ZHENGHAN QI

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EDUCATION

University of Illinois, Urbana-Champaign   Champaign, IL, USA   2006 – 2012

Ph.D. in Neuroscience

Dissertation: Neurocognitive plasticity of verb bias learning in children and adults

Shanghai Medical College, Fudan University   Shanghai, China   2001 – 2006

M.D. in Basic Medicine

POSITIONS

University of Delaware   Assistant Professor, Department of Linguistics & Cognitive Science, Department of Brain & Psychological Sciences, Communication Sciences and Disorders Program   08/2017 –

Massachusetts Institute of Technology   Research Affiliate   07/2017 –

University of Delaware   Affiliate Assistant Professor, Department of Linguistics & Cognitive Science   09/2016 – 08/2017

RESEARCH EXPERIENCE

Massachusetts Institute of Technology   Cambridge, MA, USA   07/2012 – 07/2017

Post-doctoral associate, McGovern Institute for Brain Research, Supervisor: John D. E. Gabrieli
- Neural substrates of language impairment in neurodevelopmental disorders, including autism, dyslexia, specific language impairment and schizophrenia
- Cognitive and neural predictors for successful language learning during adulthood
- Cognitive and neural plasticity induced by language learning experiences
Methods: fMRI, DTI, EEG, MEG

Boston University   Boston, MA, USA   07/2012 – 07/2017

Post-doctoral associate, Center for Autism Research Excellence, Supervisor: Helen Tager-Flusberg
- Neural substrates of language impairment in autism

University of Illinois, Urbana-Champaign   Champaign, IL, USA   08/2006 – 05/2012

Graduate research assistant, Department of Psychology

1. Language and Brain Lab, 2008-2012, Supervisor: Susan M. Garnsey
- Electrophysiological markers of linguistic statistical learning
- Hemispheric difference during online syntactic disambiguation
Methods: EEG

2. Language Acquisition Lab, 2009-2012, Supervisor: Cynthia L. Fisher
- Verb acquisition in children and adults
- Executive functioning and syntactic disambiguation in kindergarteners
Methods: Eye-tracking

3. Learning and Memory Lab, 2006-2008, Supervisor: Paul E. Gold
- Roles of protein synthesis and neurotransmitter systems in memory consolidation
Methods: Neurochemistry and animal behavior

Chinese Academy of Sciences   Shanghai, China   06/2005 – 06/2006

Thesis research, Institute of Neuroscience, Supervisor: Yuqiang Ding
- Role of two transcription factors in the development of central nervous system; awarded Outstanding
Undergraduate Thesis, Fudan University

Shanghai Medical College, Fudan University   Shanghai, China   09/2003 – 02/2004

Undergraduate research intern, Medical Neurobiology Lab, Supervisor: Fengyan Sun & Ping Zheng
- Exercise-induced neurogenesis in substantia nigra in Parkinson's disease; funded as the winning project
in the Undergraduate Innovation Competition, Fudan University

RESEARCH GRANTS

- NARSAD Young Investigator Grant ($70,000)   Role: Principal Investigator   2017-2019
  Brain & Behavior Research Foundation
  Title: Neural bases of atypical language learning in children with ASD: a combined fMRI/MEG study

SELECTED AWARDS

- Selected Attendee for ASHA Lessons for Success Program   2017
- MIT IMPACT Fellow   2016
- MIT Postdoctoral Association Travel Award   2016
- Graduate Student Award, Cognitive Neuroscience Society   2012
- Graduate College Travel Award, University of Illinois   2010
- BUCLD 35 Paula Menyuk Award   2010
- Cognitive Science / Artificial Intelligence Award, University of Illinois 2010
- Neuroscience Graduate Fellowship, University of Illinois   2009
- China National Scholarship for Basic Sciences   2002 – 2005

PUBLICATIONS

1. **Qi Z.,** Han M., Wang Y., de los Angeles C., Liu Q., Garel K., Chen E., Whitfield-Gabrieli S., Gabrieli J. D. E., & Perrachione T. K. (under review). Speech processing and plasticity in the right hemisphere predict real-world foreign language learning in adults.

2. Ryskin R. A., **Qi Z.,** Convinton N., Duff M., Brown-Schmidt S. (under review) Knowledge and learning of verb biases in amnesia.

3. **Qi Z.,** Beach S. D., Finn A. S., Minas J., Goetz C., Chan B., & Gabrieli J. D. E. (2017). Dissociable language learning strengths are predicted by native-language N400 and P600. *Neuropsychologia*. 98: 177-191.

