

## BIOGRAPHICAL SKETCH

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NAME Chung, Moo	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME mkchung			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
McGill University	B.Sc	1995	Applied Mathematics
University of Toronto	M.S.	1997	Mathematics
McGill University	Ph.D.	2001	Statistics

### A. Positions and Honors.

1999-2001 Lecturer, McGill University, Montreal, Quebec, Canada  
2001-2007 Assistant Professor, Department of Statistics  
2002-2007 Assistant Professor, Departments of Statistics and Biostatistics and Medical Informatics, University of Wisconsin, Madison, WI  
2007-present Associate Professor, Departments of Statistics and Biostatistics and Medical Informatics, University of Wisconsin, Madison, WI

#### Honors

1995-1997 NSERC Fellowship, University of Toronto.  
1996-1998 Open Fellowship, University of Toronto.  
1999-2001 ISM Fellowship, McGill University, Montreal, Quebec, Canada  
2000 NIH Traveling Graduate Stipend Award for paper presented in Human Brain Mapping Conference

### B. Selected peer-reviewed publications (in chronological order).

Chung MK, Worsley KJ, Paus T, Cherif C, Collins DL, Giedd JN, Rapoport JL, Evans AC. A unified statistical approach to deformation-based morphometry. NeuroImage 14:595-606. (2001).  
Hanley, J.A., Joseph, L., Platt, R.W., Chung, M.K., Belisle, P. Visualizing the Median as the Minimum-Deviation Location, The American Statistician 55:150-152. (2001).  
Chung, M.K., Worsley, K.J., Cherif, C., Paus, T., Collins, D.L., Rapoport, J.L., Evans, A.C., Statistical Analysis of Local Volume Change, with an Application to Brain Growth, NeuroImage, 11S:611. (2001).  
Chung MK, Worsley KJ, Robbins S, Evans, AC. Tensor-based Brain Surface Modeling and Analysis, The proceeding of IEEE Conference on Computer Vision and Pattern Recognition (CVPR). Vol. I, 467-473 (2003).  
Chung, M.K., Worsley, K.J., Paus, T., Robbins, S., Taylor, J., Giedd, J.N., Rapoport, J.L., Evans, A.C., Deformation-Based Surface Morphometry with an Application to Gray Matter Deformation, NeuroImage 18:198-213. (2003).  
Chung, M.K., Taylor, J. Diffusion Smoothing on Brain Surface via Finite Element Method, The proceeding of IEEE International Symposium on Biomedical Imaging (ISBI). (2004).  
Pizzagalli, D.A., Oakes, T.R., Fox, A.S., Chung, M.K., Larson, C.L., Abercrombie, H.C., Schaefer, S.M., Benca, R.M., Davidson, R.J. Functional but not structural subgenual prefrontal cortex abnormalities in melancholia. Molecular Psychiatry, 9:393-405 (2004).  
Chung, M.K., Dalton, K.M., Alexander, A.L., Davidson, R.J. Less white matter concentration in autism: 2D Voxel-Based Morphometry. NeuroImage 23:242-251. (2004).  
Wu, Y.-C., Field, A.S., Chung, M.K., Badie, B., Alexander, A.L., Quantitative Analysis of Diffusion Tensor Orientation: Theoretical Framework, Magnetic Resonance in Medicine, 52:1146-1155. (2004).  
Chung, M.K., Robbins, S., Dalton, K.M., Davidson, R.J., Evans, A.C. Cortical thickness analysis in autism via heat kernel smoothing. NeuroImage, 25:1256-1265 (2005).

