

# CURRICULUM VITAE

**Xiaoqian Chai, Ph.D.**

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## PERSONAL INFORMATION

*Nationality* U.S. citizen  
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## EDUCATION AND RESEARCH EXPERIENCE

- 2017 - Assistant Professor, Cognitive Neurology/Neuropsychology Division,  
Department of Neurology, Johns Hopkins University
- 2014 - Research Affiliate, Massachusetts Institute of Technology  
McGovern Institute for Brain Research
- 2014 - 2017 Research Associate, Montreal Neurological Institute, McGill University  
Cognitive Neuroscience Unit, with Denise Klein and Brenda Milner
- 2009 - 2013 Postdoctoral Associate, Massachusetts Institute of Technology  
Advisor: John Gabrieli, Department of Brain and Cognitive Sciences
- 2008 Ph.D. in Psychology, University of California, Berkeley  
Advisor: Lucia Jacobs, Department of Psychology
- 1999 M.S. in Computer Science, Stanford University
- 1997 M.S. in Chemistry, University of Illinois at Urbana-Champaign
- 1995 B.S. in Chemistry, Peking University

## CITATION STATISTICS

- Total citations: 1124 (Google Scholar); h-index: 13
- Google Scholar profile: <https://scholar.google.com/citations?user=e3ZJXfQAAAAJ>

## PUBLICATIONS

1. Whitfield-Gabrieli S, Nieto-Castañón A, Ghosh S, Egorova N, Chai XJ, Gollub RL. Artifact detection, rejection and quality assurance of fMRI data increase accuracy in task activation and functional connectivity studies. Under review.
2. Gagan J, Anteraper SA, Chai XJ, Patil KR, Saygin ZM, Semwal M, Goldin RL, Furtak SL, Gabrieli JDE, Biederman J, Whitfield-Gabrieli S. Integration and segregation of default mode network resting-state functional connectivity in transition-age males with high-functioning autism spectrum disorder. *Brain Connectivity*, 7: 558-573 (2017).
3. Kousaie S, Chai XJ, Sander K, Klein D. Simultaneous learning of two languages from birth positively impacts intrinsic functional connectivity and cognitive control. *Brain and Cognition*, 117: 49-56 (2017).

4. Barbeau EB, [Chai XJ](#), Chen JK, Soles J, Berken J, Baum S, Watkin K, Klein D. The role of the left inferior parietal lobule in second language learning: an intensive language training fMRI study. *Neuropsychologia* 98:169-176 (2017).
5. Ofen N, Whitfield-Gabrieli S, [Chai XJ](#), Schwarzlose R, Gabrieli, J. Neural correlates of deception: lying about past events and personal beliefs. *Social Cognitive and Affective Neuroscience* 12:116-127 (2017).
6. Hung Y, Saygin Z, Biederman J, Hirshfeld-Becker D, Uchida M, Doehrmann O, Han M, [Chai XJ](#), Kenworthy T, Yarmakd P, Gaillarde SL, Whitfield-Gabrieli S, and Gabrieli JDE. Impaired frontal-limbic white matter maturation in children at risk for major depression. *Cerebral Cortex*. 27:4478-4491 (2017).
7. [Chai XJ](#), Hirshfeld-Becker D, Doehrmann O, Leonard J, Salvatore J, Brown A, Biederman J, Whitfield-Gabrieli S, Gabrieli JDE. Altered intrinsic functional brain architecture in children at familial risk of major depression. *Biological Psychiatry* 80: 848-858 (2016). [Highlighted in [MIT News](#), [Smithsonian](#)]
8. [Chai XJ](#), Berken J, Barbeau EB, Soles J, Callahan M, Chen JK, Klein D. Intrinsic functional connectivity in the adult brain and success in second language learning. *Journal of Neuroscience* 36: 755-761 (2016). [Highlighted in [US News](#), [SFN News](#), [McGill News](#), [Science Daily](#)]
9. Berken J, [Chai XJ](#), Chen JK, Gracco V, Klein D. Effects of early and late bilingualism on resting-state functional connectivity. *Journal of Neuroscience* 36: 1165-1172 (2016).
10. Whitfield-Gabrieli S, Ghosh S, Castañón AN, Saygin Z, Doehrmann O, [Chai XJ](#), Reynolds GO, Hofmann SG, Pollack MH, Gabrieli JDE. Brain connectomics predict response to treatment in social anxiety disorder. *Molecular Psychiatry* 21: 680-685 (2016). [Highlighted in [MIT News](#)]
11. Stoeckel LE\*, [Chai XJ](#)\*, Zhang J, Whitfield-Gabrieli S, Evins AE. Lower grey matter density and functional connectivity in the anterior insula in smokers compared to never-smokers. *Addiction Biology* 21: 972-981 (2016). (\* Joint first authors)
12. [Chai XJ](#), Hirshfeld-Becker D, Doehrmann O, Leonard J, Salvatore J, Brown A, Biederman J, Whitfield-Gabrieli S, Gabrieli JDE. Functional and structural brain correlates of risk for major depression in children with familial depression. *NeuroImage: Clinical* 8: 398-407 (2015).
13. [Chai XJ](#), Ofen N, Gabrieli JDE, Whitfield-Gabrieli S. Development of deactivation of the default-mode network during episodic memory formation. *NeuroImage* 84: 932-938 (2014).
14. [Chai XJ](#), Ofen N, Gabrieli JDE, Whitfield-Gabrieli S. Selective development of anticorrelated networks in the intrinsic functional organization of the human brain. *Journal of Cognitive Neuroscience* 26: 501-513 (2014).
15. Ofen N, [Chai XJ](#), Schuil K, Whitfield-Gabrieli S, Gabrieli JDE. The development of brain systems associated with successful memory retrieval of scenes. *Journal of Neuroscience* 32: 10012-10020 (2012).

