

# Tian Ge — Curriculum Vitae

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GENERAL INFORMATION	<b>Instructor</b> , Harvard Medical School <b>Research Staff</b> , Massachusetts General Hospital Psychiatric & Neurodevelopmental Genetics Unit (PNGU) Center for Genomic Medicine Simches Research Building, 185 Cambridge Street Boston, Massachusetts 02114, USA	May 2017 — present Email: <a href="mailto:tge1@mgh.harvard.edu">tge1@mgh.harvard.edu</a> Homepage: <a href="http://scholar.harvard.edu/tge">http://scholar.harvard.edu/tge</a>
RESEARCH INTERESTS	Computational imaging genetics; Neuroimaging statistics; Statistical genetics	
EDUCATION & TRAINING	<b>Research Fellow</b> , Massachusetts General Hospital, Harvard Medical School Mentors: Mert R. Sabuncu & Jordan W. Smoller	2014 — 2017
	<b>Ph.D.</b> in Applied Mathematics, Fudan University, China Advisor: Jianfeng Feng	2009 — 2014
	<b>Ph.D.</b> in Computer Science, The University of Warwick, United Kingdom Advisors: Jianfeng Feng & Thomas E. Nichols	2010 — 2013
	<b>B.S.</b> in Mathematics and Applied Mathematics, Fudan University, China	2005 — 2009
HONORS AND AWARDS	NIH Pathway to Independence Award	2017
	MGH ECOR Tosteson Postdoctoral Fellowship Award	2015
	Merit Abstract Award for the OHBM Annual Meeting	2015
	Trainee Abstract Travel Award for the OHBM Annual Meeting	2012 & 2013
GRANTS	K99AG054573 NIH/NIA Exploring the genetic basis of AD progression Role: Principal Investigator	08/15/2017 — 05/31/2019 \$254,000
	MGH ECOR Tosteson Postdoctoral Fellowship Award MGH Executive Committee On Research (ECOR) Novel computational tools to bridge genomic, neuroimaging, and behavioral traits Role: Principal Investigator	09/01/2015 — 08/31/2016 \$54,800
PROFESSIONAL ACTIVITIES	Reviewer for <i>Biological Psychiatry</i> ; <i>Bioinformatics</i> ; <i>BMC Psychiatry</i> ; <i>Brain Sciences</i> ; <i>Cerebral Cortex</i> ; <i>Frontiers in Computational Neuroscience</i> ; <i>Frontiers in Neuroinformatics</i> ; <i>Genetic Epidemiology</i> ; <i>Journal of Computational and Graphical Statistics</i> ; <i>IEEE Journal of Biomedical and Health Informatics</i> ; <i>IEEE Transactions on Medical Imaging</i> ; <i>International Journal of Bifurcation and Chaos</i> ; <i>MICCAI</i> ; <i>Molecular Ecology Resources</i> ; <i>Neurobiology of Aging</i> ; <i>NeuroImage</i> ; <i>NeuroImage: Clinical</i> ; <i>Neuroinformatics</i> ; <i>PLOS ONE</i> ; <i>Schizophrenia Bulletin</i> ; <i>Scientific Reports</i> ; <i>Statistics and Computing</i>	
BOOK CHAPTERS	<b>T Ge</b> , JW Smoller, MR Sabuncu. Kernel machine regression in neuroimaging genetics. In <i>Machine Learning and Medical Imaging</i> , G Wu, D Shen, MR Sabuncu (Eds.). Elsevier, 2016.	
PREPRINTS	<b>T Ge</b> , CY Chen, R Vettermann, LJ Tuominen, DJ Holt, MR Sabuncu, JW Smoller. The shared genetic basis of human fluid intelligence and brain morphology. <i>bioRxiv</i> , doi: <a href="https://doi.org/10.1101/242776">https://doi.org/10.1101/242776</a> , 2018.	
	ML Elliott, DW Belsky, K Anderson, DL Corcoran, <b>T Ge</b> , A Knodt, JA Prinz, K Sugden, B Williams, D Ireland, R Poulton, A Caspi, AJ Holmes, T Moffitt, AR Hariri. A polygenic score for higher educational attainment is associated with larger brains. <i>bioRxiv</i> , doi: <a href="http://dx.doi.org/10.1101/287490">http://dx.doi.org/10.1101/287490</a> , 2018.	