4. Ryskin R. A., **Qi Z.,** Duff M. C., & Brown-Schmidt S. (2017). Verb biases are shaped through lifelong learning. *Journal of Experimental Psychology: Learning, Memory & Cognition*. 43(5): 781-794.

5. Lu C.*, **Qi Z.*,** Harris A., Wisman Weil L., Han M., Halverson K., Perrachione T. K., Kjelgaard M., Wexler K., Tager-Flusberg H., & Gabrieli J. D. E. (2016). Shared neuroanatomical substrates for impaired phonological working memory across reading disability and autism. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*. 1(2): 169-177. (*: Equal Contribution)

6. **Qi Z.,** Han M., Garel K., Chen E. S., & Gabrieli J. D. E. (2015). White-matter structure in the right hemisphere predicts Mandarin Chinese learning success. *Journal of Neurolinguistics*, 33: 14-28.

7. **Qi Z.,** Yuan S., Fisher C. L. (2011) Where does verb bias come from: Experience with particular verbs affects online sentence processing, In N. Danis, K. Mesh, & H. Sung (Eds.), *Proceedings of 35th Boston University Conference on Language Development*. 500-512. Somerville, MA: Cascadilla Press.

8. **Qi Z.,** Gold P. E. (2009) Intrahippocampal infusions of anisomycin produce amnesia: contribution of increased release of norepinephrine, dopamine and acetylcholine. *Learning & Memory*. 16(5): 308-314.

9. **Qi Z.,** Jiang W., Fang C., (2006) Neurogenesis in substantia nigra of adult brain: retrospect and prospect. *Chinese Journal of Clinical Neurosciences*. 14 (1): 97-101

MANUSCRIPTS

1. **Qi Z**., Han M., Thompson T., Geral K., Chen E. S., & Gabrieli J. D. E. (In prep) White-matter structural plasticity induced by classroom-based foreign language learning.

2. **Qi Z.,** Pantazis D., de los Angeles C., Perrachione T. K., & Gabrieli J. D. E. (In prep) Sensitivity to speech distributional information in children with autism.

3. **Qi Z.,** Love J., Fisher C. L., Brown-Schmidt S. (In prep) Referential context and executive functioning influence children's resolution of syntactic ambiguity.

4. **Qi Z.,** Garnsey S. M. (In prep) Prediction-based distributional learning of novel verb bias: an ERP study.

5. **Qi Z.,** Yuan S., Fisher C. L., Garnsey S. M. (In prep) Event vs. linguistic distributional information: Verb bias learning in adults and in children.

PUBLISHED ABSTRACTS AND PRESENTATIONS

- **Qi Z.,** Whitfield-Gabrieli S. (2017) How does the restless brain inform us about the risks for psychosis? Talk presented at *Shanghai Forum of Early Phase of Psychosis Identification and Intervention*, Shanghai, China.

- Ryskin R., **Qi Z.,** Covinton N., Duff M., Brown-Schmidt S. (2017) Knowledge and Learning of Verb Biases in Amnesia. Poster presented at *CUNY Conference on Human Sentence Processing*, Cambridge, MA.

- Ryskin R., **Qi Z.,** Duff M., Brown-Schmidt S. (2017) Syntactic variability between and within speakers: When to adapt, when to generalize? Talk presented at *CUNY Conference on Human Sentence Processing*, Cambridge, MA.

- **Qi Z.,** Han M., Minas J., Finn A. S., Gabrieli J. D. E. (2017) Cortical plasticity of sentence processing after classroom-based language training experience. Poster presented at *Cognitive Neuroscience Society Annual Meeting*, San Francisco, CA.

- Sanchez Araujo Y., Georgan W. C., **Qi Z.,** Arciuli J., & Gabrieli J. D. E. (2016) Developing sensitive measures of statistical learning for school-age children. Poster presented at *Psychonomics Annual Meeting*, Boston, MA.

- **Qi Z.,** Whitfield-Gabrieli S., Tang Y., Zhang T., Cui H., McCarley R., Shenton M., Li H., Wang J., Seidman L. (2016). Association between language functional network and attenuated psychotic symptoms in clinical high-risk psychosis patients in Shanghai. Poster presented at *Society for Neurobiology of Language*, London, UK.

- **Qi Z.,** Sanchez Y., de los Angeles C., Harris A., Wisman Weil L., Halverson K., Goetz C., Han M., Perrachione T. K., Kjelgaard M., Wexler K., Tager-Flusberg H., Gabrieli J. D. E. (2016). Neural development of phonological working memory: interplay between language and memory systems. Poster presented at *Society for Neurobiology of Language*, London, UK.

