

**The Faculty of Medicine of Harvard University
Curriculum Vitae**

Date Prepared: August 27th, 2023
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Place of Birth: China

Education:

09/2006	B.E.	Automation	Shanghai Jiaotong University, China
06/2016	PhD	Computer Science, Distinguished Prof. Tianming Liu	University of Georgia

Postdoctoral Training:

08/2016- 07/2019	Research Fellow	Medical Image Analysis, Assoc. Prof. Quanzheng Li and Distinguished Prof. James H. Thrall	Harvard Medical School and Massachusetts General Hospital
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Faculty Academic Appointments:

08/2019- 05/2023	Instructor	Radiology	Harvard Medical School
06/2023-	Assistant Professor	Radiology	Harvard Medical School

Appointments at Hospitals/Affiliated Institutions:

09/2009	Research Assistant	The College of Environmental Science and Engineering	Nankai University, China
08/2019-	Research Staff	Radiology	Massachusetts General Hospital

Major Administrative Leadership Positions:

International

2019	Organizer and program chair for the International Workshop on Multiscale Multimodal Medical Imaging	The Medical Image Computing and Computer-Assisted Intervention Society
2021	Organizer and program chair for the International Workshop on Multimodal Learning and Fusion Across Scales for Clinical Decision Support	The Medical Image Computing and Computer-Assisted Intervention Society
2022-2023	Organizer and program chair for the International Workshop on Multiscale Multimodal Medical Imaging	The Medical Image Computing and Computer-Assisted Intervention Society

Committee Service:**International**

2015	Program Committee	MICCAI Workshop on Machine Learning in Medical Imaging (MLMI)
2017,2023	Program Committee	International Conference on Brain Informatics
2018	Program Committee	Machine Learning in Computational Biology
2019	Program Committee	NeurIPS Workshop on Machine Learning in Computational Biology
2019-2022	Program Committee	ACM SIGKDD Workshop on Mining and Learning from Time Series (MILETS)
2023	Area Chair	International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)
2023	Program Committee	International Workshop on Medical Image Learning with Noisy and Limited Data (MILLanD)

Professional Societies:

2011-	Institute of Electrical and Electronics Engineers (IEEE), International	Member
2011-	Engineering in Medicine and Biology Society (EMBS), International	Member
2011-	The Medical Image Computing and Computer-Assisted Intervention Society, International	Member
2017-	American Roentgen Ray Society (ARRS), Regional	Member
2023-	American Medical Informatics Association	Member

Editorial Activities:

• Ad hoc Reviewer

Human Brain Mapping
IEEE Transactions on Affective Computing
IEEE Transactions on Biomedical Engineering
IEEE Transactions on Emerging Topics in Computational Intelligence
IEEE Transactions on Fuzzy Systems
IEEE Transactions on Knowledge and Data Engineering
IEEE Transactions on Medical Imaging
IEEE Transactions on Pattern Analysis and Machine Intelligence
JAMA Network Open
Medical Image Analysis
Nature Communications
Neuroimage
Neuroscience
Pattern Recognition
Progress in Neurobiology

• Other Editorial Roles

2021-	Associate Editor	Frontiers in Oncology
2021-	Associate Editor	Frontiers in Radiology
2021-	Associate Editor	Frontiers in Neuroscience
2022-	Associate Editor	Frontiers in Cardiovascular Medicine
2023-	Editorial Board	Meta-Radiology

Honors and Prizes:

2011	Best Student Paper Award	IEEE International Symposium on Biomedical Imaging	“Brain State Change Detection via Fiber-centered Functional Connectivity Analysis”
2013	Best Student Paper Award	IEEE International Symposium on Biomedical Imaging	“Discovering Common Functional Connectomics Signatures”
2015	Paul D. Coverdell Neuroimaging Franklin Foundation Scholars Program Travel Award	Department of Psychology, University of Georgia	
2015	Cover and Feature Paper	IEEE Transactions on Biomedical Engineering	“Holistic atlases of functional networks and interactions reveal

