

Revised: November 28th, 2020

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Academic appointment

- 2012 - Research Assistant Professor, Department of Biomedical Engineering, New Jersey Institute of Technology, Newark, NJ, USA
- 2019 - Protocol Associate Professor, Department of Biomedical Engineering, University of Electronic Science and Technology of China (Chengdu)
- 2011 - 2012 Postdoctoral Researcher, Department of Radiology, University of Medicine and Dentistry of New Jersey, Newark, NJ, USA

Education

- 2007 - 2010 Ph.D. in Psychology, Sun Yat-Sen University, Guangzhou, China
- 2004 - 2006 M.Sc. in Psychology, Sun Yat-Sen University, Guangzhou, China
- 2000 - 2004 B.Eng. in Electronic Engineering, Civil Aviation University of China (Tianjin)

Research Funding

Current:

NJ Alliance for Clinical and Translational Science (NJ ACTS) Pilot Grant, 2019 - 2020
Towards development of stable multimodal neuroimaging based markers of AD progression
Role: Co-PI Total cost: \$20,000

Past:

NJDOH – NJ Autism Center of Excellence (CAUT16APL019), 2016 - 2018
Multimodal neuroimaging study of sex differences in children with autism spectrum disorder
Role: PI Total cost: \$400,000

Awards

- 2018, Publons Top Reviewers for Neuroscience & Behavior (Top 1% of reviewers).
- 2017, Publons Top Reviewers for Neuroscience (Top 1% of reviewers).
- 2016, Publons Sentinels of Science Awards (2nd in neuroscience field).
- 2008, Travel stipend, ISMRM annual meeting, Toronto.
- 2007, Travel stipend, ISMRM annual meeting, Berlin.

Editorial board

Current:

Associate Editor: Frontiers Brain Imaging Methods section, 2020 – present.

Editorial Board Member: BMC Neuroscience, 2020 – present.

Review Editor: Frontiers Brain Imaging and Simulation section, 2020 – present.

Review Editor: Frontiers Speech and Language section, 2019 – present.

Past:

Review Editor: Frontiers Brain Imaging Methods section, 2014 – 2020.

Review Editor: Frontiers in Human Neuroscience, 2015 – 2019.

Ad hoc journal reviewer (alphabetical order)

Autism; Autism Research; BioMed Research International; Brain Connectivity; Brain Imaging and Behavior; Brain Structure and Function; Cerebral Cortex; CNS Neuroscience & Therapeutics; Cognitive Neuroscience; Computer Methods and Programs in Biomedicine; Engineering; Frontiers in Behavioral Neuroscience; Frontiers in Brain Imaging Methods; Frontiers in Computational Neuroscience; Frontiers in Human Neuroscience; GigaScience; Human Brain Mapping; IEEE Journal of Selected Topics in Signal Processing; Journal of Neurophysiology; Journal of Neuroscience Methods; Magnetic Resonance Imaging; Medicine & Science in Sports & Exercise; Nature Communications; Network Neuroscience; Neural Plasticity; Neurobiology of Aging; Neuroinformatics; Neuroimage; NeuroImage: Clinical; Neuroscience & Biobehavioral Reviews; Neuroscience Bulletin; Neuroscience Letters; Oncotarget; PLoS Computational Biology; PLoS One; Schizophrenia Bulletin; Scientific Data; Scientific Reports; Social Cognitive and Affective Neuroscience.

Grant reviewer

Ontario Mental Health Foundation (OMHF) (2013)

Conference abstract reviewer

Sixth Biennial Conference on Resting State / Brain Connectivity (2018)

Annual Meeting of the Organization for Human Brain Mapping (2013, 2014, & 2015)

Working papers

2. **Di X**, Biswal BB (2020): Dissecting individual differences in responses to naturalistic stimuli in functional MRI: effects of development and gender. bioRxiv; doi: <https://doi.org/10.1101/2020.05.01.073163>
1. **Di X**, Woelfer M, Kuhn SB, Zhang Z, Biswal BB (2019): Estimations of the weather effects on brain functions using functional MRI - a cautionary tale. bioRxiv 646695; doi: <https://doi.org/10.1101/646695>

Peer-reviewed publications (Google Scholar h-index: 23)