- Han M., **Qi Z.,** Thompson T., Garel K., Chen ES., Yendiki A., Gabrieli J. D. E. (2016) White-matter plasticity of adult language learning. Poster presented at the *Cognitive Neuroscience Society,* New York, NY

- Ryskin R., **Qi Z.,** Duff M., & Brown-Schmidt S. (2016) Constraints on adaptation to syntactic variability between and within speakers. Poster presented at *CUNY Sentence Processing Conference*, Gainesville, FL

- **Qi Z.,** Pantazis D., de los Angeles C., Perrachione T. K., & Gabrieli J. D. E. (2015) Sensitivity to speech distributional information in children with autism: a MEG study. Talk presented at the *International Meeting for Autism Research*, Shanghai, China

- **Qi Z.,** Lu C., Harris A., Weil L. W., Han M., Halverson K., Perrachione T. K., Kjelgaard M., Wexler K., Tager-Flusberg T, & Gabrieli J. D. E. (2015). Transdiagnostic neural basis for impaired phonological working memory across reading disability and autism, Poster presented at the *Society for Neurobiology of Language,* Chicago, IL

- **Qi Z.,** Pantazis D., de los Angeles C., Perrachione T. K., & Gabrieli J. D. E. (2015) Sensitivity to speech distributional information in children with autism: a MEG study. Poster presented at the *Society for Neurobiology of Language,* Chicago, IL

- **Qi Z.,** Pantazis D., de los Angeles C., Perrachione T. K., & Gabrieli J. D. E. (2015) Sensitivity to speech distributional information in children with autism. Poster presented at the *Boston University Conference on Language Development*, Boston, MA

- **Qi Z.,** Lu C., Harris A., Weil L. W., Han M., Halverson K., Perrachione T. K., Kjelgaard M., Wexler K., Tager-Flusberg T, & Gabrieli J. D. E. (2015). Transdiagnostic neural basis for impaired phonological working memory across reading disability and autism spectrum disorder, Poster presented at the *Society for Neuroscience,* Chicago, IL

- Ryskin R., **Qi Z.,** & Brown-Schmidt S. (2015). Rapid learning of a verb bias. Poster presented at the *Psychonomics Society Annual Meeting*, Chicago, IL

- Han M., **Qi Z.,** Lu C., Halverson K., Weil L. W., Kjelgaard M., Tager-Flusberg T., Wexler K., & Gabrieli J. D. E. (2015). Structural bases of language-impairment in children with autism. Poster presented at the *Cognitive Neuroscience Society*, San Francisco, MA

- **Qi Z.,** Wang Y., Liu Q., de los Angeles C., Whitfield-Gabrieli S., & Gabrieli J. D. E. (2014). Foreign language learning experience enhances inter-hemispheric functional connectivity. Poster presented at the *Biennial Conference on Resting State / Brain Connectivity*. Boston, MA.

- **Qi Z.,** Finn A., Ghosh S., Minas J., Chan B., & Gabrieli J. D. E. (2014). Temporal dynamics of EEG topographic similarity during successful language learning. Poster presented at the *Society for Neurobiology of Language*, Amsterdam, Netherlands.

- **Qi Z.,** Perrachione T. K., Han M., Garel K., Chen E., Finn A., Gabrieli J. D. E. (2014). Functional brain imaging predicts foreign language learning success in the classroom. Poster presented at the *Cognitive Neuroscience Society*, Boston, MA

- Han M., **Qi Z.,** Murtagh J., Garel K., Chen E., Gabrieli J. D. E. (2014). White matter integrity predicts adult second language learning outcomes. Poster presented at the *Cognitive Neuroscience Society*, Boston, MA

- Brown-Schmidt S., **Qi Z.,** Duff M. (2014). Contributions of hippocampal-dependent declarative memory to on-line processing of global syntactic ambiguity. Poster presented at the *CUNY Sentence Processing Conference*, Columbus, OH

- **Qi Z.,** Perrachione T. K., Harris A., Ostrovskaya I., Beach S., Halverson K., Cyr A., Sher K., Kjelgaard M., Gabrieli J. D. E., Wexler K., Tager-Flusberg T. (2013). Neural signatures of phonological working memory and grammatical processing in autism spectrum disorders. Poster presented at *Society for Neuroscience*, San Diego, CA

- **Qi Z.,** Perrachione T. K., Harris A., Ostrovskaya I., Beach S., Halverson K., Cyr A., Sher K., Kjelgaard M., Gabrieli J. D. E., Wexler K., Tager-Flusberg T. (2013). Neural signatures of phonological working memory and grammatical processing in autism spectrum disorders. Poster presented at *Society for Neurobiology of Language*, San Diego, CA

- **Qi Z.,** Fisher C. L. (2013) Learning new linguistic information about familiar verbs in 5-year-olds and adults. Talk presented at *Society for Research in Child Development*, Seattle, WA

- **Qi Z.,** Garnsey S. M. (2012) Individual difference in verb bias learning: an ERP study. Poster presented at the *CUNY Sentence Processing Conference*, New York, NY.

