

MOO K. CHUNG

CURRICULUM VITAE

November 2, 2010

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Born: South Korea
Nationality: Canada, Permanent resident of the United States.

Education

- 2001 Ph.D. Statistics, McGill University. Advisors: Keith J. Worsley and James Ramsay. Thesis title: Statistical Morphometry in Computational Neuroanatomy.
- 1997 M.Sc. Mathematics, University of Toronto.
- 1995 B.Sc. Honors Applied Mathematics, McGill University. Graduating on the Dean's Honor List and with the First Class Honor.

Academic Appointments

- 2009-2011 Visiting Associate Professor, Department of Brain and Cognitive Science, Seoul National University, South Korea
- 2007- Associate Professor, Department of Statistics, Biostatistics and Medical Informatics, University of Wisconsin-Madison. Also affiliated with the Waisman Laboratory for Brain Imaging and Behavior.
- 2002-2007 Assistant Professor, Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.
- 2001-2007 Assistant Professor, Department of Statistics, University of Wisconsin-Madison.
- 1999-2001 Lecturer, Department of Mathematics, McGill University. Canada.

Areas of interest

Medical Image Analysis, Human Brain Mapping, Computational Neuroanatomy, Shape Analysis, Partial Differential Equations, Random Fields, Network Modeling,

Functional Data Analysis, Computational Statistics

Honors & awards

2001	Alma Mater Travel Award, McGill
1999-2001	Institute des Sciences Mathematiques Fellowship, McGill
2000	NIH Trainee Award, Organization for Human Brain Mapping
1996-1998	Open Fellowship, University of Toronto
1995-1997	NSERC Post Graduate Scholarship, University of Toronto
1992-1994	Sir. Betty Memorial Scholarship in Mathematics, McGill
1991	NSERC Research Scholarship, University of British Columbia

Service to Profession

Journal & book review

Journal of the American Statistical Association (JASA)

Journal of Multivariate Analysis (JMVA)

Statistica Sinica

Annals of Applied Statistics

Journal of Computational and Graphical Statistics

Computational Statistics and Data Analysis

The Canadian Journal of Statistics

Statistics & Probability Letters

Biostatistics

Statistical Methods in Medicine

Technometrics

IEEE Transactions on Medical Imaging (TMI)

IEEE Transactions on Image Processing (TIP)

IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)

International Journal of Computer Mathematics

NeuroImage

Human Brain Mapping

Medical Physics

Academic Radiology

Biological Psychiatry

Circulation

Frontiers in Neuroinformatics

Psychiatry Research: NeuroImaging

Neuroscience Letters

Journal of Neuroscience Methods

Journal of Autism and Developmental Disorders

Epilepsia

Anatomy Research International
Central European Journal of Medicine

Book review: Springer-Verlag. 2005.

Book review: CRC Press. 2008.

Conference review

2010 European Conference on Computer Vision (ECCV) International Conference on
2005-2008, Medical Image Computing and Computer Assisted Intervention (MICCAI)
2010
2006,2008 International Workshop on Medical Imaging and Augmented Reality (MIAR)
2009 Human Brain Mapping conference
2009-2011 Computer Vision and Pattern Recognition (CVPR)
2010 IEEE International Symposium on Biomedical Imaging (ISBI).
2010 European Conference on Computer Vision (ECCV).

Grant review

2010 University of Arizona Alzheimer's Disease Core Center Review
WCMP Pilot Grant Application, University of Wisconsin:
2008 ICTR-clinical/translational grant, University of Wisconsin
2008 NIH neuroimaging core
2008 NIH statistics core
2007 Singapore A*STAR (agency for science, technology and research) brain imaging
grant review

Department service

2003-2007 Image Analysis Seminar Organizer.
2003-2006 Admissions Committee.
2004-2005 New incoming graduate students advising.
2002, 2006 TA assignments and review.
2006 PhD Qualifying Exam Committee.
2002 Curriculum Committee.
2001 Department Computing Committee.

Grants

Ongoing

R01 DC006282 (Houri Vorperian, PI) 7/15/2009 - 6/30/2014, NIH
MRI and CT Studies of the Developing Vocal Tract This project combines imaging,
acoustic analysis of speech, acoustic reflection or acoustic pharyngometry data, and
VT modeling in an investigation on the development of the supra-laryngeal speech

apparatus throughout the lifespan. Role: Co-Investigator

1 U54 RR024377-01 (Marc Drezner, PI) 10/01/2007-09/30/2012, DHHS/ NCCR
Institute for Clinical and Translational Research The Biostatistics and Research
Ethics Resource provides collaborative support during design, conduct and analysis
phases of research projects. Role: Co-Investigator

1 R01 MH080826 (A Alexander, PI) 8/1/07-8/31/12, NIH/University of Utah (PI:
Janet Lainhart) Atypical Late Neurodevelopment in Autism: A Longitudinal MRI
and DTI Study The goal of is to understand longitudinal brain mechanism from
childhood into adulthood in autism, and how dynamic brain and clinical phenotype
are related. Role: Co-investigator

1R01MH081884-01A1 (Ned Kalin, PI) 7/1/08-6/30/13 NIH/NIMH
Brain Mechanisms mediating Genetic Risk for Anxiety and Depression The goal of
the proposed experiments is to identify genetic factors that play a major role in the
development of human anxiety and affective disorders. Role: Co-investigator

P50-MH084051-01 (Richard Davidson, PI) 07/01/07 - 06/30/13, NIMH NIH
Neurobehavioral Bases of Emotion Regulation and Dysregulation in Adolescence
The objective of the Biological Measures Core is to provide technical support for
the biological measure collected by the research project in the Center. The Center
seeks to examine the underlying neural and behavioral bases of risk for anxiety and
mood disorders during the adolescent period. Role: Co-investigator

1 P01 AT004952 (Richard Davidson, PI) 09/30/08 - 05/31/13, NIH
Wisconsin Center for the Neuroscience and Psychophysiology of Meditation The
goal is to establish a center for neuroscience and psychophysiology of meditation
focusing on brain mechanisms and peripheral correlates of mindfulness-based medi-
tation and meditation designed to cultivate compassion and loving kindness. Role:
Co-investigator.

World Class University (WCU) grant. 09/01/09 - 12/31/11, Seoul National Univer-
sity, Korea. The goal is to establish a leading neuroimage analysis laboratory on
brain connectivity. Role: Co-PI.