Google Scholar Profile: <https://scholar.google.com/citations?user=wDjD46gAAAAJ&hl>

48. **Di X**, Zhang Z, Biswal BB (2020): Understanding psychophysiological interaction and its relations to beta series correlation. Brain Imaging Behav, doi:10.1007/s11682-020-00304-8
47. Woelfer M, Li M, Colic L, Liebe T, **Di X**, Biswal B, Murrough J, Lessmann V, Brigadski T, Walter M (2020). Ketamine-induced changes in plasma brain-derived neurotrophic factor (BDNF) levels are associated with the resting-state functional connectivity of the prefrontal cortex. World J Biol Psychia 21(9):696-710.

46. Klugah-Brown B, **Di X**, Zweerings J, Mathiak K, Becker B, Biswal B (2020): Common and separable neural alterations in substance use disorders: evidence from coordinate-based meta-analyses of functional neuroimaging studies in human. *Hum Brain Mapp* 41(16):4459-4477.
45. **Di X**, Biswal BB (2020). Intersubject consistent dynamic connectivity during natural vision revealed by functional MRI. *Neuroimage* 216:1166982.
44. Yang H, **Di X**, Gong Q, Sweeney J, Biswal BB (2020). Investigating inhibition deficit in schizophrenia using task-modulated brain networks. *Brain Struct Funct* 225:1601–1613.
43. Botvinik-Nezer et al., (2020): Variability in the analysis of a single neuroimaging dataset by many teams. *Nature* 582(7810):84-88.
42. **Di X**, Zhang H, Biswal BB (2020). Anterior cingulate cortex differently modulates fronto-parietal functional connectivity between resting-state and working memory tasks. *Human Brain Mapping*. *Hum Brain Mapp* 41:1797–1805.
41. **Di X**, Woelfer M, Amend M, Wehrl H, Ionescu TM, Pichler BJ, Biswal BB, and Alzheimer's Disease Neuroimaging Initiative (2019). Interregional causal influences of brain metabolic activity reveal the spread of aging effects during normal aging. *Hum Brain Mapp* 40(16):4657-4668.
40. Amend M, Ionescu TM, **Di X**, Pichler BJ, Biswal BB, Wehrl HF (2019). Functional resting-state brain connectivity is accompanied by dynamic correlations of application-dependent [18F]FDG PET-tracer fluctuations. *Neuroimage* 196:161-172.
39. Fu Z, Tu Y, **Di X**, Du Y, Sui J, Biswal BB, Zhang Z, de Lacy N, Calhoun V (2019). Transient Increased Thalamic-Sensory Connectivity and Decreased Whole-Brain Dynamism in Autism. *Neuroimage* 190:191-204.
38. **Di X**, Biswal BB (2019). Toward Task Connectomics: Examining Whole-Brain Task Modulated Connectivity in Different Task Domains. *Cereb Cortex* 29(4):1572-1583.
37. Fu Z, Tu Y, **Di X**, Du Y, Pearlson GD, Turner JA, Biswal BB, Zhang Z, Calhoun VD (2018). Characterizing Dynamic Amplitude of Low-Frequency Fluctuation and Its Relationship with Dynamic Functional Connectivity: An Application to Schizophrenia. *Neuroimage* 180:619-31.
36. **Di X**, Azeez A, Li X, Haque E, Biswal BB (2018). Disrupted focal white matter integrity in autism spectrum disorder: a voxel-based meta-analysis of diffusion tensor imaging studies. *Prog Neuropsychopharmacol Biol Psychiatry* 82:242-248.
35. Fu Z, Tu Y, **Di X**, Biswal BB, Calhoun VD, Zhang Z (2017). Associations between Functional Connectivity Dynamics and BOLD Dynamics are Heterogeneous across Brain Networks. *Front Hum Neurosci* 11:593.
34. **Di X**, Gohel S, Thielcke A, Wehrl HF, Biswal BB, and Alzheimer's Disease Neuroimaging Initiative (2017). Do all roads lead to Rome? A comparison of brain networks derived from inter-subject volumetric and metabolic covariance and moment-to-moment hemodynamic correlations in old individuals. *Brain Struct Funct* 222(8):3833–3845.
33. **Di X**, Biswal BB (2017). Psychophysiological Interactions in a Visual Checkerboard Task: Reproducibility, Reliability, and the Effects of Deconvolution. *Front Neurosci* 11:573.
32. Jin H, Wang P, Fang Z, **Di X**, Ye Z, Xu G, Lin H, Cheng Y, Li Y, Xu Y, Rao H (2017). Effects of badminton expertise on representational momentum: A combination of cross-sectional and longitudinal studies. *Front Psychol* 8:1526.
31. **Di X**, Reynolds RC, Biswal BB (2017). Imperfect (de)convolution may introduce spurious psychophysiological interactions and how to avoid it. *Hum Brain Mapp* 38(4), 1723–1740.