- **Qi Z.,** Garnsey S. M. (2012) Neurocognitive plasticity in verb bias learning: an ERP study. Talk presented at *Cognitive Neuroscience Society*, Chicago, IL.

- **Qi Z.,** Fisher C. L., Brown-Schmidt S. (2011) On recovering from 'kindergarten path' errors: referential context and executive functioning influence children's online ambiguity resolution. Talk presented at *Architectures and Mechanisms for Language Processing,* Paris, France.

- **Qi Z.,** Garnsey S. M. (2011) Learning structural biases of novel verbs: an ERP study. Poster presented at *Society for Neurobiology of Language,* Annapolis, MD.
- **Qi Z.,** Jackson S. R., Garnsey S. M. (2010) The left hemisphere knows more about verbs (in most people), Poster presented at *Society for Neuroscience*, San Diego, CA.
- **Qi Z.,** Yuan S., Fisher C. L. (2010) Where does verb bias come from: Experience with particular verbs affects online sentence processing. Talk presented at *Boston University Conference on Language Development*, Boston, MA.

INVITED TALKS

- Boston University, Communication Neuroscience Research Laboratory, March 2017
- Boston University, Developmental Science Colloquium Series, October 2016
- Pennsylvania State University, Center for Brain, Behavioral, & Cognition, October 2016
- Tufts University, NeuroCognition Laboratory, June 2016
- Brigham and Women's Hospital, Center for Brain/Mind Medicine Seminar Series, December 2015
- Massachusetts Institute of Technology, Cognitive Science Seminar Series, November 2015
- University of Illinois, Urbana-Champaign, Beckman Institute, October 2015
- Boston University, Center for Autism Research Excellence, September 2015
- University of Washington, Institute for Learning and Brain Sciences, August 2015
- Harvard University, Language and Cognition Seminar Series, March 2015
- Shanghai Mental Health Center, November 2014
- Tufts University, NeuroCognition Lab, March 2014
- Harvard University, Language and Cognition Seminar Series, July 2013
- University of Illinois, Urbana-Champaign, Beckman Institute, May 2012
- University of Illinois, Urbana-Champaign, Developmental Psychology Seminar Series, October 2011

TEACHING EXPERIENCE

- Awarded University of Illinois Graduate Teacher Certificate 2010

- Assistant Instructor, Introductory Psychology 2009
  University of Illinois
  Designed syllabus and all lectures, assignments, and discussions
  Taught 98 students, 4 lecture-hours per week.

- Assistant Instructor, Techniques of Biological Psychology 2008
  University of Illinois
  Designed syllabus and all lectures, lab projects, and assignments
  Taught 18 students, 6 lecture-/lab-hours per week.

- Teaching Assistant for Exercise and Brain Function 2008
  For course with Prof. Donna Korol, University of Illinois

PROFESSIONAL SERVICES

- Conference program committee: *Society for Psychophysiological Research* (2016)
- Conference reviewer: *Society for Neurobiology of Language*
- Journal reviewer: *American Journal of Neuroradiology; Brain and Cognition; Cerebral Cortex; Cognition; Developmental Psychology; Frontier in Human Neuroscience; Human Brain Mapping; Journal of Neurodevelopmental Disorders; Journal of Neurolinguistics; Neurobiology of Learning & Memory; Neuroimage: Clinical; Psychological Science*
- Member: *Society for Neuroscience; Society for Neurobiology of Language; Cognitive Neuroscience Society; International Society for Autism Research; Society for Psychophysiological Research; Psychonomics Society*

OUTREACH ACTIVITY

- Led MIT "Brain Scan" tour of Learning & the Brain Conference, Boston (Nov, 2015)
- "Autism, Language and Brain" (July, 2014), Invited Talk at the Education Cooperative Summer Science Institute

LANGUAGES

- Mandarin & Shanghainese: Native
- English: Fluent