
BIOGRAPHICAL SKETCH

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NAME Shen, Li	POSITION TITLE Assistant Professor of Radiology and Imaging Sciences		
eRA COMMONS USER NAME li_shen			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Xi'an Jiao Tong University, Xi'an, China	B.S.	1993	Computer Science
Shanghai Jiao Tong University, Shanghai, China	M.S.	1996	Computer Science
Dartmouth College, NH, USA	Ph.D.	2004	Computer Science

Contact Information:

Li Shen, Ph.D., Assistant Professor
Center for Neuroimaging, Dept. of Radiology and Imaging Sciences
Center for Computational Biology and Bioinformatics
Indiana University School of Medicine
950 W Walnut St, R2 E124
Indianapolis, IN 46202
Tel: (317) 278-0498
Fax: (317) 274-1067
Email: shenli@iupui.edu
URL: <http://www.iupui.edu/~shenlab/>

A. Research Focus

The goal of our Imaging Genomics Lab at the IU Center for Neuroimaging is to investigate the role of genetic variation in disordered brain function using neuroimaging and biomarkers as phenotypes. We develop computational and informatics methods for integrative analysis of multimodal neuroimaging data (e.g., structural, functional, diffusion MRI and molecular imaging), high throughput "omics" data (e.g., GWAS, NGS, proteomics), and other biomarker data (e.g., clinical, cognitive and fluid biomarkers), with applications to various brain disorders. Keywords describing my area of expertise include:

Imaging genomics and bioinformatics
Medical image computing
Machine learning and data mining
Shape modeling and surface morphometry
Imaging sciences and genetics in brain disorders

B. Positions and Honors

Positions and Employment

1998-99 Teaching Assistant, Department of Computer Science, Dartmouth College
1999-01 Research Assistant, Bioinformatics Department, Dartmouth Medical School (DMS)
1999-04 Research Assistant, Brain Imaging Laboratory, DMS & Computer Science Dept., Dartmouth College
2004-04 Research Associate, Brain Imaging Laboratory, DMS & Computer Science Dept., Dartmouth College
2004-07 Assistant Professor, Computer & Information Science, University of Massachusetts Dartmouth
2007- Assistant Professor, Radiology and Imaging Sciences, Indiana University (IU) School of Medicine
2007- Member, Center for Neuroimaging, Indiana Institute for Biomedical Imaging Sciences
2007- Member, Center for Computational Biology and Bioinformatics, IU School of Medicine
2008- Adjunct Assistant Professor, Computer and Information Science, Purdue University Indianapolis

- 2008- Associate Investigator, Stark Neurosciences Research Institute, IU School of Medicine
- 2009- Member, Graduate Faculty with Endorsement to Direct Dissertations, IU School of Medicine
- 2011- Member, Indiana Institute of Personalized Medicine
- 2012- Adjunct Assistant Professor, School of Informatics, Indiana University Indianapolis

Other Experience and Professional Memberships and Honors

- 1995- Reviewer, 3 books, 36 scientific journals, 49 professional conferences
- 2006- Technical Program Committee, MLMI (2011), MBIA (2011), BMEI (2011-12), VISAPP (2006-11), IEEE GrC (2006-12), PETRA (2009-11), NAS (2009-12), SITIS (2009-11), IFMIP (2010,2012), IJCBS (2009), WCCC (2008), INS (2008), IEEE BIBE (2007), IEEE DMMed (2007)
- 2006- Ad Hoc Reviewer (five times), NIH NPAS study sections
- 2007- Ad Hoc Reviewer (twice), US Army Medical Research and Materiel Command
- 2009- Ad Hoc Reviewer (three times), Alzheimer's Association
- 2010- Ad Hoc Reviewer (twice), Netherlands Genomics Initiative
- 2010 Travel Fellowship for Int. Conf. on Alzheimer's Disease (ICAD) in Honolulu, July 10-15, 2010.
- 2010 Oversea Conference Award from the IU Vice President Office for International Affairs
- 2012- Ad Hoc Reviewer (once), UK Alzheimer's Society
- 2012- Ad Hoc Reviewer (once), National Science Foundation
- 2012- Conference Organizing Committee, MBIA (2012)