30. **Di X**, Huang J, Biswal BB (2017). Task-modulated brain connectivity of the amygdala: a meta-analysis of psychophysiological interactions. *Brain Struct Funct* 222(1):619-634.
29. Xu H, Wang P, Ye Z, **Di X**, Xu G, Mo L, Lin H, Rao H and Jin H (2016) The Role of Medial Frontal Cortex in Action Anticipation in Professional Badminton Players. *Front Psychol.* 7:1817.
28. Ray S, **Di X**, Biswal BB (2016). Effective Connectivity Within the Mesocorticolimbic System During Resting-State in Cocaine Users. *Front Hum Neurosci.* 10:563.
27. Yuan R, **Di X**, Taylor PA, Gohel S, Tsai YH, Biswal BB (2016). Functional topography of the thalamocortical system in human. *Brain Struct Funct* 221(4):1971-1984.
26. Zhang X, **Di X**, Lei H, Yang J, Xiao J, Wang X, Yao S, Rao H (2016): Imbalanced Spontaneous Brain Activity in Orbitofrontal-Insular Circuits in Individuals with Cognitive Vulnerability to Depression. *J Affect Disord* 198:56-63.
25. **Di X**, Biswal BB (2016). Similarly expanded bilateral temporal lobe volumes in female and male children with autism spectrum disorder. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* 1(2):178-185.
24. Hu C, **Di X**, Eickhoff SB, Zhang M, Peng K, Guo H, Sui J (2016). Distinct and common aspects of physical and psychological self-representation in the brain: A meta-analysis of self-bias in facial and self-referential judgements. *Neuroscience & Biobehavioral Reviews* 61:197–207.
23. **Di X**, Biswal BB (2015). Characterizations of resting-state modulatory interactions in human brain. *J Neurophysiol* 114(5), 2785-96.
22. **Di X**, Fu Z, Chan SC, Hung YS, Biswal BB, Zhang Z (2015). Task-related Functional Connectivity Dynamics in a Block-designed Visual Experiment. *Front Hum. Neurosci* 9:543.
21. **Di X**, Biswal BB (2015). Dynamic Brain Functional Connectivity Modulated by Resting-State Networks. *Brain Struct Funct* 220(1):37-46.
20. **Di X**, Kim E, Chen P, Biswal BB (2014). Lateralized Resting-state Functional Connectivity in the Task-positive and Task-negative Networks. *Brain Connect* 4(9): 641-648.
19. Lei H, Zhang X, **Di X**, Rao H, Ming Q, Zhang J, Guo X, Jiang Y, Gao Y, Yi J, Zhu X, Yao S (2014). A Functional Polymorphism of the MAOA Gene Modulates Spontaneous Brain Activity in Pons. *Biomed Res Int* 2014:243280.
18. Fu Z, Chan SC, **Di X**, Biswal B, Zhang Z (2014). Adaptive Covariance Estimation of Non-stationary Processes and its Application to Infer Dynamic Connectivity from fMRI. *IEEE Trans Biomed Circuits Syst* 8(2):228–39.
17. **Di X**, Biswal BB (2014). Modulatory Interactions between the Default Mode Network and Task Positive Networks in Resting-State. *PeerJ* 2:e367.
16. **Di X**, Biswal BB (2014). Identifying the Default Mode Network Structure Using Dynamic Causal Modeling on Resting-state Functional Magnetic Resonance Imaging. *Neuroimage* 86:53–9.
15. **Di X**, Rypma B, Biswal BB (2014). Correspondence of Executive Function Related Functional and Anatomical Alterations in Aging Brain. *Prog Neuropsychopharmacol Biol Psychiatry* 48(3):41–50.
14. Yuan R, **Di X**, Kim EH, Barik S, Rypma B, Biswal BB (2013). Regional Homogeneity of Resting-state fMRI Contributes to Both Neurovascular and Task Activation Variations. *Magn Reson Imaging* 31(9):1492–1500.