16. Chai XJ, Castañón AN, Öngür D, Whitfield-Gabrieli S. Anticorrelations in resting state networks without global regression. *NeuroImage* 59: 1420-1428 (2012).  
[Cited 408 times (Google Scholar)]
17. Chai XJ, Jacobs LF. Digit ratio predicts sense of direction in women. *PLoS ONE* 7: e32816 (2012).
18. Chai XJ, Whitfield-Gabrieli S, Shinn AK, Gabrieli JDE, Castañón AN, McCarthy JM, Cohen BM, Öngür D. Abnormal medial prefrontal cortex resting-state connectivity in bipolar disorder and schizophrenia. *Neuropsychopharmacology* 36: 2009-2017 (2011).  
[Highlighted by *Faculty of 1000* (top 2%); cited 176 times (Google Scholar)]
19. Chai XJ, Ofen N, Jacobs LF, Gabrieli JDE. Scene complexity: influence on perception, memory, and development in the medial temporal lobe. *Frontiers in Human Neuroscience* 4: 21 (2010).
20. Chai XJ, Jacobs LF. Effects of cue types on sex differences in human spatial memory. *Behavioural Brain Research* 208: 336-342 (2010).
21. Chai XJ, Jacobs LF. Sex differences in directional cue use in a virtual landscape. *Behavioral Neuroscience* 123: 276-283 (2009).
22. Altman RB, Bada M, Chai XJ, Carillo MW, Chen RO, Abernethy NF. RiboWeb: An ontology-based system for collaborative molecular biology. *IEEE Intelligent Systems* 14: 68-76 (1999).
23. Hon L, Abernethy NF, Brusica V, Chai XJ, Altman R. MHCWeb: Converting a WWW database into a knowledge-based collaborative environment. *Proceedings of the AMIA Symposium* 947-951 (1998).
24. Cai X, Chai X, Xie Y, Ren Z, Lin C, Yang L, Tang Y, Tanaka T. The XAFS phase isolation and characterization of dispersion phase structure. *Journal de Physique IV* 7: C2-757 (1997).

#### MANUSCRIPTS IN PREPARATION

1. Chai XJ, Zhang J, Whitfield-Gabrieli S, Gabrieli JDE. Under-recruitment of the default network in children during successful memory recall.
2. Chai XJ, Ofen N, Martin R, Whitfield-Gabrieli S, Gabrieli JDE. Development of hippocampal resting-state functional connectivity and source memory.