Completed

1 R03 MH082267-01 (Kim Dalton, PI) 2/18/08-1/31/10, NIH, NIM
Face Processing and Brain Function Associated with Autistic Symptoms in Fragil X
The goal of tis project is to investigate commonalities and differences in underlying
central circuitry of social and emotional processes in FXS and idiopathic autism.
Role: Co-Investigator

5R01 MN 062015-07 (Andrew L. Alexander, PI) 07/01/00 ,Äì 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

5 R01 MH068858-05 (Seth Pollak, PI) 4/5/04-1/31/09, NIH, NIMH
Neurobehavioral Correlates to Early Deprivation This project explores the neurobiological basis of problems in attention/executive functions, sensory integration, and emotion/stress regulation in children who have experienced neglect/privation early in life.

1U54 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).

5 R01 DC006282 Houri Vorperian (PI) 8/1/03-12/31/07, NIH
MRI & CT Studies of the Developing Vocal Tract This project combines imaging, acoustic analysis, and geometric modeling in an investigation of the development of the vocal tract from infancy through adulthood.

1P01 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 (project 8).

2P30 CA14520-32 George Wilding (PI) 04/01/01-03/31/07, NIH/NCI 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: Statistician

1R21 DA15879-01 Andrew L. Alexander (PI) 09/27/2002-6/30/2006, NIH/NIDA
Structural and Functional Measures of Brain Development Role: Co-investigator.

WARF grant. Moo K. Chung (PI) 07/2001/03-06/30/2004. Wisconsin Alumni

Research Foundation. Cortical Surface Modeling from Brain Magnetic Resonance Images.

Teaching

Postdoctoral training

- 2009-2011 Nagesh Adluru (PhD in computer science from Temple University 2009), Diffusion tensor imaging.
- 2010-2011 Hyekyung Lee (PhD in computer science from POSTECH, Korea, 2009). Brain network modeling.

PhD thesis committee & training

- 2010-2012 Seongho Seo, Department of Brain and Cognitive Sciences, Seoul National University. Fourier analysis on cortical manifolds. 2010-2012. Seoul National University
- 2010 Seung-Goo Kim, Brain network modeling. 2010. Seoul National University.
- 2010 Andrew L. Thurman, Brain network modeling. 2010. Department of Statistics.

Brianna Schuyler, Neuroscience Program, Dynamic Casual Modeling (DCM) for fMRI signal, 2008.

Shubing Wang. Department of Statistics, Weighted Fourier Analysis and Its Application to Brain Imaging, 2003-2008. He is working at Merck medical imaging section now.

Xianhong Xie, Department of Statistics, MRI Segmentation via Thin Plate Spline. 2004-2005

Yuefeng Lu, Department of Statistics, Nonparametric fMRI Analysis. 2002-2005

Jee Eun Lee, Department of Medical Physics. Anisotropic Kernel Smoothing Applied to Diffusion Tensor Imaging (DTI). 2003-2006

Daniel J. Kelley, Neuroscience Training Program. fMRI Functional Connectivity. 2005-2008.

Kyung Chul Kim, Department of Environmental Engineering. Modeling of Cement using Magnetic Resonance Imaging (MRI). 2006.

Vuk Ercegovac, Department of Computer Science. Network Connectivity Analysis. 2006.

Taehoon Kang, Department of Educational Psychology. Latent Variable Modeling. 2005-2006

Wei Yue, Department of Statistics, Bayesian Spatial Statistics. 2005.

Cheng Guan Koay, Department of Medical Physics. Diffusion Tensor Imaging (DTI). 2005.

Jian Yang, Department of Environmental Engineering. Bootstrap Methods Applied to Engineering Problem. 2003-2005

Undergraduate student training

Samantha Bromfield, Nonparametric Curve Fitting on Vocal Tract Length Development. Summer Research program in Biostatistics and Bioinformatics, 2006. She was admitted to the Masters program in the University of Wisconsin-Madison in 2007.

Huy Vuong, Partial Correlation Mapping in Brain Imaging. Summer Research program in Biostatistics and Bioinformatics, 2005. He was admitted to the PhD program in the University of Michigan in 2006.

Thomas Hoffmann, Corpus Callosum Boundary Shape Analysis. B.Sc. in MATH/STAT/ CS 2002-2004. He was admitted to the Biostatistics PhD program at Harvard in 2004.

Marcus Gilchrist, Kernel Smoothing on Images, URS Program. Fall 2003.

Chanda Nyendwa, Estimation of Transition Probability via Monte-Carlo Method, Summer Research program in Biostatistics and Bioinformatics, Summer 2003.

Jasmine Major, Voxel-based Morphometry in Autism. NASA SHARP program, Summer 2003.

Course Teaching

2011	Statistical Methods in NeuroImage Analysis, Seoul National University
2010	Computational Methods in NeuroImage Analysis, Seoul National University
2009	NeuroImage Processing, Seoul National University
2007	Medical Image Analysis. STAT 692, University of Wisconsin-Madison
2004	Statistical Methods in Signal and Image Analysis. STAT 992. University of Wisconsin-Madison
2005	Mathematical Statistics I. STAT 311. University of Wisconsin-Madison
2005	Applied Statistics for Engineers STAT 324. University of Wisconsin-Madison
2003-2004	Mathematical Statistics II. STAT 312. University of Wisconsin-Madison
2003	Computational Statistics. STAT 471. University of Wisconsin-Madison

Nonparametric Statistics. STAT 351. University of Wisconsin-Madison
Mathematical Statistics I. STAT 311. University of Wisconsin-Madison
Probability Theory, MATH 323. McGill University.
Ordinary Differential Equations, MATH 315. McGill University.

PUBLICATION

Books & book chapters

- 2012 Chung, M.K. 2012. Computational and Statistical Methods in Brain Image Analysis. in preparation. Chapman & Hall/CRC. in preparation.
- 2011 Chung, M.K. 2011. Computational Neuroanatomy: The Methods. World Scientific Publishing. in preparation.
- 2009 Chung, M.K. 2010. R-squared value, The Encyclopedia of Research Design, Sage Publications ([invited paper](#)).
- 2007 Chung, M.K. 2007. Correlation Coefficients. The Encyclopedia of Measurement & Statistics, Sage Publications. ([invited paper](#)).
- 2001 Chung, M.K. 2001. Statistical Morphometry in Computational Neuroanatomy, Ph.D. Thesis, McGill University.