C. Selected Peer-reviewed Publications (from total of over 140)

1. Wang H, Nie F, Huang H, Kim S, Nho K, Risacher SL, Saykin AJ, **Shen L**, for the ANDI. Identifying quantitative trait loci via group-sparse multi-task regression and feature selection: An imaging genetics study of the ADNI cohort. *Bioinformatics*, 2012, in press. doi:10.1093/bioinformatics/btr649. PMID22155867
2. Wan J, Kim S, Inlow M, Nho K, Swaminathan S, Risacher SL, Fang S, Weiner M, Beg F, Wang L, Saykin AJ, **Shen L**, ADNI. Hippocampal surface mapping of genetic risk factors in AD via sparse learning models. MICCAI 2011, Lecture Notes in Computer Science (LNCS), 6892:376-383, Springer, Heidelberg, 2011. PMC3196668
3. Wang H, Nie F, Huang H, Risacher SL, Saykin AJ, **Shen L**, ADNI. Identifying AD-sensitive and cognition-relevant imaging biomarkers via joint classification and regression. MICCAI 2011, Lecture Notes in Computer Science (LNCS), 6893:115-123, Springer, Heidelberg, 2011. PMID22003691
4. **Shen L**, Kim S, Qi Y, Inlow M, Swaminathan S, Nho K, Wan J, Risacher S, Shaw L, Trojanowski J, Weiner M, Saykin A, ADNI. Identifying neuroimaging and proteomic biomarkers for MCI and AD via the elastic net. MBIA 2011, Lecture Notes in Computer Science, 7012:27-34, Springer, Heidelberg, 2011. PMC3202963
5. Kim S, Swaminathan S, **Shen L**, Risacher SL, Nho K, Foroud T, Shaw LM, Trojanowski, JQ, Potkin SG, Huentelman MJ, Craig DW, DeChairo BM, Aisen PS, Petersen RC, Weiner MW, Saykin AJ, ADNI. Genome-wide association study of CSF biomarkers Abeta-42, t-tau, and p-tau181p in the ADNI cohort. *Neurology*, 76:69-79, 2011. PMC2940763
6. Swaminathan S, **Shen L**, Risacher SL, Yoder KK, West JD, Kim S, Nho K, Foroud T, Inlow M, Potkin SG, Huentelman MJ, Craig DW, Jagust WJ, Koeppe RA, Mathis CA, Jack CR, Weiner MW, Saykin AJ, ADNI. Amyloid pathway-based candidate gene analysis of [11C]PiB-PET in the Alzheimer's Disease Neuroimaging Initiative (ADNI) cohort. *Brain Imaging and Behavior*, doi:10.1007/s11682-011-9136-1, 2011. PMID21901424
7. Risacher SL, **Shen L**, West JD, Kim S, McDonald BC, Beckett LA, Jack CR Jr, Weiner MW, Saykin AJ, and ADNI. Longitudinal MRI atrophy biomarkers: Relationship to conversion in the ADNI cohort. *Neurobiology of Aging*, 31(8):1401-1418. PMC2904350
8. **Shen L**, Kim S, Risacher SL, Nho K, Swaminathan S, West JD, Foroud TM, Pankratz ND, Moore JH, Sloan CD, Huentelman MJ, Craig DW, DeChairo BM, Potkin SG, Jack CR, Weiner MW, Saykin AJ, ADNI. Whole genome association study of brain-wide imaging phenotypes for identifying quantitative trait loci in MCI and AD: A study of the ADNI cohort. *NeuroImage*, 53:1051-1063, 2010. PMC2892122
9. Sloan C, **Shen L**, West J, Wishart H, Flashman L, Rabin L, Santulli R, Guerin S, Rhodes C, Tsongalis G, McAllister T, Ahles T, Lee S, Moore J, Saykin AJ. Genetic pathway-based hierarchical clustering analysis

of older adults with cognitive complaints and amnesic mild cognitive impairment using clinical and neuroimaging phenotypes. *Am J Med Genet Part B* 153B:1060–1069, 2010. PMC3021757