			reciprocal organizational architecture of cortical function”
2016	Outstanding Graduate Dissertation/Thesis	University of Georgia	
2018	Most Cited Articles	Journal of the American College of Radiology	“Artificial Intelligence and Machine Learning in Radiology: Opportunities, Challenges, Pitfalls, and Criteria for Success”
2020	Best Paper Awards	IEEE International Symposium on Biomedical Imaging	“ASCNet: Adaptive-Scale Convolutional Neural Networks for Multi-Scale Feature Learning”
2021	MGH Thrall Innovation Grants Award	Massachusetts General Hospital	“Chest Radiographs-based Lung Cancer Screening by the DeepProjection Technique”
2022	Best Paper Awards	IEEE Transactions on Radiation and Plasma Medical Sciences	“Deep Learning-Based Image Segmentation on Multimodal Medical Imaging”

Report of Funded and Unfunded Projects

Past

2016-2018	“Post-Doctoral Scholar in Artificial Intelligence and Image Analysis” Department of Radiology, Massachusetts General Hospital Research fellow in training (PI: James Thrall) Investigation of medical image analysis solutions to address practical challenges in radiology, including overcoming insufficient data samples for deep learning analysis, a fusion of multiple imaging modalities, and developing prescreening protocols to be used in the clinical flow. Training in radiology, especially chest imaging, image analysis, and artificial intelligence.
9/21/2020-03/01/2021	“Pseudo Chest CT from Chest X-RAY, COVID-19 Workstream” GE Precision Healthcare, Industrial Grant Project Leader (PI: Quanzheng Li) Development of a machine learning model, “DeepProjection,” that can generate pseudo-CT from X-rays images to improve the diagnosis and management of patients with COVID-19. The model will apply to COVID-19 patients and synthesize chest computed tomography (CT) images from a chest X-ray in COVID-19.
06/01/2021-11/01/2022	“Aortic Stenosis Clinical Applications” GE Precision Healthcare, Industrial Grant Project Leader (PI: Quanzheng Li) Developing an application for the intelligent management of aortic stenosis (AS) that aims to predict relevant clinical outcomes from AS patients undergoing surgeries based on electronic health records (EHR), radiological reports, and imaging data.

Current

03/15/2022-02/28/2026	“Deep Learning-Based Phenotyping and Treatment Optimization of Heart Failure with Preserved Ejection Fraction” NIH R01, 1R01HL159183-01A1
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Senior/Key Person (PI: Quanzheng Li)

Development of a multi-modal deep learning model on combined imaging and EHR data for the purpose of holistic HFpEF patient portrayal, disease phenotyping, as well as treatment optimization.

07/01/2022-6/30/2024 “Identification of Multi-modal Imaging Biomarkers for Early Prediction of MCI-AD Conversion via Multigraph Representation”

NIH R03, 1R03AG078625-01, Direct cost: \$200,000/2 years

Principal Investigator

Investigation of the interaction among structural, functional, and proteinopathies networks in MCI and AD patients via a contrastive learning-based, multigraph representation framework on the multi-modal neuroimaging data of MRI, fMRI, and PET modalities.

The proposed framework will be used to identify and evaluate a multi-modal image biomarker for AD conversion in the MCI population from a multi-site dataset.

Projects Submitted for Funding

02/05/2019 “Identification and characterization of Alzheimer’s disease subtypes using structural, functional, and neuropathological brain networks”

Co-Investigator (PI: Quanzheng Li)

Investigation of possible AD subtypes through computational modeling. The model uses a combination of information describing brain atrophy, functional network organization, AD pathology, and neuropsychological assessment as input and employs a graph embedding approach to perform multi-modal data fusion and subtype discovery.

10/05/2019 “A deep learning-based MEG/EEG biomarker integrated with physiological information for early detection and monitoring of Alzheimer's disease.”

Senior/Key Person (PI: Quanzheng Li)

Multimodal, deep learning-based integration of macroscale MEG/EEG brain networks with microscale PET amyloid- β and tau proteinopathy networks for identifying structural-functional AD biomarkers. Percentile: 55

08/06/2021 “Development of a Universal Framework for Video Data Acquisition, Standardization, Validation, and Access”

Co-PI (PI: Ozanan Meireles and Quanzheng Li)

Development of a multi-modality universal video and metadata generation framework that is ethically sourced, scalable, and sustainable, addressing data structure, standardization, annotation, validation, and sharing, to allow the creation of large and diverse flagship datasets for research, education, and clinical use.