Journal articles

- submitted Gallagher, C.L., Johnson, S.C., Chung, M.K., Oakes, T.R., Brooks, B.R., Holden, J.E., Bendlin, B.B., Konopaki, R., Dogan, S., Abbsa, J., Xu, G., Nickles, R.J., Pyzalskik, R., DeJesus, O., Brown, W.D. 2010. Longitudinal correlations between fluorodopa PET and motor performance measures to in Parkinson Disease. submitted.
- Gallagher, C.L., Oakes, T.R., Johnson, S.C., Chung, M.K., Holden, J.E., Bendlin, B.B., McLaren, D., Xu, G., Nickles, R.J., Pyzalskik, R., DeJesus, O., Brown, W.D. 2010. Regional differences in the rate of striatal fluorodopa decline in Parkinson Disease. submitted.
- 2011 Pachauri, D., Hinrichs, C., Chung, M.K., Johnson, S.C., Singh, V. and ADNI. 2010. Cortical surface topology based kernels with application to alzheimer's disease. IEEE Transactions on Medical Imaging. in press.
- Vorperian, H.K., Wang, S., Schimek, E.M., Durtschi, R.B., Kent, R.D., Gentry, L.R., Chung, M.K. 2010. Developmental sexual dimorphism of the oral and pharyngeal portions of the vocal tract: An imaging study. Journal of Speech, Language,

and Hearing Research. 54:995-1010. (2010 Editor's Award as the best paper)

Lee, H., Lee, D.S., Kang, H., Kim, B.-N., Chung, M.K. 2011. Sparse brain network recovery under compressed sensing. IEEE Transactions on Medical Imaging. Special Issue on Compressed Sensing. 30:1154-1165.

2010 Chung, M.K., Worsley, K.J., Nacewicz, B.M., Dalton, K.M., Davidson, R.J. 2010. General multivariate linear modeling of surface shapes using SurfStat. NeuroImage. 53:491-505.

Hanson, J.L., Chung, M.K., Avants, B.B., Shirtcliff, E.A., Gee, J.C., Davidson, R.J., Pollak, S.D. 2010. Early stress is associated with alterations in the orbitofrontal cortex: A tensor-based morphometry investigation of brain structure and behavioral risk. Journal of Neuroscience. 30:7466-7472.

Chung, M.K., Adluru, N., Lee, J.E., Lazar, M., Lainhart, J.E., Alexander, A.L., 2010. Cosine Series Representation of 3D Curves and Its Application to White Matter Fiber Bundles in Diffusion Tensor Imaging. Statistics and Its Interface. 3:69-80.

2009 Hinrichs, C., Singh, V., Mukherjee, L., Xu, G., Chung, M.K., Johnson, S.C., 2009. Spatially augmented LPboosting for AD classification with evaluation on the ADNI dataset. NeuroImage. 48:138-149.

Reid, D.B., Chung, D., Gentry, L.R., Chung, M.K., Vorperian, H.K. 2009. Developmental craniofacial anthropometry: Assessment of Race effects. Clinical Anatomy. 22:800-808.

2008 Vorperian, H.K., Wang, S., Chung, M.K., Schimek, E.M., Durtschi, R.B., Kent, R.D., Ziegert, A.J., Gentry, L.R. 2008. Anatomical development of the oral and pharyngeal portions of the vocal tract for males and females: an imaging study. The Journal of the Acoustical Society of America. 125:1666-1678.

Lee, J.E., Chung, M.K., Lazar, M., DuBray, M.B., Kim, J., Bigler, E.D., Lainhart, J.E., Alexander, A.L. 2008. A study of diffusion tensor imaging by tissue-specific, smoothing compensated voxel-based analysis. NeuroImage, 44:870-883.

Chung, M.K. Hartley, R., Dalton, K.M., Davidson, R.J. 2008. Encoding cortical surface by spherical harmonics. Special Issue on Statistical Challenges and Advances in Brain Science, Statistica Sinica. 18:1269-1291.

Chung, D, Chung, M.K, Durtschi, R.B., Vorperian, H.K. 2008. Determining Length-based Measurement Consistency from Magnetic Resonance Images. Academic Radiology. 15:1322-1330.

- Chung, M.K., Dalton, K.M., Davidson, R.J. 2008. Tensor-based cortical surface morphometry via weighed spherical harmonic representation. *IEEE Transactions on Medical Imaging*. 27:1143-1151. ([invited paper based on MMBIA 2006 oral presentation](#)).
- Kelley, D.J., Oakes, T.R., Greischar, L.L., Chung, M.K., Ollinger, J., Alexander, A.L., Shelton, S.E., Kalin, N., Davidson, R.J. 2008. Automatic physiological waveform processing for fMRI noise correction and analysis. *PLoS ONE*. 3:e1751.
- 2007 Vorperian, H.K., Durtschi, R.B., Wang, S., Chung, M.K., Ziegert, A.J., Gentry, L.R. 2007. Estimating head circumference from pediatric imaging studies: an improved method. *Academic Radiology*. 14:1102-1107.
- Chung, M.K., Shen, L., Dalton, K.M., Evans, A.C., Davidson, R.J. 2007. Weighted Fourier Series Representation and its application to quantifying the amount of gray matter. *Special Issue on Computational Neuroanatomy, IEEE Transactions on Medical Imaging*. 26:566-581. ([invited paper](#))
- 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. 2007. Diffusion tensor imaging of white matter in the superior temporal gyrus and temporal stem in autism. *Neuroscience Letters*. 424:127-132.
- Vorperian, H.K., Durtschi, R.B., Wang, S., Chung, M.K., Ziegert, A.J., Gentry, L.R. 2007. Estimating head circumference from imaging studies. *Journal of Neuro-radiology*. 14:1102-1107.
- Oakes, T.R., Fox, A.S., Johnstone, T.J., Chung, M.K., Kalin, N., Davidson, R.J. 2007. Integrating VBM into the general linear model with voxelwise anatomical covariates. *NeuroImage* 34:500-508.
- 2005 Chung, M.K., Robbins, S., Dalton, K.M., Davidson, R.J., Alexander, A.L., Evans, A.C. 2005. Cortical thickness analysis in autism via heat kernel smoothing. *NeuroImage*, 25:1256-1265 ([selected for cover illustration](#)).
- 2004 Chung, M.K., Dalton, K.M., Alexander, A.L., Davidson, R.J. 2004. Less white matter concentration in autism: 2D Voxel-Based Morphometry. *NeuroImage* 23:242-251.
- Wu, Y.-C., Field, A.S., Chung, M.K., Badie, B. and Alexander, A.L., 2004. Quantitative Analysis of Diffusion Tensor Orientation: Theoretical Framework, *Magnetic Resonance in Medicine*. 52:1146-1155.
- 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. 2004. Functional but not

structural subgenual prefrontal cortex abnormalities in melancholia. *Molecular Psychiatry*, 9:393-405.

2003 Chung, M.K., Worsley, K.J., T., Robbins, S., Paus, T., Taylor, J., Giedd, J.N., Rapoport, J.L., Evans, A.C. 2003. Deformation-Based Surface Morphometry with an Application to Gray Matter Deformation, *NeuroImage* 18:198-213 ([invited paper, selected for cover illustration](#)).