- T Ge**, MR Sabuncu, JW Smoller, RA Sperling, EC Mormino. Dissociable influences of *APOE*  $\epsilon 4$  and polygenic risk of AD dementia on amyloid and cognition. *Neurology*, in press, 2018.
- T Tong, I Aganj, **T Ge**, JR Polimeni, B Fischl. Functional density and edge maps: Characterizing functional architecture in individuals and improving cross-subject registration. *NeuroImage*, 158: 346-355, 2017.
- T Ge**, AJ Holmes, RL Buckner, JW Smoller\*, MR Sabuncu\*. Heritability analysis with repeat measurements and its application to resting-state functional connectivity. *Proceedings of the National Academy of Sciences USA*, 114(21): 5521-5526, 2017.
- T Ge**, CY Chen, BM Neale, MR Sabuncu\*, JW Smoller\*. Phenome-wide heritability analysis of the UK Biobank. *PLOS Genetics*, 13(4): e1006711, 2017.
- C Wang, J Sun, B Guillaume, **T Ge**, DP Hibar, CM Greenwood, A Qiu. A set-based mixed effect model for gene-environment interaction and its application to neuroimaging phenotypes. *Frontiers in Neuroscience*, 11: 191, 2017.
- T Ge**, M Reuter, AM Winkler, AJ Holmes, PH Lee, LS Tirrell, JL Roffman, RL Buckner, JW Smoller\*, MR Sabuncu\*. Multidimensional heritability analysis of neuroanatomical shape. *Nature Communications*, 7: 13291, 2016.
- PH Lee, JT Baker, AJ Holmes, N Jahanshad, **T Ge**, ..., JL Roffman, PM Thompson, JW Smoller. Partitioning heritability analysis reveals a shared genetic basis of brain anatomy and schizophrenia. *Molecular Psychiatry*, 21(12): 1680-1689, 2016.
- HHH Adams, DP Hibar, V Chouraki, JL Stein, PA Nyquist, ..., **T Ge**, ..., SE Medland, M Arfan Ikram, PM Thompson. Novel genetic loci underlying human intracranial volume identified through genome-wide association. *Nature Neuroscience*, 19(12): 1569-1582, 2016.
- MR Sabuncu, **T Ge**, AJ Holmes, JW Smoller, RL Buckner, B Fischl. Morphometricity as a measure of the neuroanatomical signature of a trait. *Proceedings of the National Academy of Sciences USA*, 113(39): E5749-E5756, 2016.
- FM Krienen, BTT Yeo, **T Ge**, RL Buckner, CC Sherwood. Transcriptional profiles of supragranular-enriched genes associate with corticocortical network architecture in the human brain. *Proceedings of the National Academy of Sciences USA*, 113(4): E469-E478, 2016.
- T Ge**, TE Nichols, D Ghosh, EC Mormino, JW Smoller\*, MR Sabuncu\*. A kernel machine method for detecting interactions between multidimensional variable sets: An imaging genetics application. *NeuroImage*, 109: 505-514, 2015.
- J Liu\*, Y Mo\*, **T Ge**\*, Y Wang, X Luo, J Feng, M Li, B Su. Allelic variation at *5-HTTLPR* is associated with brain morphology in a Chinese population. *Psychiatry Research*, 226(1): 399-402, 2015.
- T Ge**, TE Nichols, PH Lee, AJ Holmes, JL Roffman, RL Buckner, MR Sabuncu\*, JW Smoller\*. Massively expedited genome-wide heritability analysis (MEGHA). *Proceedings of the National Academy of Sciences USA*, 112(8): 2479-2484, 2015.
- T Ge**, X Tian, J Kurths, J Feng, W Lin. Achieving modulated oscillations by feedback control. *Physical Review E*, 90: 022909, 2014.
- T Ge**, N Müller-Lenke, K Bendfeldt, TE Nichols, TD Johnson. Analysis of multiple sclerosis lesions via spatially varying coefficients. *The Annals of Applied Statistics*, 8(2): 1095-1118, 2014.
- T Ge**, G Schumann, J Feng. Imaging genetics — Towards discovery neuroscience. *Quantitative Biology*, 1(4): 227-245, 2014.
- Q Luo, **T Ge**, F Grabenhorst, J Feng, ET Rolls. Attention-dependent modulation of cortical circuits revealed by Granger causality with signal-dependent noise. *PLOS Computational Biology*, 9(10): e1003265, 2013.
- PM Thompson, **T Ge**, DC Glahn, N Jahanshad, TE Nichols. Genetics of the connectome. *NeuroImage*, 80: 475-488, 2013.