08/22/2022 “iBRAIN: Individualized Brain Representation, Analysis, and INtegration”

NIH U24

Subcontract PI (PI: Gang Li at UNC)

Integrate, refine, enrich, standardize, and disseminate our previously developed cortical surface-based software, toolbox, and computational model libraries, which have been validated and widely used for years, into a unified and comprehensive neuroimaging software suite: the Individualized Brain Representation, Analysis, and Integration (iBRAIN).

08/26/2022 “Discover Amyloid- β /Tau Causal Relationship on Personalized Multi-Modal Brain Network”

NIH R01

Principle Investigator

Identification of regional-specific causal relationships between amyloid- β and tau in Alzheimer's disease patients by PET imaging using advanced machine learning approaches.

- 02/18/2023 Generation of Near-real Computed Tomography (CT) Images from Wrist Radiographs via Deep Image Projection
NIH R21
Principle Investigator
Developing an AI model that can generate near-real wrist CTs from a single X-ray image to better characterize patients' wrist bone condition with 3D imaging information.
- 06/15/2023 Advanced Multi-modal Foundational AI Models for Healthcare
NIH R21
Principle Investigator
Developing a general-purpose AI algorithm that can be served as the foundation for various tasks in medicine, the so-called "foundational model".

Report of Local Teaching and Training

Teaching of Students in Courses:

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| 2014-2015 | CSCI 4850/6850: "Biomedical Image Analysis"
Graduate and undergraduate students | University of Georgia
2-hrs session per week for two weeks |
| 2015 | CSCI 8850: "Advanced Biomedical Image Analysis"
Graduate students | University of Georgia
3-hrs session per week for one week |
| 2016 | CSCI 8360: "Data Science Practicum"
Graduate students | University of Georgia
3-hrs session per week for one week |

Research Supervisory and Training Responsibilities:

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| 2018- | Supervised visiting students, graduate research interns, and research fellows (average 2-3 students per year). | Massachusetts General Hospital. Two hours of lab meetings per week; One hour per week per student and research fellow for 1:1 discussion and supervision. |
| 2021- | Administration and coordination of the CAMCA AIxMedicine Biweekly Seminar, the public lab meeting on AI research in medicine of the Center for Advanced Medical Computing and Analysis in MGH. | Massachusetts General Hospital. One hour of meetings per two weeks. |

Other Mentored Trainees and Faculty:

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| 2018-2019 | Zhe Guo, Ph.D. student at Beijing Institute of Technology
Graduate research intern at MGH. Mentoring role: Advising research on multi-modal image fusion strategies. Accomplishments: Research published in <i>IEEE-TRPMS</i> journal (Best Paper Award) and presented at the 2018 <i>IEEE International Symposium on Biomedical Imaging</i> . | |
| 2018-2019 | Xuandong Zhao, undergraduate student at Zhejiang University
Visiting student at MGH. Mentoring role: Advising research on algorithm development for medical image analysis. Accomplishments: Developed the Deep Voxel-Graph Convolution Network (DVGCN) model and presented at the 2019 <i>IEEE International Symposium on Biomedical Imaging</i> . | |
| 2018-2019 | Weichen Wu, undergraduate student at Peking University
Visiting student at MGH. Mentoring role: Advising research on multi-dimensional image analysis within the <i>DeepProjection</i> project. | |
| 2018-2019 | Jiaming Guo, undergraduate student at Peking University | |