2001 Chung, M.K., Worsley, K.J., Paus. T., Cherif, C., Collins, D.L., Giedd, J.N., Rapoport, J.L., Evans, A.C., 2001. A Unified Statistical Approach to Deformation-Based Morphometry, *NeuroImage* 14:595-606. ([selected for cover illustration](#)).

Hanley, J.A., Joseph, L., Platt, R.W., Chung, M.K., Belisle, P. 2001. Visualizing the Median as the Minimum-Deviation Location, *The American Statistician*. 55:150-152.

Chung, M.K., 2000. The Expectation of the Determinant of a Random Matrix, *Image: The Bulletin of the International Linear Algebra Society*, 23.

Peer Reviewed Conference Proceedings

2011 Chung, M.K., Seo, S., Adluru, N., Vorperian, H.K. Hot spots conjecture and its application to modeling tubular structures. 2nd International Workshop on Machine Learning in Medical Imaging (MLMI). *Lecture Notes in Computer Science (LNCS)*. in press. ([selected for oral presentation](#))

Lee, H., Chung, M.K., Kang, H., Kim, B.-N., Lee, D.S. 2011. Computing the shape of brain network using graph filtration and Gromov-Hausdorff metric. 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). *Lecture Notes in Computer Science (LNCS)* 6892:302-309. ([selected for oral presentation, oral acceptance rate 4%](#))

Hosseinbor, A.P., Chung, M.K., Wu, Y.-C., Alexander, L. 2011. Bessel Fourier orientation reconstruction: An analytical EAP reconstruction using multiple shell acquisitions in diffusion MRI. 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). *Lecture Notes in Computer Science (LNCS)* 6892:217-225. ([acceptance rate 30%](#))

Seo, S. Chung, M.K. 2011. Performance analysis of surface reconstruction using the Laplace-Beltrami eigenfunctions. *IEEE International Symposium on Biomedical Imaging (ISBI)*. ([selected for NIH travel award](#))

Kim, S.-G., Chung, M.K., Hanson, J.L., Avants, B.B., Gee, J.C., Davidson, R.J., Pollak, S.D. 2011. Structural connectivity via the tensor-based morphometry. *IEEE*

International Symposium on Biomedical Imaging (ISBI).

Lee, H., Chung, M.K., Kang, H., Kim, B.-N., Lee D.S. 2011. Discriminative persistent homology of brain networks. IEEE International Symposium on Biomedical Imaging (ISBI).

Seo, S. Chung, M.K. Voperian, H.K. 2011. Mandible shape modeling using the second eigenfunction of the Laplace-Beltrami operator, SPIE Medical Imaging. ([selected for oral presentation](#)).

Lee, H., Lee, D.S., Kang, H., Kim, B.-N., Chung, M.K. 2011. Sparse brain network using penalized linear regression. SPIE Medical Imaging. ([selected for oral presentation](#)).

Chung, M.K., Adluru, N., Dalton, K., Alexander, A.L., Davidson, R.J. 2011. Scalable brain network construction on white Matter fibers. SPIE Medical Imaging.

2010 Seo, S., Chung, M.K., Voperian, H.K. 2010. Heat kernel smoothing using Laplace-Beltrami eigenfunctions. 13th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). Lecture Notes in Computer Science (LNCS). 6363:505-512. ([acceptance rate 32%](#)).

Adluru, N., Chung, M.K., Dalton, K.M., Alexander, A.L., Davidson, R.J. 2010. Characterizing brain connectivity using ϵ -radial nodes: application for classifying autism. MICCAI workshop on Computational Diffusion MRI.

2009 Nagesh. A., Hinrichs, C., Chung, M.K., Lee, J.-E., Singh, V., Bigler, E., Lange, N., Lainhart, J.E., Alexander, A.L. Classification in DTI using shapes of white matter tracts. IEEE Engineering in Medicine and Biology Society (EMBS). 1:2719-2722.

Chung, M.K., Alluru, N., Lee, J.E., Lazar, M., Lainhart, J.E., Alexander, A.L. 2009. Efficient parametric encoding scheme for white matter fiber bundles. IEEE Engineering in Medicine and Biology Society (EMBS) 1:6644-6647. ([invited paper](#)).

Chung, M.K., Singh, V., P., Kim, P.T., Dalton, K.M., Davidson, R.J. 2009. Topological characterization of signal in brain images, 2th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). Lecture Notes in Computer Science (LNCS) 5762:158-166. ([acceptance rate 32%](#)).

Khan, A.R., Chung, M.K., Beg, M.F. 2009. Robust atlas-based brain segmentation using multi-structure confidence-weighted registration. 12th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). Lecture Notes in Computer Science (LNCS) 5762:549-557. ([acceptance rate 32%](#)).

Chung, M.K., Bubenik, P., Kim, P.T. 2009. Persistence diagrams of cortical surface

data. Information Processing in Medical Imaging (IPMI). Lecture Notes in Computer Science (LNCS) 5636:386-397. ([selected for oral presentation, oral acceptance rate 17%](#)).

Chung, M.K., Wu, Y.-C., Alexander, A.L. 2009. 3D functional representation of sparsely sampled 2D cortical data. IEEE International Symposium on Biomedical Imaging (ISBI). #1147.

2008 Singh, V., Mukherjee, L., Chung, M.K. 2008. Cortical surface thickness as a classifier: Boosting for autism classification. 11th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). Lecture Notes in Computer Science (LNCS) 5241:999-1007.

Chung, M.K. Lee, Jee Eun, Park, G., Lazar, M., Lange, N.T., Lainhart, J.E., Alexander, A.L. 2008. A unified parametric model of white matter fiber tracts. MICCAI Workshop on Computational Diffusion MRI. ([selected for oral presentation](#))

Chung, M.K., Qiu, A., Nacewicz, B.M., Dalton, K.M., Pollak, S., Davidson, R.J. 2008. Tiling manifolds with orthonormal basis. 2nd MICCAI Workshop on Mathematical Foundations of Computational Anatomy (MFCA). ([selected for oral presentation](#))

Chung, M.K. Nacewicz, B.M., Wang, S., Dalton, K.M., Pollak, S., Davidson, R.J. 2008. Amygdala surface modeling with weighted spherical harmonics 4th International Workshop on Medical Imaging and Augmented Reality (MIAR). Lecture Notes in Computer Science (LNCS) 5128:177-184 ([selected for oral presentation](#)).

Chung, M.K., Kelley, D.J., Dalton, K.M., Davidson, R.J. 2008. Quantifying Cortical Surface Asymmetry via Logistic Discriminant Analysis. submitted. IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA) ([selected for oral presentation](#)).

2007 Chung, M.K. Dalton, K.M., Davidson, R.J. 2007. Encoding neuroanatomical information using weighted spherical harmonic representation. IEEE 14th Workshop on Statistical Signal Processing. 146-150. ([invited paper](#)).