#### CONFERENCE PRESENTATIONS

1. Chai XJ, Kousaie S, Titone D, Baum S, Klein D. Multi-voxel pattern analysis reveals the impact of language learning experience on the brain's intrinsic functional connectivity. *Society for Neurobiology of Language*, Baltimore (2017)
2. Chai X, Rousseau P, La Piana R, Chen J, Klein D, Tampier D. The global impact of AVMS on the brain's architecture. 27<sup>th</sup> Annual Research Day, Department of Diagnostic Radiology, McGill University, Montreal (2017)

3. Chai XJ, Berken J, Barbeau EB, Soles J, Callahan M, Chen JK, Klein D. Predicting second language learning success from resting-state connectivity. *Center for Research on Brain, Language, and Music*. Montreal (2016).
4. Chai XJ, Berken J, Barbeau EB, Soles J, Callahan M, Chen JK, Klein D. Intrinsic functional connectivity in the brain predicts ability in second language learning. *The Montreal Bilingual Brain Initiative Symposium: Multiple Perspectives on Bilingualism and the Brain*. Montreal (2015).
5. Chai XJ, Ofen N, Martin R, Whitfield-Gabrieli S, Gabrieli JDE. Development of hippocampal resting-state functional connectivity and source memory between 8 to 24 years of age. *Society for Research in Child Development Biennial Meeting*, Philadelphia (2015).
6. La Piana R, Klein D, Chai X, Chen J, Tampier D. The impact of angioarchitecture and embryological stage of development on the brain organization of patients with arteriovenous malformations: a resting-state study. *American Society of Neuroradiology 53<sup>rd</sup> Annual Meeting*, Chicago (2015).
7. Chai XJ, The Dynamic Brain: The development of memory systems. *Montreal Neurological Institute Cognition and Circuits Lecture Series*, Montreal (2014).
8. Hirshfeld-Becker D, Chai XJ, Biederman J, Gabrieli JDE. Neurobiological differences in emotion processing in offspring at risk for depression. *Anxiety and Depression Association of America Conference*, Chicago (2014).
9. Stoeckel LE, Chai XJ, Zhang J, Chan C, Gabrieli J, Whitfield-Gabrieli S, Evins AE. Brain morphometry and functional connectivity in cigarette smokers. *APA Society of Addiction Collaborative Perspectives on Addiction Conference*, Atlanta (2013).
10. Chai XJ, Ofen N, Mietzsch C, Gutierrez E, Gabrieli JDE, Whitfield-Gabrieli S. Increased anticorrelation between the default mode and task-positive networks during development. *Society for Neuroscience Meeting*, Washington, D.C. (2011).
11. Chai XJ, Ofen N, Gutierrez E, Gabrieli JDE. White matter maturation in the prefrontal cortex contributes to the development of declarative memory. *Human Brain Mapping*, Quebec City (2011).
12. Chai XJ, Stoeckel L, Hinds O, Thompson T, Sinclair P, Gabrieli JDE, Eden E, Whitfield-Gabrieli S. Resting-state connectivity in nicotine-dependent smokers. *Human Brain Mapping*, Barcelona (2010).
13. Ofen N, Chai XJ, Gabrieli JDE. Memory retrieval limits the contribution of prefrontal cortex to successful encoding. *Cognitive Neuroscience Society Meeting*, Montreal (2010).
14. Chai XJ, Ofen N, Gabrieli JDE. Developmental changes in the medial temporal lobe for the encoding of high complexity scenes. *Society for Neuroscience Meeting*, Chicago (2009).
15. Schuil KDI, Ofen N, Chai XJ, Hedden T, Whitfield-Gabrieli S, Gabrieli JDE. Comparison of estimations of the hemodynamic response function in children adolescents and young adults. *Human Brain Mapping*, San Francisco (2009).

16. Chai XJ, Nieto-Castanon A, Whitfield-Gabrieli S. Anti-correlations in resting state networks: the effect of treatment of physiological noise. *Human Brain Mapping: Advances in Resting-State fMRI Symposium*, Stanford (2009).
17. Chai XJ, Ofen N, Jacobs LF, Gabrieli JDE. Developmental changes in the encoding of indoor versus outdoor scenes. *Society for Neuroscience Meeting*, Washington, D.C. (2008).
18. Chai XJ, Jacobs LF, Gabrieli JDE. Neural correlates of spatial navigation under directional and positional cue conditions. *Cognitive Neuroscience Society Meeting*, San Francisco (2008).
19. Ofen N, Chai XJ, Schuil KDI, Hameed A, Gabrieli JDE. The development of brain systems for episodic memory retrieval. *Cognitive Neuroscience Society Meeting*, San Francisco (2008).
20. Chai XJ, Jacobs LF. Sex differences and neural correlates of spatial navigation. University of California, Department of Psychology, *Change, Plasticity & Development Colloquium*, Berkeley, CA (2007).
21. Chai XJ, Jacobs LF. Sex differences in visual cue use during spatial navigation. *Scene Understanding Symposium*, MIT (2007).
22. Chai XJ, Jacobs LF. Sex differences in the construction of the cognitive map: A spatial navigation study in virtual environments. *Proceedings of the 13th International Conference on Comparative Cognition*, Melbourne Beach, Florida (2006).