- Visiting student at MGH. **Mentoring role:** Advising research on graph-based deep learning modeling for MCI/AD progression (*PETNet*). **Accomplishment:** Research presented at the 2019 *IEEE International Conference on Big Data*.
- 2019- Hui Ren, Research Fellow at MGH. **Mentoring role:** Advising research on cardiac image analysis and Electronic Health Record (EHR) modeling. **Accomplishment:** Research presented at the 2019 *Annual Meeting of American Heart Association*, 2019 *IEEE International Symposium on Biomedical Imaging*, 2022 *International Workshop on Advances in Simplifying Medical Ultrasound*, and 2023 *AMIA Clinical Informatics Conference*.
- 2019-2020 Haixing Dai, Ph.D. student at the University of Georgia
Graduate research intern at MGH. **Mentoring role:** Advising research on graph-based deep learning models for brain network modeling from MEG and PET images.
- 2019-2020 Mo Zhang, Ph.D. student at Peking University
Graduate research intern at MGH. **Mentoring role:** Advising research on image segmentation methodologies. **Accomplishment:** Research published in *IEEE JBHI* and presented at the 2018 *International Conference on Medical Image Computing and Computer-Assisted Intervention*, and the 2020 *IEEE International Symposium on Biomedical Imaging* (Best Paper Award).
- 2020-2020 Qinglin Dong, Research Fellow at MGH. **Mentoring role:** Advising research on neuroimage, especially functional MRI analysis and modeling. **Accomplishment:** Research presented at the 2020 *International Conference on Medical Image Computing and Computer-Assisted Intervention* and 2020 *International Workshop on Machine Learning in Medical Imaging*.
- 2019-2022 Peiting You, Ph.D. student at Peking University
Graduate research intern at MGH. **Mentoring role:** Advising research on brain surface parcellation and image analysis for AD diagnosis. **Accomplishment:** Research published in *BME Frontiers* and *Frontiers in Human Neuroscience*.
- 2021- Jerome Charton, Research Fellow at MGH. **Mentoring role:** Advising research on the computational modeling of ultrasound, especially echocardiogram images. **Accomplishment:** Research presented at the 2022 *International Workshop on Advances in Simplifying Medical Ultrasound*.
- 2022- Zhengliang Liu, Ph.D. student at the University of Georgia
Graduate research intern at MGH. **Mentoring role:** Advising research on natural language processing (NLP) in healthcare. **Accomplishment:** Research presented at the 2022 *International Workshop on Machine Learning in Medical Imaging*.
- 2022- Zhenhong Chen, Research Fellow at MGH. **Mentoring role:** Advising research on the image analysis of cardiac MRI.
- 2022- Sekeun Kim, Research Fellow at MGH. **Mentoring role:** Advising research on the differential diagnosis for cardiac conditions and image modeling for echocardiography.

Local Invited Presentations:

☒ No presentations below were sponsored by 3rd parties/outside entities

- 2014 “Introduction to Vaa3D: an open-source platform for 3D visualization-assisted analysis on large-scale bioimages.”
The Georgia Advanced Computing Resource Center (GACRC), Athens, GA
- 2014 “Dictionary Learning in Functional Brain Imaging”
Network of Greater Georgia Institutions for Neuroimaging and Statistics (NOGGINS) workshop, Athens, GA.
- 2015 “Introduction to Functional Brain Imaging”

Department of Statistics, University of Georgia, Athens, GA

- 2016 “Scalable Fast Rank-1 Dictionary Learning for fMRI Big Data Analysis”
Society for Industrial and Applied Mathematics, Southeastern Atlantic Section
Conference (SIAM-SEAS), Athens, GA.

Report of Regional, National and International Invited Teaching and Presentations

☒ *No presentations below were sponsored by 3rd parties/outside entities*

Regional

- 2015 “Dynamic Functional Connectivity Analysis on 512-Channel LFP long recording data”
Brain and Behavior Discovery Institute, Medical College of Georgia, Augusta, GA.
- 2015 “Investigation of Alternated Functional Dynamics in Autism fMRI Data”
Department of Biomedical Engineering, Emory University, Atlanta, GA.