2006 Shen, L., Saykin, A.J., Chung, M.K., Huang, H., Ford, J., Makedon, F., McHugh, T.L., Rhodes, H. 2006. Morphometric analysis of genetic variation in hippocampal shape in mild cognitive impairment: role of an IL-6 promoter polymorphism. Computational Systems Bioinformatics (CSB).

Chung, M.K., Shen, L., Dalton, K.M., Robbins, S., Evans, A.C., Davidson, R.J. 2006. Voxel-based morphometry via weighted-SPHARM representation of cortical geometry. International Workshop on Medical Imaging and Augmented Reality

(MIAR). Lecture Notes in Computer Science (LNCS). 4091:36-43. Springer-Verlag (selected for oral presentation).

Shen, L., Chung, M.K. 2006. Large-scale modeling of parametric surfaces using spherical harmonics. Third International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT).

Chung, M.K., Robbins,S., Dalton, K.M., Wang, S., Evans, A.C., Davidson, R.J. 2006. Tensor-based cortical surface morphometry via weighted spherical harmonic representation. 2006. IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA) within Computer Vision and Pattern Recognition (CVPR) (selected for oral presentation as one of the best 13 papers out of 112 submissions).

Chung, M.K. 2006. Heat kernel smoothing on unit sphere. IEEE International Symposium on Biomedical Imaging (ISBI). 1430.

Lee, J.E., Chung, M.K., Alexander., A.L. 2006. Evaluation of anisotropic filters for diffusion tensor imaging. IEEE International Symposium on Biomedical Imaging (ISBI). 1241.

2005 Chung, M.K., Robbins,S., Evans, A.C. 2005. Unified statistical approach to cortical thickness analysis. Information Processing in Medical Imaging (IPMI). Lecture Notes in Computer Science (LNCS) 3565:627-638. Springer-Verlag (acceptance rate < 26%).

Shen, L., Saykin, A., McHugh, T., West, J., Rabin, L., Wishart, H., Chung, M.K., Makedon, F. 2005. Morphometric analysis of 3D surfaces: application to hippocampal shape in mild cognitive impairment. 6th International conference on Computer Vision, Pattern Recognition and Image Processing (CVPRIP) in conjunction with 8th Joint Conference on Information Sciences (JCIS).

2004 Chung, M.K., Taylor, J. 2004. Diffusion Smoothing on Brain Surface via Finite Element Method, IEEE International Symposium on Biomedical Imaging (ISBI). 562.

2003 Chung, M.K., Worsley, K.J., Robbins, S., Evans. 2003. A. Tensor-based Surface Modeling and Analysis, IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR), Vol. I. 467-473. (acceptance rate < 24%).

Conference Abstracts

2011 Chung, M.K. Hanson, J.L., Davidson, R.J., Pollak, S.D. 2011. Effect of family income on hippocampus growth: longitudinal study. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM). 2697

Seo, S., Chung, M.K., Dalton, K.M., Davidson, R.J. 2011. Multivariate cortical shape modeling based on sparse representation. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM).

Lee, H., Chung, M.K., Kang, H., Kim, B.-N., Lee, D.S. 2011. Persistent network homology from the perspective of dendrograms. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM).

Lee, H., Chung, M.K., Kang, H., Kim, B.-N., Lee, D.S. 2011. Brain network from sparse and topological point of view. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM). ([selected for oral presentation and NIH travel award](#))

Hahm, J., Chung, M.K., Kang, H., Lee, S.-K., Lee D.S. 2011. Voxel-based network using epsilon neighbor with regional constraint on medial temporal lobe epilepsy. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM).

Kim, S.-G., Chung, M.K., Hanson, J.L., Avants, B.B., Gee, J.C., Davidson, R.J., Pollak, S.D. 2011. White matter structural connectivity without diffusion tensor imaging. 17th Annual Meeting of the Organization for Human Brain Mapping (HBM).

Kim, S.-G., Chung, M.K., Hanson, J.L., Avants, B.B., Gee, J.C., Davidson, R.J., Pollak, S.D. 2010. Structural connectivity via the tensor-based morphometry. The Biannual Meeting of Korean Society of Human Brain Mapping. ([selected as the best poster](#))

2010Gallagher, C.L., Johnson, S.C., Chung, M.K., Brooks, B.R., Abbs, J., Dogan, S., Bendlin, B.B., Nickles, R.J., Brown, W.D., 2010. Bulbar Function Is Correlated with Neuroimaging Outcomes in Parkinson's Disease. Annual Meeting of American Academy of Radiology. P03.169.

Chung, M.K. Adluru, N. Dalton, K. M., Alexander, A.L., Davidson, R.J. 2010. Characterization of structural connectivity in autism using graph networks with DTI. 16th Annual Meeting of the Organization for Human Brain Mapping. 938. ([selected as a E-poster as one of the best abstracts. 7% acceptance rate](#)).

Chung, M.K., Hanson, J.L., Avants, B., Gee, J., Davidson, R.J., Pollak, S.D. 2010. Structural Connectivity Mapping via the Tensor-Based Morphometry. 16th Annual Meeting of the Organization for Human Brain Mapping. 481.

Kim, H., Kang, E., Kang, H., Lee, H.-K., Lee, J.S., Chung, M.K., Kim, H.-W., Cho, S.C., Kim, B.-N., Lee, D.S. 2010. Orbitofrontal connectivity in default network of children with autism spectrum disorder. 16th Annual Meeting of the Organization

for Human Brain Mapping.

Yim, Y.-K., Kang, H., Chung, M.K., Kang, E., Lee, H.-K., Kim, H., Kim, B.-N., 4, Lee, D.S. 2010. Anatomical dysconnectivity in children with attention deficit/hyperactivity disorder. 16th Annual Meeting of the Organization for Human Brain Mapping.

Kang, H., Kim, H., Kang, E., Lee, H.-K., Lee, J.S., Chung, M.K., Kim, H.-W., Cho, S.C., Kim, B.-N., Lee, D.S. 2010. Differences in a metabolic connectivity in the fronto-striatal system can be used to distinguish autism from attention deficit/hyperactivity disorder in children. 16th Annual Meeting of the Organization for Human Brain Mapping.

Hanson, J.L., Chung, M.K., Davidson, R.J., Pollak, S.D. 2010. Development of the medial temporal lobe: cross-sectional & longitudinal insights into behavioral changes, Society for Neuroscience Meeting.

Hanson, J.L., Chung, M.K., Avants, B., Shitcliff, E.A., Schlaak, M., Davidson, R.J., Pollak, S.D. 2010. Effects of early deprivation and neglect on adolescent brain structure and neuropsychological functioning. Biennial Meeting for Society for Research on Adolescence.