- Shen, L., Saykin, A., McHugh, T., West, J., Rabin, L., Wishart, H., Chung, M.K., Makedon, F. Morphometric analysis of 3D surfaces: application to hippocampal shape in mild cognitive impairment. 6th International conference on computer vision, pattern recognition and image processing in conjunction with 8th joint conference on information sciences (CVPRIP). (2005).
- Chung, M.K., Robbins, S., Evans, A.C. Unified statistical approach to cortical thickness analysis. *Information Processing in Medical Imaging (IPMI)*. Lecture Notes in Computer Science (LNCS) 3565:627-638. Springer-Verlag. (2005).
- Chung, M.K. Heat kernel smoothing on unit sphere. The proceeding of IEEE International Symposium on Biomedical Imaging (ISBI). 1430 (2006).
- Lee, J.E., Chung, M.K., Alexander, A.L. Evaluation of anisotropic filters for diffusion tensor imaging. The proceeding of IEEE International Symposium on Biomedical Imaging (ISBI). 1241 (2006).
- Chung MK, Robbins S, Dalton KM, Wang S, Evans AC, Davidson RJ: Tensor-based cortical morphometry via weighted spherical harmonic representation. The proceeding of IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA), (2006).
- Shen L, Chung MK: Large-scale modeling of parametric surfaces using spherical harmonics. Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT), (2006).
- Oakes TR, Fox AS, Johnstone T, Chung MK, Kalin N, Davidson RJ: Integrating VBM into the general linear model with voxelwise anatomical covariates. NeuroImage, 34:500-508. (2007).
- Chung MK, Dalton KM, Shen L, Evans AC, Davidson RJ: Weighted Fourier Series representation and its application to quantifying the amount of gray matter. IEEE Transactions on Medical Imaging, (2007). 26:566-581.
- Shen, L., Saykin, A.L., Chung, M.K., Huang, H. Morphometric analysis of hippocampal shape in mild cognitive impairment: an imaging genetics study. IEEE 7th International Symposium on Bioinformatics and BioEngineering. (2007)
- Chung, M.K. Dalton, K.M., Davidson. Encoding neuroanatomical information using weighted spherical harmonic representation. IEEE Statistical Signal Processing Workshop. (2007).
- Lee, J.E., Bigler, E.D., Alexander, A.L., Lazar, M., Dubray, M.B., Chung, M.K., Johnson, M., Morgan, J., Miller, J.N., McMahon, W.M., Lu, J., Jeong, E.-K., Lainhart, J.E. Diffusion tensor imaging of white matter in the superior temporal gyrus and temporal stem in autism. Neuroscience Letters. In press. (2007).
- Vorperian, H.K., Durtschi, R.B., Wang, S., Chung, M.K., Ziegert, A.J., Gentry, L.R. Estimating head circumference from pediatric imaging studies: an improved method. Academic Radiology. 14:1102-1107 (2007).
- Chung, M.K. Hartley, R., Dalton, K.M., Davidson, R.J. Encoding cortical surface by spherical harmonics. Statistica Sinica. In press. (2007).
- Chung, M.K., Dalton, K.M., Davidson, R.J. Tensor-based cortical surface morphometry via weighted spherical harmonic representation. IEEE Transactions on Medical Imaging. In press. (2007).

### C. Research Support.

#### ONGOING

2 P30 CA14520-32 George Wilding (PI) 04/01/01-03/31/07

National Institutes of Health /National Cancer Institute  
UW Comprehensive Cancer Center Support

Support for senior and program leaders of cancer center; administration and evaluation of cancer research and cancer center members; support of shared resources and services for peer-reviewed, cancer-related projects; developmental support for new investigators, projects and shared projects.

Role: Dr. Chung is one of the statisticians responsible for laboratory collaborations and projects in the Cancer Center.

5R01 MN 062015-07 Andrew L. Alexander (PI) 07/01/00 – 4/30/09

NIH/NIBIB

Diffusion MRI of the Human Brain.

The major goal of this project is to improve the accuracy and understanding of white matter mapping techniques within the human brain.

Role: Co-investigator

1 U54 MH66398-01A Helen Tager-Flusberg (PI)

05/01/2003 - 04/30/2008

NIMH

Social and Affective Processes in Autism

The STAART program was designed to form collaborative centers to promote data sharing and cooperation in the field of autism research. Project 4 consists of a series of studies using fMRI.

Role: Co-investigator (project 4)

P01 AG20166 Ryff, Carol (PI)

09/30/2002 - 07/31/2008

NIA

MIDUS II: Integrative Pathways to Health and Illness

Project 5: Brain Function and Affective Style in MIDUS II. Follow the behavioral, sociological, psychological, and biological well-being of more than 7,000 people between the ages of 35 and 85 years living throughout the United States.

Role: Co-investigator Project 5

### Completed

1 P01 AG021079-01 Robert Hauser(PI)

9/15/2002 –6/30/2007

NIH/NIA

Wisconsin Longitudinal Study: Tracking the Life Course

This is a collaborative, multidisciplinary program of projects on aging and the life course. Project 8 will provide a comprehensive examination of the relations between the central circuitry of emotion in the aging brain and physical and mental health.

Role: Co-investigator

1 R21 DA15879-01 Andrew L. Alexander (PI)

09/27/2002 – 6/30/2006

NIH/NIDA

Structural and Functional Measures of Brain Development

The major goal of this project is to characterize anatomic diffusion tensor and functional MRI changes in pre-adolescent children.

Role: Co-investigator

1/11/07