National

- 2014 “Interactive and Automatic Cell/Synapse Detection by Exemplar Learning and
Propagation”
Allen Institute for Brain Science, Seattle, WA.
- 2016 “Brain Imaging and Functional Network Dynamics”
Computational Medicine and Bioinformatics in the Medical School, University of
Michigan, Ann Arbor, MI.
- 2017 “Towards Practical Problems in Deep Learning for Radiology Image Analysis” (invited
talk)
Nvidia GPU Technology Conference, San Jose, CA.
- 2018 “Deep Learning Algorithm for rapid automatic detection of pneumothorax on chest CT”
(selected oral abstract)
Annual Meeting of American Roentgen Ray Society, Washington, D.C.
- 2019 “Personalized Healthcare for Heart Failure with Preserved Ejection Fraction (HFpEF):
Diagnosis, Phenotyping and Treatment Optimization with Imaging and EHR Data”
Department of Statistics, The University of Georgia, Athens, GA.
- 2022 “Novel Methodologies for Combined Image and EMR Modeling”
Department of Computer Science and Engineering, The University of Texas at Arlington,
Arlington, TX
- 2022 “Data Governance of the SAGES CVS Challenge” (invited talk)
Society of American Gastrointestinal and Endoscopic Surgeons, Houston, TX (Virtual)
- 2023 “Application and Development of Foundational Models in Healthcare”
Department of Electrical and Computer Engineering, University of Rochester, Rochester,
NY (Virtual)
- 2023 “Application and Development of Foundation Models in Healthcare”
AIM Seminar Series, Department of Radiation Oncology, UT Southwestern Medical
Center, Dallas, TX.
- 2023 “A New Perspective of Human-Computer Interaction in the Era of Large Pre-trained
Models” (Keynote Speech)
Workshop on the Intersection of Artificial Intelligence and Human Intelligence (IAIHI),
Hoboken, NJ.

International

- 2011 “Brain state change detection via fiber-centered functional connectivity analysis”
(selected oral full-length paper)
IEEE International Symposium on Biomedical Imaging, Chicago, IL.
- 2013 “Discovering common functional connectomics signatures” (selected oral full-length
paper)
IEEE International Symposium on Biomedical Imaging, San Francisco, CA.
- 2014 “Dynamic network partition via Bayesian connectivity bi-partition change point model”
(selected oral full-length paper)
IEEE International Symposium on Biomedical Imaging, Beijing, China.
- 2016 “Big Data Strategies on Neuroimaging Analysis: Challenge in Data Availability and
Computation” (invited talk)
International Conference on Brain Informatics and Health, Omaha, NE.
- 2017 “Opportunities, Challenges and Solutions for Artificial Intelligence in Medical Data
Processing”
Center for Data Science in Health and Medicine, Peking University, Beijing, China.
- 2019 “Towards Holistic Machine Intelligence in Healthcare Research and Clinical Practice”
School of biomedical engineering, Shanghai Jiaotong University, Shanghai, China.
- 2019 “Large-Scale Spatial-Temporal Modeling”
Chinese Center for Disease Control and Prevention, Beijing, China.
- 2019 “Automated Segmentation of Cervical Nuclei in Pap Smear Images using Deformable
Multi-path Ensemble Model” (selected oral full-length paper)
IEEE International Symposium on Biomedical Imaging, Venice, Italy.
- 2019 “Holistic Brain Representation for Discovery Science in Neuroimaging”
Workshop on Computational Medical Imaging and Artificial Intelligence, Zhejiang
University of Technology, China.
- 2022 “Data Analysis and Clinical Decision Support in Response to COVID-19: Experience
from MGH Radiology and ED”
School of Biomedical Engineering, Shanghai Tech University, Shanghai, China (Virtual)
- 2023 “Impact of ChatGPT on Medical Image Analysis”
Medical Imaging Computing Seminar, Shanghai, China (Virtual)
- 2023 “Foundation Models in Medical Research and Clinical Application”
Intelligent Medicine Forum, Beijing, China (Virtual)
- 2023 “Application and Development of Foundational Models in Healthcare”
IEEE EMBS Webinar Series, “Frontiers of Biomedical Imaging and Analysis” (Virtual)
- 2023 “Identification of Causal Relationship between Amyloid-beta Accumulation and
Alzheimer’s Disease Progression via Counterfactual Inference”
Optica Imaging Congress, Boston, MA (selected oral abstract)
- 2023 “Recent Advances in Sparse and Ultra-Sparse Reconstruction and Generative Modeling
for Medical Imaging”
Optica Imaging Congress, Boston, MA (invited talk)