2009 Hanson, J.L., Shitcliff, E.A., Chung, M.K., Oakes, T.R., Pollak, S.D., Davidson, R.J. 2009. Chronic life stress is associated with volumetric reductions in the corpus callosum. Society for Research in Child Development

Worsley, K.J., Taylor, J.E., Carbonell, F., Chung, M.K., Duerden, E., Bernhardt, B., Lyttelton, O., Boucher, M., Evans, A.C. 2009. SurfStat: A Matlab toolbox for the statistical analysis of univariate and multivariate surface and volumetric data using linear mixed effects models and random field theory. Human Brain Mapping. 972.

2008 Hanson, J.L., Chung, M.K., Sutterer, M.J., Nacewicz, B.M., Pollak, S.D., Davidson, R.J. 2008. Smaller Amygdalae are associated with early social deprivation in childhood. Society for Neuroscience Abstracts. 477.11/qq10

Vorperian, H.K., Wang, S., Chung, M.K., Durtschi, R.B., Schimek, E.M., Gentry, L.R., Kent, R.D. 2008. Relational growth of oral and pharyngeal structures with vocal-tract length during the first two decades of life as visualized from MRI and CT studies. American Speech-Language Hearing Association (ASHA) Convention. Session 1838. Poster 244.

Vorperian, H.K., Kent, R.D., Wang, S., Chung, M.K., Gentry, L.R. 2008. Relational growth of vocal tract structures with vocal tract length during the first two decades of life as visualized from MRI and CT studies. Conference on Motor Speech: Motor

Speech Disorders.

Chung, M.K., Kelley, D.J., Dalton, K.M., Davidson, R.J. 2008. Localizing cortical asymmetry using the discriminant power. *Human Brain Mapping*.

Chung, M.K., Dalton, K.M., Davidson, R.J. 2008. New validation framework for cortical data smoothing. *Human Brain Mapping*.

2007 Chung, M.K., Dalton, K.M., Davidson, R.J. 2007. Unified cortical asymmetry analysis in autism via weighted-SPHARM. *Human Brain Mapping* ([selected as one of the best 65 abstracts](#)).

Wang, S., Chung, M.K., Dalton, K.M., Alexander, A.L., Davidson, R.J. 2007. Automated diagnosis of autism using Fourier series expansion of corpus callosum boundary. *Human Brain Mapping*.

Kelley, D.J., Dalton, K.M., Nacewicz, B.M., Johnstone, T., Chung, M.K., Oakes, T.R., Alexander, A.L., Davidson, R.J. 2007. Autism eye gaze behavior depends on functional amygdala connectivity with the superior temporal area. *Human Brain Mapping*.

Lee, J.E., Chung, M.K., Hsu, D., Alexander, A.L. 2007. Probabilistic connectivity using Kullback-Leibler distance, *International Society for Magnetic Resonance in Medicine (ISMRM)*.

Lee, J.E., Lazar, M., Alexander, A.L., Bigler, E., Chung, M.K., Hsu, D., Lainhart, J. 2007. Tissue-Specific, Smoothing-Compensated Voxel-Based Analysis of DTI Data. *International Society for Magnetic Resonance in Medicine (ISMRM)*.

2006 Lee, J.E., Chung, M.K., Alexander, A.L. 2006. Evaluation of anisotropic filtering for DTI as a function of SNR. *Proceedings of the 14th ISMRM Scientific meeting* ([selected for oral presentation](#)).

Kelley, D.J., Bhattacharyya, A., Yin, Y.C., Oakes, T.R., Chung, M.K., Dalton, K.M., Christian, B.T., Davidson, R.J. 2006. Abnormal cyclic Amp production in human cortical fragile X neural tissue: a proof of principle study. Annual meeting of the Central Society for Clinical Research and the Midwestern Section of the American Federation for Medical Research. ([selected for travel award](#)).

2005 Vorperian, H.K., Schimek, E.M., Wang, S., Chung, M.K., Kent, R.D., Durtschi, R.B., Ziegert, A.J., Gentry, L.R. 2005. Anatomic development of the vocal tract during the first two decades of life: Evidence on perpubertal sexual dimorphism from MRI and CT studies. *Acoustical Society of America (ASA) 154th meeting*.

Vorperian, H.K., Chung, M.K., Gentry, L.R., Kent, R.D., Wang, S., Choih, C.S.,

Durtschi, R.B., Ziegert, A.J. 2005. Vocal tract length development during the first two decades of life: a magnetic resonance imaging study. 150th meeting of Acoustical Society of America (ASA).

Kelley, D.J., Dalton, K.M., Nacwicz, B.M., Johnstone, T., Chung, M.K., Schaefer, H.S., Oakes, T.R., Alexander, A.L., Davidson, R.J. 2005. Altered functional connectivity of amygdala emotional face processing circuitry in autism. The Society for Neuroscience (SFN) meeting.

Shen, L., Saykin, A., McHugh, T., West, J., Rabin, L., Wishart, H., Chung, M.K., Makedon, F. 2005. Morphometric MRI study of hippocampal shape in MCI using spherical harmonics. Alzheimer's Association International Conference on Prevention of Dementia.

Chung, M.K., Tulaya, L. 2005. Introducing heat and geodesic kernel smoothing on cortical manifolds, 11th Annual Meeting of the Organization for Human Brain Mapping.

Chung, M.K., Kim, D.M., Robbins, S., Evans, A.C., Davidson, R.J. 2005. Partial correlation mapping of cognitive measure and cortical thickness in autism, 11th Annual Meeting of the Organization for Human Brain Mapping.

Xie, X., Chung, M.K., Grace, W. 2005. Magnetic resonance image segmentation with thin plate spline thresholding. 11th Annual Meeting of the Organization for Human Brain Mapping.

Levy, D.M., Fisher, T.G., Chung, M., Lee, J.H., Lazar, M., Oakes, T.R., Kim, J.S., Alexander, A.L. 2005. Characterization of Voxel-Based Variance in DTI Measurements, 13th Meeting of International Society for Magnetic Resonance in Medicine.

Lee, J.H., Chung, M.K., Oakes, T.E., Alexander, A.L. 2005. Anisotropic Gaussian kernel smoothing of DTI data. 13th Meeting of International Society for Magnetic Resonance in Medicine.

2004 Chung, M.K., Tang, S. 2004. Nonparametric estimation of cortical thickness, 10th Annual Meeting of the Organization for Human Brain Mapping.

Chung, M.K., Dalton, K.M., Alexander, A.L., Davidson, R.J. 2004. 2D Voxel-based morphometry shows less white matter concentration in autism, 10th Annual Meeting of the Organization for Human Brain Mapping.