M Li, **T Ge**, J Feng, B Su. *SLC6A15* rs1545843 and depression: Implications from brain imaging data. *The American Journal of Psychiatry*, 170(7): 805, 2013.

H Tao\*, S Guo\*, **T Ge\***, KM Kendrick\*, Z Xue, Z Liu, J Feng. Depression uncouples brain hate circuit. *Molecular Psychiatry*, 18: 101-111, 2013.

**T Ge**, J Feng, DP Hibar, PM Thompson, TE Nichols. Increasing power for voxel-wise genome-wide association studies: The random field theory, least square kernel machines and fast permutation procedures. *NeuroImage*, 63(2): 858-873, 2012.

**T Ge**, Y Cui, W Lin, J Kurths, C Liu. Characterizing time series: When Granger causality triggers complex networks. *New Journal of Physics*, 14: 083028, 2012.

**T Ge**, W Lin, J Feng. Invariance principles allowing of non-Lyapunov functions for estimating attractor boundaries of discrete dynamical systems. *IEEE Transactions on Automatic Control*, 57(2): 500-505, 2012.

**T Ge**, J Feng, F Grabenhorst, ET Rolls. Componential Granger causality, and its application to identifying the source and mechanisms of the top-down biased activation that controls attention to affective vs sensory processing. *NeuroImage*, 59(2): 1846-1858, 2012.

Q Luo, **T Ge**, J Feng. Granger causality with signal-dependent noise. *NeuroImage*, 57(4): 1422-1429, 2011.

**T Ge**, KM Kendrick, J Feng. A novel extended Granger causal model approach demonstrates brain hemispheric differences during face recognition learning. *PLOS Computational Biology*, 5(11): e1000570, 2009.

PEER-REVIEWED  
CONFERENCE  
PUBLICATIONS

B Taschler, **T Ge**, K. Bendfeldt, N Müller-Lenke, TD Johnson, TE Nichols. Spatial modeling of multiple sclerosis for disease subtype prediction. *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Lecture Notes in Computer Science*, 8674: 797-804, 2014.

MISCELLANEOUS

**T Ge**, AJ Holmes, RL Buckner, JW Smoller, MR Sabuncu. Reply to Risk and Zhu: Mixed-effects modeling as a principled approach to heritability analysis with repeat measurements. *Proceedings of the National Academy of Sciences USA*, 115(2): E123, 2018.

**T Ge**, BTT Yeo, AM Winkler. A brief overview of permutation testing with examples. *OHBM Official Blog*, <https://goo.gl/nA34LR>, 2018.

INVITED TALKS

A unified framework of moment-matching methods for high-dimensional heritability and genetic correlation analysis	Mar, 2018
ENAR International Biometric Society Spring Meeting	Atlanta, GA
Moment-matching methods for heritability and co-heritability analysis	Mar, 2018
Broad Institute Online Genetics Presentation	Boston, MA
Heritability analysis: from neuroimaging genetics to large-scale health informatics	Dec, 2016
Trauma Genomics Group Meeting	Boston, MA
Heritability-based prioritization of structural neuroimaging phenotypes	Mar, 2016
ENAR International Biometric Society Spring Meeting	Austin, TX
Large-scale prioritization of neuroimaging phenotypes	Jan, 2016
12th International Imaging Genetics Conference	Irvine, CA
Probing the genetic underpinnings of structural neuroimaging phenotypes	May 2015
SAMSI Beyond Bioinformatics Transition Workshop	Durham, NC
Kernel machines for imaging genetics	Nov 2014
SAMSI Imaging Genetics Working Group Seminar	Boston, MA
Imaging genetics: from univariate to multivariate analyses	Aug 2013
University of Leeds	Leeds, UK

Analysis of multiple sclerosis lesions via spatially varying coefficients  
19th Annual Meeting of the Organization for Human Brain Mapping

June 2013  
Seattle, WA

A Spatial GLMM and the estimation of spatially varying coefficients  
with application to multiple sclerosis MRI data  
Athinoula A. Martinos Center for Biomedical Imaging

June 2013  
Charlestown, MA

Modulating the oscillations produced by discrete biological models  
International Symposium on Nonlinear Theory and its Applications

Oct 2012  
Palma de Mallorca, Spain

Increasing power for voxel-wise genome-wide association studies  
18th Annual Meeting of the Organization for Human Brain Mapping

June 2012  
Beijing, China

Last update: March, 2018