Report of Technological and Other Scientific Innovations

Automatic pre-screening method for pneumothorax detection, 2017	Development of a software system for automatically detecting pneumothorax from CT images. The system has been validated internally by multiple radiologists. The innovation was filed as Invention Disclosure to Partners HealthCare in 2017.
Inference of 3D chest CT images from 2D chest radiographs, 2019	Development of an invention to directly infer 3D chest CT images from 2D radiographs. The technique learns the mapping between the 2D image and the 3D spatial structure information of the corresponding CT image from the teaching dataset, thus achieving trans-dimensional 2D-3D mapping. The innovation was filed as an Invention Disclosure to Partners HealthCare in 2020.
COVID-19 risk score prediction system and its integration into clinical workflow, 2020	Developing a risk assessment model for COVID-19 based on deep learning-based analysis of EHR and chest radiography data in the Emergency Department and facilitating deployment and integration of the model into the clinical workflow via multiple medical informatics solutions (hospital FHIR infrastructure, Epic Cognitive Computing, Nvidia Clara). The system is currently running online, making >4,000 inferences per day.
Predicting Alzheimer's Disease by Hierarchical Graph Convolution from Positron Emission Tomography Imaging (PETNet), 2021	Lead inventor of the Graph Convolutional Network-based Positron Emission Tomography (PET) image analysis program PETNet. The program can automatically diagnose Alzheimer's Disease (AD) and Mild Cognitive Impairment (MCI) from the input PET imaging data. The program features a hierarchical graph inference algorithm for fine-grained analysis of large-scale voxel-wise data and a Neural Architecture Search (NAS) scheme for identifying the optimal graph representing the brain images. The invention has been filed and approved as an Innovation Disclosure to MGB.
Brain Image Analysis by Graph-based Matched Signal Detection (MSD) Algorithm, 2021	Inventor of the Matched Signal Detection (MSD) algorithm for predicting whether the given signal (e.g., medical images) belongs to a specific graph (e.g., graph of disease / normal population). MSD algorithm identifies the subspace for graph-signal by eigenvectors of the Laplacian matrix of the graph, which provides a concise encoding of the graph structure. Graph Fourier transform (GFT) is applied to project the graph signals onto the identified subspace. Based on GFT-based processing of graph signals, we can then test signal models on graphs before with hypothesis tests. The invention has been filed and approved as an Innovation Disclosure to MGB.
Predicting Patient Outcomes of In-hospital Stay and Readmission for Managing Aortic Stenosis with Valve Replacement, 2022	Lead inventor of the Aortic Stenosis Ensemble Risk Prediction (AS-ERP) Model. AS-ERP performs Aortic Stenosis patient outcome (length of stay and readmission) prediction based on the input Electronic Medical Records (EMR) data. The model utilizes an ensemble learning scheme consisting of three machine learning classifiers for patient outcome prediction. Internal validation performance meets the clinical acceptance criteria and is superior to the current risk score system developed by the Society of Thoracic Surgeons. The invention is currently pending for patent.

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

Research Investigations *indicates co-first authorship, **indicates my mentee

- 1 Sun J, Hu X, Huang X, Liu Y, Li K, **Li X**, Han J, Guo L, Liu T, Zhang J. Inferring consistent functional interaction patterns from natural stimulus fMRI data. *NeuroImage*. 2012;61(4):987-99.

