15. Wang DJ, Alger JR, Qiao JX, Hao Q, Hou S, Fiaz R, Gunther M, Pope WB, Saver JL, Salamon N, Liebeskind DS. Arterial Spin-Labeled Perfusion Imaging in Acute Ischemic Stroke – Comparison with Dynamic Susceptibility Contrast Enhanced MRI. In: Proc 19th Annual Meeting ISMRM, Montréal; 2011
16. Yan, L., Spunt, R., Kilroy, E., Gunther, M., Lieberman, M., And Wang, J., GRASE functional MRI with asymmetric spin-echo. In: Proc 19th Annual Meeting ISMRM, Montréal; 2011
17. Yan, L., Yu, J., Xue, Y., Song, H., Kumar, R., Wang, J., Time-Resolved 4D MRA using TrueFISP based Spin Tagging and Dynamic Golden Angle Radial Acquisition. In: Proc 19th Annual Meeting ISMRM, Montréal; 2011.
18. A. K. Priya, L. Yan, and D. J. Wang Is cerebral microvascular flow anisotropic - preliminary evidence from multi-directional diffusion weighted perfusion MRI. In: Proc 19th Annual Meeting ISMRM, Montréal; 2011.

Patents:

1. An FMRI Method to Assess Individual Reactivity to Psychological Stress (US2007/008065)
2. 4D quantification and dynamic visualization of hemodynamics using magnetic resonance imaging (pending)

* Founded perfusion fMRI website (www.cfn.upenn.edu/perfusion). Written and disseminated (through agreement with Siemens and PENN Technology Transfer Center) ASL code to approximately 100 neuroimaging sites in North America, Europe, Asia and Pacific