13. **Di X**, Gohel S, Kim EH and Biswal BB (2013). Task vs. Rest - Different Network Configurations between the Coactivation and the Resting-State Brain Networks. *Front Hum Neurosci.* 7:493.
12. **Di X**, Biswal BB (2013). Modulatory interactions of resting-state brain functional connectivity. *PLoS One* 8(8): e71163.
11. **Di X**, Kim EH, Huang C, Tsai S, Lin C and Biswal BB (2013). The influence of the amplitude of low-frequency fluctuations on resting-state functional connectivity. *Front Hum Neurosci.* 7:118.
10. Huang J, Wang Y, Jin Z, **Di X**, Yang T, Gur RC, Gur RE, Shum DH, Cheung EF, Chan RC (2013). Happy facial expression processing with different social interaction cues: An fMRI study of individuals with schizotypal personality traits. *Prog Neuropsychopharmacol Biol Psychiatry* 44(1):108–17.
9. **Di X**, Kannurpatti SS, Rypma B, Biswal BB (2013). Calibrating BOLD fMRI activations with neuro-vascular and anatomical constraints. *Cereb Cortex* 23 (2):255-63.
8. **Di X**, Biswal BB, Alzheimer's Disease Neuroimaging Initiative (2012). Metabolic Brain Covariant Networks as Revealed by FDG-PET with reference to resting-state fMRI networks. *Brain Connect* 2(5):275-83.
7. **Di X**, Zhu S, Jin H, Wang P, Ye Z, Zhou K, Zhuo Y, Rao H (2012). Altered resting brain function and structure in professional badminton players. *Brain Connect* 2(4):225-33.
6. Taylor P, Gohel SR, **Di X**, Walter M, Biswal B (2012). Functional covariance networks: obtaining resting state networks from intersubject variability. *Brain Connect* 2(4):203-17.
5. Qian C, **Di X** (2011). Phase or amplitude? The relationship between ongoing and evoked neural activity. *J Neurosci* 31(29):10425-10426.
4. Chan RC, **Di X**, McAlonan GM, Gong QY (2011). Brain Anatomical Abnormalities in High-Risk Individuals, First-Episode, and Chronic Schizophrenia: An Activation Likelihood Estimation Meta-analysis of Illness Progression. *Schizophr Bull* 37(1):177-88.
3. **Di X**, Chan RC, Gong QY (2009). White matter reduction in patients with schizophrenia as revealed by voxel-based morphometry: an activation likelihood estimation meta-analysis. *Prog Neuropsychopharmacol Biol Psychiatry* 33(8):1390-1394.
2. Chan RC, Huang J, **Di X** (2009). Dexterous movement complexity and cerebellar activation: a meta-analysis. *Brain Res Rev* 59(2):316-323.
1. Rao H, **Di X**, Chan RC, Ding Y, Ye B, Gao D (2008). A regulation role of the prefrontal cortex in the fist-edge-palm task: evidence from functional connectivity analysis. *Neuroimage* 41(4):1345-1351.

Publications in Chinese

2. Hu C, **Di X**, Li J; Sui J, Peng K (2015). Meta-analysis of Neuroimaging Studies. *Advances in Psychological Science* 23(7): 1118-1129.
1. **Di X**, Rao H (2007). Progress in Functional Connectivity Analysis. *Progress in Biochemistry and Biophysics* 34(1), 5-12.