- 2 **Li X**, Lim C, Li K, Guo L, Liu T. Detecting brain state changes via fiber-centered functional connectivity analysis. *Neuroinformatics*. 2013;11(2):193.
- 3 Zhang X, Guo L, **Li X**, Zhang T, Zhu D, Li K, Chen H, Lv J, Jin C, Zhao Q, Li L, Liu T. Characterization of task-free and task-performance brain states via functional connectome patterns. *Medical Image Analysis*. 2013;17(8):1106.
- 4 **Li X**, Zhu D, Jiang X, Jin C, Zhang X, Guo L, Zhang J, Hu X, Li L, Liu T. Dynamic functional connectomics signatures for characterization and differentiation of PTSD patients. *Human brain Mapping*. 2014;35(4):1761.
- 5 Ou J, Lian Z, Xie L, **Li X**, Wang P, Hao Y, Zhu D, Jiang R, Wang Y, Chen Y, Zhang J, Liu T. Atomic dynamic functional interaction patterns for characterization of ADHD. *Human brain Mapping*. 2014;35(10):5262.
- 6 Sabatinelli D, Frank D, Wanger T, Dhamala M, Adhikari B, **Li X**. The timing and directional connectivity of human frontoparietal and ventral visual attention networks in emotional scene perception. *Neuroscience*. 2014;277:229.
- 7 Zhang J*, **Li X***, Li C, Lian Z, Huang X, Zhong G, Zhu D, Li K, Jin C, Hu X, Han J, Guo L, Hu X, Li L, Liu T. Inferring functional interaction and transition patterns via dynamic bayesian variable partition models. *Human Brain Mapping*. 2014;35(7):3314.
- 8 Zhang X*, **Li X***, Jin C, Chen H, Li K, Zhu D, Jiang X, Zhang T, Lv J, Hu X, Han J, Zhao Q, Guo L, Liu T. Identifying and characterizing resting state networks in temporally dynamic functional connectomes. *Brain Topography*. 2014;27(6):747.
- 9 Jiang X, **Li X**, Lv J, Zhang T, Zhang S, Guo L, Liu T. Sparse representation of HCP grayordinate data reveals novel functional architecture of cerebral cortex. *Human Brain Mapping*. 2015;36(12):5301.
- 10 Lv J*, Jiang X*, **Li X***, Zhu D, Chen H, Zhang T, Zhang S, Hu X, Han J, Huang H, Zhang J, Guo L, Liu T. Sparse representation of whole-brain fMRI signals for identification of functional networks. *Medical Image Analysis*. 2015;20(1):112.
- 11 Lv J*, Jiang X*, **Li X***, Zhu D, Zhang S, Zhao S, Chen H, Zhang T, Hu X, Han J, Ye J, Guo L, Liu T. Holistic atlases of functional networks and interactions reveal reciprocal organizational architecture of cortical function. *IEEE Transactions on Biomedical Engineering*. 2015;62(4):1120.
- 12 Lv J, Jiang X, **Li X**, Zhu D, Zhao S, Zhang T, Hu X, Han J, Guo L, Li Z, Coles C, Hu X, Liu T. Assessing effects of prenatal alcohol exposure using group-wise sparse representation of fMRI data. *Psychiatry Research: Neuroimaging*. 2015;233(2):254.
- 13 Makkie M, Zhao S, Jiang X, Lv J, Zhao Y, Ge B, **Li X**, Han J, Liu T. HAFNI-enabled largescale platform for neuroimaging informatics (HELPNI). *Brain Informatics*. 2015;2(4):225.
- 14 Ou J, Xie L, Jin C, **Li X**, Zhu D, Jiang R, Chen Y, Zhang J, Li L, Liu T. Characterizing and differentiating brain state dynamics via hidden Markov models. *Brain Topography*. 2015;28(5):666.
- 15 Ou J, Xie L, **Li X**, Zhu D, Terry DP, Puente AN, Jiang R, Chen Y, Wang L, Shen D, Zhang J, Miller LS, Liu T. Atomic connectomics signatures for characterization and differentiation of mild cognitive impairment. *Brain Imaging and Behavior*. 2015;9(4):663.
- 16 Hou Y, Xiao T, Zhang S, Jiang X, **Li X**, Hu X, Han J, Guo L, Miller LS, Neupert R, Liu T. Predicting Movie Trailer Viewer's "Like/Dislike" via Learned Shot Editing Patterns. *IEEE Transactions on Affective Computing*. 2016;7(1):29.
- 17 Zhang S*, **Li X***, Lv J, Jiang X, Guo L, Liu T. Characterizing and differentiating task-based and resting state fMRI signals via two-stage sparse representations. *Brain Imaging and Behavior*. 2016;10(1):21.
- 18 Jiang X, **Li X**, Lv J, Zhao S, Zhang S, Zhang W, Zhang T, Han J, Guo L, Liu T. Temporal dynamics assessment of spatial overlap pattern of functional brain networks reveals novel functional architecture of cerebral cortex. *IEEE Transactions on Biomedical Engineering*. 2016;65(6):1183.
- 19 Ge B, Makkie M, Wang J, Zhao S, Jiang X, **Li X**, Lv J, Zhang S, Zhang W, Han J, Guo L, Liu T. Signal sampling for efficient sparse representation of resting state FMRI data. *Brain Imaging and Behavior*. 2016;10:1206.