10. Saykin AJ, **Shen L**, Foroud TM, Potkin SG, Swaminathan S, Kim S, Risacher SL, Nho K, Huentelman MJ, Craig DW, Thompson PM, Stein JL, Moore JH, Farrer LA, Green RC, Bertram L, Jack CR, Weiner MW, ADNI. Alzheimer's Disease Neuroimaging Initiative biomarkers as quantitative phenotypes: Genetics core aims, progress, and plans. *Alzheimer's and Dementia*, 6:265–273, 2010. PMC2868595
11. **Shen L**, Saykin AJ, Kim S, Firpi H, West J, Risacher SL, McDonald BC, McHugh TL, Wishart HA, Flashman LA. Comparison of manual and automated determination of hippocampal volumes in MCI and older adults with cognitive complaints. *Brain Imaging and Behavior*, 4:86–95, 2010. PMC2863347
12. **Shen L**, Qi Y, Kim S, Nho K, Wan J, Risacher SL, Saykin AJ, ADNI. Sparse Bayesian learning for identifying imaging biomarkers in AD prediction. *MICCAI 2010, Lecture Notes in Computer Science (LNCS)*, 6363:612-619, Springer, Heidelberg, 2010. PMC2951627
13. **Shen L**, Kim S, Saykin AJ. Fourier method for large scale surface modeling and registration. *Computers and Graphics*, 33(3):299-311, 2009. PMC2802331
14. **Shen L**, Farid H, and McPeck MA. Modeling 3-dimensional morphological structures using spherical harmonics. *Evolution*. 63(4):1003-1016, 2009. PMC2936781
15. **Shen L**, Saykin AJ, Firpi HA, West JD. Parametric surface modeling and registration for comparison of manual & automated segmentation of the hippocampus. *Hippocampus*, 19(6):588-95, 2009. PMC2849649

D. Research Support

Ongoing Research Support

NSF (PI: Shen)
IIS-1117335

8/1/11 – 7/31/14

III:Small:Collaborative Research: A Large-scale Data Mining Framework for Genome-wide Mapping of Multi-modal Phenotypic Biomarkers and Outcome Prediction
Role: PI.

Northern California Institute for Research & Education (Core PI: Saykin)
1RC-2AG036535 NIH pass through
Amyloid Imaging, VMCI, and Analysis for ADNI: Genetics Core
Role: Co-PI, co-leader of ADNI Genetics Core

9/30/09 – 8/31/12

Northern California Institute for Research & Education (Core PI: Saykin)
NIH pass through
Alzheimer's Disease Neuroimaging Initiative-2 (ADNI-2): Genetics Core
Role: Co-PI, co-leader of ADNI Genetics Core

9/30/10 – 8/31/15

NIH/NIA (PI: Saykin)
R01 AG19771

8/15/07– 6/30/12

Memory Circuitry in Mild Cognitive Impairment and Early Alzheimer's Disease: A Functional and Morphometric MRI Study of Early Detection and Longitudinal Change.
Role: Co-Investigator

NIA (PI: Ghetti, Core Leader: Saykin)
P30 AG10133-supplement
Indiana Alzheimer's Disease Center: Neuroimaging Core
Role: Co-Investigator.

5/15/09 – 6/30/16

NIH/NIAAA (PI: Zhou)
U01 AA017123

9/30/07 – 8/31/12

Mouse Model Neuro-Facial Dysmorphology: Translational and Treatment Studies
Role: Co-Investigator.

NIH/NIAAA (PI: Foroud) 9/30/07 – 8/31/12
U01 AA014809
3D Facial Imaging in FASD
Role: Co-Investigator.

Boston University (Saykin) 4/1/11 – 3/31/12
Research Grant
Alzheimer's Disease Genetics Consortium (Special Analysis Group Project: Psychometrically sophisticated GWAS: Cognitive decline among AD cases in the ADGC)
Role: Co-Investigator.

Recently Completed Research Support

CTSI CBR/CTR (PI: Shen) 3/1/09 – 2/28/11
Indiana Clinical and Translational Sciences Institute (CTSI)
Integrating Imaging Phenotypes and Genotypes for Early Detection of AD
Role: PI.

NIH/NIBIB (PI: Shen) 7/11/08 – 6/30/10
R03 EB008674-01
SPHARM Shape Modeling and Analysis Toolkit for Brain Imaging
Role: PI.

NIH/NIBIB (PI: Shen) 6/16/09 – 10/31/09
R03 EB008674-01S1
SPHARM Shape Modeling and Analysis Toolkit for Brain Imaging - Supplement
Role: PI.

NIH (PI: Saykin) 9/6/07 – 5/31/10
R01CA101318
Neural Mechanisms of Chemotherapy-Induced Cognitive Disorder
Role: Co-Investigator.

Foundation for NIH (PIs: Potkin, Saykin) 5/1/08 – 4/30/09
In Association with UC-Irvine
Genetic Association Analysis of the Alzheimer's Disease Neuroimaging Initiative Cohort
Role: Co-Investigator.