## THESIS

- Chai XJ. Parallel systems in visual spatial cue processing: sex differences, neural correlates and development. Ph.D. Thesis, University of California, Berkeley, 139 pages.

## AWARDS

- |           |   |
|-----------|---|
| 2005-2008 | National Science Foundation Graduate Research Fellowship  |
| 2008      | Champalimaud Foundation Neuroscience Program Conference Fellowship, “The Hippocampus and Navigation” (Portugal) |
| 2008      | Ford Foundation Diversity Dissertation Fellowship, Honorable Mention  |
| 1995      | Peking University Undergraduate Honors Thesis   |

## TEACHING EXPERIENCE

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|-------------|--|
| March 2009  | Guest Lecturer, “SPM8 Short Course” (Functional Brain Connectivity)<br>Athinoula A. Martinos Center for Biomedical Imaging<br>Massachusetts General Hospital       |
| Spring 2005 | Graduate Student Instructor, “Psych101: Research Design and Statistical Analysis for Psychology”<br>Department of Psychology<br>University of California, Berkeley |
| Fall 2004   | Graduate Student Instructor, “Psych1: General Psychology”<br>Department of Psychology<br>University of California, Berkeley  |

- Spring 1997 Graduate Student Instructor, “CS228: Introduction to C++ Programming”  
Department of Computer Science  
University of Illinois, Urbana-Champaign
- Fall 1996 Graduate Student Instructor, “Chem101: General Chemistry Lab”  
Department of Chemistry  
University of Illinois, Urbana-Champaign

### MENTORING EXPERIENCE

- Boris Volfson, Visiting Undergraduate Student, McGill University, Summer 2007
- Karen Schuil, Visiting Graduate Student, Leiden University, 2007-2008  
Master’s Thesis: “Effects of development on the shape of the hemodynamic response function”
- Christiane Mietzsch, Visiting Undergraduate Student, University of Osnabrück, 2009-2010  
Bachelor’s Thesis: “Signal detection and dual process models of recognition memory”
- Kristina Chambers, Visiting Undergraduate Student, Dartmouth College, Fall 2009
- Elizabeth Counterman, MIT Summer Research Program, Mt. Holyoke College, Summer 2009
- Ayesha Hameed, Undergraduate Research Project, MIT, 2008-2009
- Elizabeth Gutierrez, Graduate Student, MIT, 2010-2011
- Rebecca Martin, Research Assistant, MIT, 2009-2011
- Kristen Morin, Visiting Undergraduate Student, Northeastern University, Summer 2010-2011
- Sunil Patel, Visiting Undergraduate Student, Northeastern University, Summer 2010-2011
- Paula de los Angeles, Research Assistant, MIT, 2011-2012
- Jiahe Zhang, Research Assistant, MIT, 2012-2013
- Carlo de los Angeles, Research Assistant, MIT, 2012-2014
- Aisha Walter, Undergraduate Student, McGill University, 2015-2016
- Desiree D’Souza, Master Student, McGill University, 2016-2017

### OTHER WORK EXPERIENCE

- Fall 2003 Research Assistant, Advisor: Dr. Jeremy Gray  
Social Cognitive and Affective Neuroscience Lab  
Department of Psychology, Yale University
- Spring 2003 Research Assistant, Advisor: Dr. Brian Knutson  
Affective Neuroscience and Decision-Making  
Department of Psychology, Stanford University
- 1999 – 2004 Software engineer  
Server Technology, Oracle Corporation

### PROFESSIONAL SERVICE

- Ad-hoc reviewer: *PNAS*, *Cerebral Cortex*, *Developmental Science*, *American Journal of Psychiatry*, *NeuroImage*, *Human Brain Mapping*, *Neuropsychologia*, *Experimental Brain Research*, *Brain and Cognition*, *Behavioural Brain Research*, *Brain Connectivity*, *PLoS ONE*, *Progress in Neuro-Psychopharmacology & Biological Psychiatry*

## **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- Cognitive Neuroscience Society
- Organization for Human Brain Mapping
- Society for Neuroscience
- Society for Research in Child Development
- Society for Neurobiology of Language