File drawer (No plan for submission)

Di X, Biswal BB (2016): Sex-dependent and sex-independent brain resting-state functional connectivity in children with autism spectrum disorder. bioRxiv doi: <http://dx.doi.org/10.1101/038026>

Directed student learning

- 2020 Master's Thesis Committee Member. Berk Can Yilmaz: "Comparison of longitudinal changes in resting state functional magnetic resonance imaging between Alzheimer's and healthy controls".
- 2019 Doctoral Advisory Committee Member. Azeezat Azeez: "Developmental and sex modulated neurological alterations in autism spectrum disorder".
- 2019 Doctoral Advisory Committee Member. Keerthana Deepti Karunakaran: "A multimodal approach to investigate brain reorganization after spinal cord injury using functional magnetic resonance imaging and functional near-infrared spectroscopy".
- 2017 Master's Thesis Committee Member. Rakibul Hafiz: "Subject and group level changes and comparison in functional connectivity under low vs. high cognitively demanding naturalistic viewing conditions using fMRI".
- 2013 Master's Thesis Committee Member. Dhruti Patel: "Effect of scan time on resting state parameters".
- 2013 Master's Thesis Committee Member. Hossein Ebrahimi Nezhad: "Differentiating schizophrenic patients from healthy control: application of machine learning to resting state fMRI".

Educational courses in scientific meetings

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|---|-------------------------------------|
| Preconference workshop for 6 th biennial conference on resting-state and brain connectivity
Single Subject and Group Analysis | Montreal, Canada
September, 2018 |
| Preconference workshop for 4 th biennial conference on resting-state and brain connectivity
Physiophysiological interaction (PPI), Granger causality analysis, and dynamic causal modeling (DCM) for resting-state fMRI | Boston, MA, USA
September, 2014 |
| OHBM educational course: resting-state brain networks
Case Study: Single Subject and Group Analysis | Seattle, WA, USA
June, 2013 |
| OHBM educational course: resting-state brain networks
Case Study: Single Subject and Group Analysis | Beijing, China
June, 2012 |

Invited talks

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| Neurochat 2020 Online Conference
Estimations of the weather effects on brain functions using functional MRI - a cautionary tale | Online
April, 2020 |
| Department of Management, Jinan University
Brain functional connectivity during task-states as revealed by fMRI | Guangzhou, China
January, 2020 |
| BrainHack Global NYC 2018 | NYC, USA |

Measuring task modulated connectivity from fMRI data using psychophysiological interaction and beta series	May, 2018
Department of Biomedical Engineering, Shenzhen University Task modulated brain connectivity using fMRI: method considerations and new findings	Shenzhen, China January, 2018
Department of Biomedical Engineering, University of Electronic Science and Technology of China Task modulated brain connectivity using fMRI: method considerations and new findings	Chengdu, China January, 2018
4th biennial conference on resting-state and brain connectivity Modulatory interactions of resting-state functional connectivity	Boston, MA, USA September, 2014
NJIT Biomedical Engineering Seminars Modulatory interactions of resting-state brain functional connectivity	Newark, USA September, 2014
NJIT Biomedical Engineering Seminars Task vs. Rest - Different Network Configurations between the Coactivation and the Resting-State Brain Networks	Newark, USA April, 2013
Institute of Psychology, Chinese Academy of Sciences Neuropsychology and Applied Cognitive Neuroscience Lab The infrastructure of brain functions - from structure to physiology	Beijing, China June, 2012
Center for Brain Health, UT Dallas NeuroPsychometric Research Lab The infrastructure of brain functions - from structure to physiology	Dallas, TX, USA April, 2012

Conference Presentations

21. Yang H, **Di X**, Biswal BB. Aberrant whole-brain task-modulated connectivity in Schizophrenia under stop signal task. Poster presentation at the Sixth Biennial Conference on Resting State / Brain Connectivity, Montreal, Canada (2018).
20. **Di X**, Biswal BB. Assessing task related brain connectivity in a fast event-related designed stop signal task using psychophysiological interaction and beta series correlation. Poster presentation at the 4th New York Metropolitan Imaging Symposium, New York, USA (2017).
19. Azeez AK, **Di X**, Biswal BB. Biological Sex Modulations on Cortical Thickness in Autism Spectrum Disorder: An analysis of Autism Brain Imaging Data Exchange II. Poster presentation at the International Meeting for Autism Research (IMFAR), San Francisco, USA (2017).
18. **Di X**, Biswal BB. Task related brain networks derived from trial-by-trial variability of a slow event-related designed Flanker task. Poster presentation at the Fourth Biennial Conference on Resting State / Brain Connectivity, Boston, USA (2014).
17. **Di X**, Yuan R, Biswal BB. Modulatory interactions between the thalamus and visual cortex in resting-state are modulated by eye open/closed conditions. Poster presentation at the Fourth Biennial Conference on Resting State / Brain Connectivity, Boston, USA (2014).