- 20 Li Y, Chen H, Jiang X, **Li X**, Lv J, Li M, Peng H, Tsien JZ, Liu T. Transcriptome Architecture of Adult Mouse Brain Revealed by Sparse Coding of Genome-Wide In Situ Hybridization Images. *Neuroinformatics*. 2017;15(3):285.
- 21 Li Y, Chen H, Jiang X, **Li X**, Lv J, Peng H, Tsien JZ, Liu T. Discover mouse gene coexpression landscapes using dictionary learning and sparse coding. *Brain Structure and Function*. 2017;222(9):4253.
- 22 Yuan J, **Li X**, Zhang J, Luo L, Dong Q, Lv J, Zhao Y, Jiang X, Zhang S, Zhang W, Liu T. Spatio-temporal modeling of connectome-scale brain network interactions via time-evolving graphs. *NeuroImage*. 2017;180:350.
- 23 Ge B, **Li X**, Jiang X, Sun Y, Liu T. A Dictionary Learning Approach for Signal Sampling in Task-based fMRI for Reduction of Big Data. *Frontiers in Neuroinformatics*. 2018;12.
- 24 Makkie M*, **Li X***, Quinn S, Lin B, Ye J, Mon G, Liu T. A Distributed Computing Platform for fMRI Big Data Analytics. *IEEE Transactions on Big Data*. 2018;5(2):109.
- 25 Thrall JH, **Li X**, Li Q, Cruz C, Do S, Dreyer K, Brink J. Artificial Intelligence and Machine Learning in Radiology: Opportunities, Challenges, Pitfalls, and Criteria for Success. *Journal of the American College of Radiology*. 2018;15(3):504.
- 26 Zhang W, Lv J, **Li X**, Zhu D, Jiang X, Zhang S, Zhao Y, Guo L, Ye J, Hu D, Liu T. Experimental Comparisons of Sparse Dictionary Learning and Independent Component Analysis for Brain Network Inference from fMRI Data. *IEEE Transactions on Biomedical Engineering*. 2018;66(1):289.
- 27 Guo Z**, **Li X***, Huang H, Guo N, Li Q. Deep Learning-based Image Segmentation on Multi-modal Medical Imaging. *IEEE Transactions on Radiation and Plasma Medical Sciences*. 2019;3(2):162.
- 28 **Li X**, Guo N, Li Q. Functional Neuroimaging in the New Era of Big Data. *Genomics Proteomics and Bioinformatics*. 2019; 17(4):393.
- 29 Wang H, Xie K, Xie L, **Li X**, Li M, Lyu C, Chen H, Chen Y, Liu X, Tsien J, Liu T. Functional Brain Connectivity Revealed by Sparse Coding of Large-Scale Local Field Potential Dynamics. *Brain Topography*. 2019;32(2):255.
- 30 Zhao Y*, **Li X***, Huang H, Zhang W, Zhao S, Makkie M, Zhang M, Li Q, Liu T. 4D Modeling of fMRI Data via Spatio-Temporal Convolutional Neural Networks (ST-CNN). *IEEE Transactions on Cognitive and Developmental Systems*. 2019;12(3):451.
- 31 **Li X**, Thrall JH, Digumarthy SR, Kalra MK, Pandharipande PV, Zhang B, Nitiwarangkul C, Singh R, Khera RD, Li Q. Deep learning-enabled system for rapid pneumothorax screening on chest CT. *European Journal of Radiology*. 2019;120:108692.
- 32 Jeong S*, **Li X***, Yang J, Li Q, Tarokh V. Sparse Representation-Based Denoising for High-Resolution Brain Activation and Functional Connectivity Modeling: A Task fMRI Study. *IEEE Access*. 2020;8:36728.
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Thesis:

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