Hoffmann, T.J., Chung, M.K., Dalton, K.M., Alexander, A.L., Wahba, G., Davidson, R.J. 2004. Subpixel curvature estimation of the corpus callosum via splines and its application to autism, 10th Annual Meeting of the Organization for Human Brain Mapping.

- 2003 Chung, M.K., Alexander, A., Lu, Y. 2003. Connection Probability in Diffusion Tensor Imaging via Anisotropic Gaussian Kernel Smoothing. 9th International Conference on Functional Mapping of the Human Brain.
- Chung, M.K., Worsley, K.J., T., Robbins, S., Paus, T., Taylor, J., Giedd, J.N., Rapoport, J.L., Evans, A.C. 2003. Detecting Gray Matter Maturation via Tensor-based Surface Morphometry, 9th International Conference on Functional Mapping of the Human Brain.
- Fox, A., Oakes, T., Dalton, K., Chung, M.K., Alexander, A.L., Davidson, R. 2003. Preserving Individual Differences for Voxel-Based Morphometry (VBM), 9th International Conference on Functional Mapping of the Human Brain.
- Pizzagalli, D.A., Chung, M.K., Oakes, T.R., Davidson, R.J. 2003. Subgenual Pre-frontal and Orbitofrontal Cortex Dysfunction in Melancholia: Functional and Structural Correlates Using Concurrent EEG/PET Measurements and Voxel-Based MRI Morphometry analyses, 42nd Annual Meeting of the Society for Psychophysiological Research, Washington, D.C.
- 2002 Lu, Y., Chung, M.K. 2002. An Area-Preserving Brain Surface Flattening Method, 8th International Conference on Functional Mapping of the Human Brain.
- 2001 Chung, M.K., Worsley, K.J., Robbins, S., Paus, T., Taylor, J., Giedd, J.N., Rapoport, J.L., Evans, A.C. 2001. Statistical Analysis of Cortical Surface Area Change, with an Application to Brain Growth, *NeuroImage* 13S:96.
- Chung, M.K., Worsley, K.J., Taylor, J., Ramsay, J.O., Robbins, S., Evans, A.C. 2001. Diffusion Smoothing on the Cortical Surface, *NeuroImage* 13:S95.
- Kim, J.S., Lee, J.S., Lee, D.S., Jang, M.J., Kang, E., Chung, M.K., Worsley, K.J., Robbins, S., Collins, D.L., Kim, J.C, Chung, J-K. Lee, M.C. 2001. Longitudinal analysis of local volume changes in brain of cortical deafness using F-18-FDG PET and deformation-based morphometry, *NeuroImage* 13:S1202.
- Taylor, J., Worsley, K.J., Chung, M.K., Evans, A.C. 2001. Thresholding non-stationary SPMs with an application to cortical surface mapping, *NeuroImage* 13S:264.
- Chung, M.K., Worsley, K.J., Taylor, J., Ramsay, J.O. 2001. Diffusion Smoothing in Brain Imaging, The proceedings of the 53rd Session of the International Statistical Institute.
- 2000 Chung, M.K., Worsley, K.J., Cherif, C., Paus, T., Collins, D.L., Rapoport, J.L., Evans, A.C., 2000. Statistical Analysis of Local Volume Change, with an Application to Brain Growth, *NeuroImage* 11S:611 (selected for oral presentation and NIH

[travel award](#)).

Department Technical Reports

Lee, H., Lee, D.S., Kang, H., Kim, B.-N., Chung, M.K. 2010. Sparse brain network recovery under compressed sensing. Department of Biostatistics and Medical Informatics TR 213. University of Wisconsin-Madison.

Seo S., Chung, M.K., Vorperian, H.K. 2010. Heat kernel smoothing of anatomical manifolds via Laplace-Beltrami eigenfunctions. TR 211. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K. 2008. Topological characterization of signals in brain images. TR 207. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K., Worsley, K.J., Nacewicz, B.M., Dalton, K.M., Davidson, R.J. 2008. Multivariate amygdala shape modeling. TR 206. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K. Lee, Jee Eun, Park, G., Lazar, M., Lange, N.T., Lainhart, J.E., Alexander, A.L. 2008. A unified parametric model of white matter fiber tracts. TR 204. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K., Qiu, A., Nacewicz, B.M., Dalton, K.M., Pollak, S., Davidson, R.J. 2008. Tiling manifolds with orthonormal basis. TR 203. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K. Nacewicz, B.M., Wang, S., Dalton, K.M., Pollak, S., Davidson, R.J. 2008. Amygdala surface modeling with weighted spherical harmonics. Department of Biostatistics and Medical Informatics TR 202, University of Wisconsin-Madison.

Chung, M.K., Dalton, K.M., Davidson, R.J. 2007. Tensor-based cortical surface morphometry via weighed spherical harmonic representation. Department of Biostatistics and Medical Informatics TR 199, University of Wisconsin-Madison.

Chung, M.K., Hartley, R., Dalton, K.M., Davidson, R.J. Encoding cortical surface by spherical harmonics. Technical Report 198. Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison.

Chung, M.K., Dalton, K.M., Shen, L., L., Evans, A.C., Davidson, R.J. 2006. Unified cortical surface morphometry and its application to quantifying amount of gray matter. Technical Report 1122. Department of Statistics, Univ. of Wisconsin-Madison.

Chung, M.K., Shen, L., Dalton, K.M., Davidson, D.J. 2006. Multi-scale voxel-based morphometry via weighed spherical harmonic representation. Technical Report 1121. Department of Statistics, Univ. of Wisconsin-Madison.

Chung, M.K., Shen, L., Kelley, D.J., Dalton, K.M., Robbins, S., Evans, A.C., Davidson, R.J. 2006. Weighted spherical harmonic representation and its application to cortical analysis. Technical Report 1118. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K., Robbins, S., Dalton, K.M., Wang, S., Evans, A.C., Davidson, R.J. 2006. Model building in two-sphere via Gauss-Weierstrass kernel smoothing and its application to cortical analysis, Part 2. Technical Report. 1116. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K. 2005. Model building in two-sphere via Gauss-Weierstrass kernel smoothing and its application to cortical thickness analysis, Part I. Technical Report. 1115. Department of Statistics, University of Wisconsin-Madison.

Wang, S., Chung, M.K. 2005. Parameterization and classification of closed anatomical curves. Technical Report 1113. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K., Kim, D.M., Kelley, D.J., Robbins, S., Evans, A.C., Davidson, R.J. 2005. Partial correlation mapping of anatomical and behavioral measures and its application to autism. Technical Report. 1109. Department of Statistics, University of Wisconsin-Madison.