16. Fu Z, **Di X**, Chan SC, Hung YS, Biswal BB, Zhang Z. Characterizing temporal variations of functional connectivity in resting-state. Poster presentation for Joint Annual Meeting ISMRM-ESMRMB, Milano, Italy (2014).
15. Fu Z, **Di X**, Chan SC, Hung YS, Biswal BB, Zhang Z (2013). Time-varying correlation coefficients estimation and its application to dynamic connectivity analysis of fMRI. Conf Proc IEEE Eng Med Biol Soc. 2013:2944-2947.
14. Zhang Z, Fu Z, Chan SC, Hung YS, Motta G, **Di X**, Biswal BB. Conference Paper: Adaptive window selection in estimating dynamic functional connectivity of resting-state fMRI. 9th International Conference on Information, Communications and Signal Processing (ICICS2013).
13. **Di X**, Biswal BB. Identifying the Default Mode Network Structure Using Dynamic Causal Modeling on Resting-state fMRI. Poster presentation at 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, USA (2013).
12. **Di X**, Biswal BB. The nonlinear intrinsic brain networks - modulations on resting-state functional connectivity by other regions. Poster presentation at 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, USA (2013).
11. **Di X**, Fu Z, Zhang Z, Chan SC, Biswal BB. Transient connectivity changes during a visual task - time-varying correlation estimation analysis. Poster presentation at 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, USA (2013).
10. Yuan R, **Di X**, Kim EH, Barik S, Rypma B, Biswal BB. Regional Homogeneity of Resting-state fMRI Contributes to Both Neurovascular and Task Activation Variations. Poster presentation at 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, USA (2013).
9. **Di X**, Kannurpatti SS, Rypma B, Biswal BB. Calibrating BOLD fMRI activations with neuro-vascular and anatomical constraints. Poster presentation at 18th Annual Meeting of the Organization for Human Brain Mapping, Beijing, China (2012).
8. Gohel S, **Di X**, Biswal BB. Trajectories of functional brain networks connectivity over life-span brain development. Poster presentation at 18th Annual Meeting of the Organization for Human Brain Mapping, Beijing, China (2012).
7. Taylor P, Gohel SR, **Di X**, Walter M, Biswal BB. Functional covariance networks: obtaining resting state networks from intersubject variability. Poster presentation at 18th Annual Meeting of the Organization for Human Brain Mapping, Beijing, China (2012).
6. Jin H, Wang P, **Di X**, Ye Z, Xu G, Mo L, Lin C, Rao H. Activation of Medial Prefrontal Cortex during Sport-related Anticipation: An fMRI Study. Poster presentation at 17th Annual Meeting of the Organization for Human Brain Mapping, Québec, Canada (2011).
5. Zhu S, **Di X**, Jin H, Wang P, Mo L, Zhou K, Zhuo Y, Rao H. Training shapes Cerebellum and parieto-frontal network in professional badminton players. Poster presentation at Annual Meeting of ISMRM, Montreal, Canada (2011).
4. **Di X**, Zhou K, Rao H. Individual differences of representational momentum were associated with inhibition process rather than motion perception. Oral presentation at the 4th Symposium on brain and cognitive science, Chengdu, China (2009). (In Chinese)
3. **Di X**, Ding Y, Qu Z, Ye B, Gao D, Rao H. The Role of Middle Temporal and Medial Prefrontal Cortex in Representational Momentum: a fMRI Study. Poster presentation at Annual Meeting of ISMRM, Toronto, Canada (2008).

2. **Di X**, Chan RC, Ding Y, Ye B, Qu Z, Gao D, Rao H. The Role of Prefrontal Lobe in FEP: Evidence from PPI Analysis. Oral presentation at Joint Annual Meeting ISMRM-ESMRMB, Berlin, Germany (2007).
1. **Di X**, Rao H. The higher and lower frequency asymmetry in pitch representational momentum. Oral presentation at the 2nd Symposium on brain and cognitive science, Guilin, China (2006). (In Chinese)