Xie, X., Chung, M.K., Wahba, G. 2005. Magnetic resonance image segmentation with thin plate spline thresholding. Technical Report. 1105. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K. 2004. Heat kernel smoothing and its application to cortical manifolds. Technical Report 1090. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K., Dalton, K., Alexander, A.L, Davidson, R.J. 2004. White Matter Density of Corpus Callosum in Autism: 2D Voxel-Based Morphometry, Technical Report 1089. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K., Lazar, M., Alexander, A.L., Lu., Y., Davidson, R.J. 2003. Probabilistic Connectivity Measure in Diffusion Tensor Imaging via Anisotropic Kernel Smoothing, Technical Report 1081. Department of Statistics, University of Wisconsin-Madison.

Chung, M.K., Worsley, K.J., Paus, T., Robbins, S., Taylor, J. 2002. Tensor-based

Surface Morphometry, Technical Report 1049. Department of Statistics, University of Wisconsin-Madison.

Invited Talks & Lectures

2011 Heat kernel smoothing on manifolds and its application to longitudinal brain sub-structure modeling. Session on brain imaging data analysis. International Biometric Society ENAR Meeting. March 20-23, 2011.

New approaches of white matter representation in diffusion tensor imaging for studying brain connectivity. Workshop on brain as network and brain disorder as network dysfunction. Seoul National University Hospital. January 27-28, 2011.

2010 Heat kernel smoothing in cortical manifolds, Annual Meeting of Chinese Statistical Society and International Statistical Conference, Taiwan. December 16, 2010.

Persistent homology of brain network using diffusion tensor imaging. Institute of Statistical Science, Academia Sinica, Taiwan. December 15, 2010.

Heat kernel smoothing in cortical manifolds, KAIST workshop on Neuroimaging and Brain mapping. December 3, 2010.

Data driven topological brain network modeling Department of Psychology. MEG Center, Seoul National University Hospital. November 25, 2010.

Do we really need diffusion tensor imaging for human brain connectome project? Department of Psychology. Cognitive Neuroscience Colloquium Series. Korea University. November 12, 2010.

What DTI can offer to the human brain connectome project? Plenary lecture. Korean Society of Human Brain Mapping (KHBM) plenary lecture. November 5, 2010.

Topological and sparse brain network modeling. Bio Imaging Signal Processing Lab. Department of BioSystems. Korea Advanced Institute of Science and Technology (KAIST). October 6, 2010.

Topological characterization of brain connectivity using white matter fiber bundles. The 3rd Biennial Symposium on Brain and Mind in the Asia and Pacific (BMAP). August 23-25, 2010.

Over-connectivity of 3D Brain Network using Diffusion Tensor Imaging, Section on Statistical Analysis of Brain Imaging Data, International Biometric Society ENAR Meeting. March 24, 2010.

- Computational Challenges in Neuroanatomy, Department of Statistics, University of Chicago, January 25, 2010.
- 2009 Analysis of Directional Data with Applications to Biomechanics and Biomedical Imaging. Montreal. Centre de Recherches Mathematiques. November 25-27. 2009
- Computational Challenges in Brain Imaging. Distinguished Lecture Series in Brain and Cognitive Sciences. Seoul National University. October 14, 2009
- The efficient parametric methods for encoding white matter fiber bundles. Invited session on Image Reconstruction, IEEE Engineering in Medicine and Biology Society (EMBC), Minneapolis, September 2-6. 2009
- Explicit parametric mapping of brain structures, Inauguration Symposium for the Department of Brain and Cognitive Science, Seoul National University, May 15-16, 2009.
- Section on Statistical Issues in Brain Imaging Data, International Biometric Society ENAR Meeting. San Antonio, Texas. March, 2009.
- Eigenfunctions of the Laplace-Beltrami operator in cortical manifolds, Data Analysis using Computational Topology and Geometric Statistics, Banff International Research Station, Canada. March 8-13, 2009
- Limitations of Fourier descriptors and spherical harmonic representation, Utah Scientific Computing and Imaging Institute, February 2, 2009
- 2008 Department Seminar Series, Department of Biostatistics, University of North Carolina, Chapel Hill, 2008.
- 2007 Invited lecture, Introduction to Computational Neuroanatomy, Computer Science 766, Computer Vision, University of Wisconsin-Madison, 2007.
- Invited lecture, Introduction to Computational Neuroanatomy, Neuroscience 675, Functional Imaging of Cognitive Disorders, University of Wisconsin-Madison, 2007.
- Section on statistical issues in brain imaging data. International Chinese Statistical Association (ICSA) Applied Statistics Symposium, Raleigh, North Carolina, 2007.
- Workshop IV: Image Processing for Random Shapes: Application to Brain Mapping, Geophysics and Astrophysics, Institute for Pure and Applied Mathematics (IPAM), UCLA. 2007.
- 2006 Multivariate Methods in Brain Imaging. International Conference on Multivariate Statistical Methods in the 21st Century. Indian Statistical Institute. 2006.

Bio Imaging Signal Processing Lab. Department of BioSystems. Korea Advanced Institute of Science and Technology (KAIST). Korea. 2006.

Brain Imaging Laboratory, Division of Child Psychiatry, New York State Psychiatric Institute & Columbia University. 2006.

Medical Image Analysis Laboratory, School of Computing Science, Simon Fraser University, Canada. 2006.

Communications & Signal Processing Group (CSP), Department of Electrical Engineering. University of Wisconsin-Madison. 2006.

2005 Statistica Sinica Invited Paper Section. Joint Statistical Meeting (JSM). 2005.

Diffusion tensor imaging section. International Biometric Society ENAR Meeting. 2005.

Department of Statistics and Quantitative Psychology joint seminar, University of Illinois at Urbana-Champaign. 2005.

2003 Division of Biostatistics, Medical College of Wisconsin, Milwaukee 2003.

Department of Mathematics and Statistics, McGill University, 2003.

2002 Department of Mathematical Sciences, Indiana University Perdue University, Indianapolis, 2002.

Brain imaging section. Canadian Statistical Society Meeting, Hamilton, Canada, 2002.

Brain imaging section. International Biometric Society ENAR Meeting. Washington, DC. 2002.

Applied Math. Seminar. Department of Mathematics, University of Wisconsin-Madison, 2002.

Probability Seminar. Department of Mathematics, University of Wisconsin-Madison, 2002.

2001 Department of Medical Physics, University of Wisconsin-Madison, 2001.

Department of Biomedical Engineering, Hanyang University, Korea, 2001.

Department of Nuclear Medicine, Seoul National University (SNU), 2001.

Department of Statistics, Seoul National University (SNU), 2001.

Department of Statistics, University of Waterloo, 2001.

Department of Statistics, University of Wisconsin-Madison, 2001.

2000 Workshop on Mathematical Methods in Brain Mapping, Centre de Recherches Mathematiques, 2000.

Workshop on Neuroimaging, Department of Psychology, McGill University, 2000.