Thomas E. Nichols
Curriculum Vitae

General Information

Professor, Wellcome Trust Senior Research Fellow
Oxford Big Data Institue, Nuffield Department of Population Health
University of Oxford
Oxford, OX3 7LF
United Kingdom

Email thomas.nichols@bdi.ox.ac.uk
Office +44 1865 743590
Web http://nisox.org

Education

Ph.D. in Statistics, Carnegie Mellon University, 2001.
Thesis title: Spatiotemporal Modeling of Positron Emission Tomography.
Thesis advisor: William F. Eddy.
Certificate, Graduate Training Program, Center for the Neural Basis of Cognition, Carnegie Mellon University & University of Pittsburgh, 1999.
M.S. in Statistics, Carnegie Mellon University, 1997.
B.S. in Mathematics and Statistics, Carnegie Mellon University, 1992.

Employment

Professor of Neuroimaging Statistics Big Data Institute, Nuffield Department of Population Health, University of Oxford, 2017 –.

Professor, Head of Neuroimaging Statistics Department of Statistics & Warwick Manufacturing Group, University of Warwick, 2014 – 2017.

Principal Research Fellow, Head of Neuroimaging Statistics Department of Statistics & Warwick Manufacturing Group, University of Warwick, 2009 – 2014.

Senior Research Fellow Functional Magnetic Resonance Imaging of the Brain (FMRIB) Centre, Department of Clinical Neurology, University of Oxford, 2006 – 2017.

Director, Modelling & Genetics Clinical Imaging Centre, GlaxoSmithKline, 2006 – 2009.

Adjunct Research Associate Professor Department of Biostatistics, School of Public Health, University of Michigan, 2006 – 2009.

Associate Professor Department of Biostatistics, School of Public Health, University of Michigan, 2006.

Assistant Professor Department of Biostatistics, School of Public Health, University of Michigan, 2000 – 2006.

Consultant Advisor on statistical and methodological problems in Positron Emission Tomography (PET) and Functional Magnetic Resonance Imaging (fMRI), 1996 –.

Applications Programmer and Statistician University of Pittsburgh Medical Center PET Facility. Developed software and methods to analyze PET data. Advised investigators on design and analysis of PET studies. 1992 – 1996.

Awards & Honours

Clarivate Web of Science's Highly Cited Researcher, 2019-2020.

Thompson-Reuter's Highly Cited Researcher, 2014 (for influence of my publications 2002–2012).

Wiley Young Investigator Award winner, Organization for Human Brain Mapping, 2009.

Elected Fellow, American Statistical Association, 2012.

Grants (Current)

"Transforming statistical methodology for neuroimaging meta-analysis", Wellcome Trust, 100309/Z/12/Z, June 2013 – May 2018. 100% effort + 2 PDRA, £1.1m.

"SOLAR-Eclipse Computational Tools for Imaging Genetics", NIH R01 EB015611-04, £1m, Sept 2016 – Aug 2020, 10% effort + PDRA. P.I. Peter Kochunov, University of Maryland, £305,591 (Oxford subcontract).

Grants (Previous)

"Bayesian Spatial Point Process Modeling of Neuroimage Data", NIH R01 NS075066-01A1, £1m Apr 2012 – Dec 2016, 25% effort + PhD. P.I. Timothy Johnson, University of Michigan, £287,053 (Warwick subcontract).

"Integrated Multimodal Brain Imaging for Neuroscience Research and Clinical Practice", Wellcome Trust Strategic Award, 098369/Z/12/Z, Sept 2012 – Aug 2017, 5% effort. P.I. Stephen Smith, Oxford University, £20,475 (Warwick subcontract).

"Personalised Medicine through Learning in the Model Space", EPSRC N1747005, Oct 2013 – Sept 2016, PDRA. P.I. Peter Tino, University of Birmingham, £199,659 (Warwick subcontract).

"Inside-out: Statistical methods for Computed Tomography validation of complex structures in Additive Layer Manufacturing", EPSRC, EP/K031066/1, Oct 2013 – Sep 2016, 5% effort. P.I. Wilfrid Kendall, £639,264.

"SOLAR-Eclipse Computational Tools for Imaging Genetics", NIH R01 EB015611-01, £1.2m, July 2012 – April 2016, 15% effort. P.I. Peter Kochunov, University of Maryland, £141,291 (Warwick subcontract).

"Human Connectome Project: Structure, Function & Heritability", NIH U54 MH091657, £19m, September 2010 – September 2015. 6% effort, P.I. David Van Essen, Washington University at St. Louis, £45,531 (Warwick subcontract).

"Optimal Fixed and Adaptive Designs for fMRI Clinical Trials", G1100188, MRC CASE Industrial PhD Studentship in Statistics, joint with GlaxoSmithKline's Prof. Ed Bullmore. Oct 2011 – Sept 2015. Covers fees, topped-up stipend & training expenses, £92,838.

"Skills Gap Award", MRC G0900908, Aug 2009 – July 2012. 66% effort, P.I. Thomas Nichols, £249,990.

"Nonparametric Inference for Neuroimaging Data", NIH 1 R01 MH069326, 2004 – 2008. 50% effort, P.I. Thomas Nichols, $175,000.

"PET Study of Biochemistry and Metabolism of the CNS", NIH P01 NS 15655, 2001–2006. 20% effort, P.I. Kirk Frey, $21,492 (subaccount).

"Elimination of Head Movement Artifact in fMRI", NIH/NIBIB 1 R01 EB002683, 2003–2005, 10% effort, P.I. Noll $10,951 (subaccount).

"Advancing PET Science for New Measures of Brain Function", Department of Energy DE-FG01-87ER60561, 2003–2005, 10% effort, P.I. Michael Kilburn, $10,103 (subaccount).

"Neurochemical Mediation of Placebo Responses in Humans", NIH 1 R01 AT001414, 2003–2008, 5% effort, P.I. Zubieta, $4,199 (subaccount).

"Neurochemical Endophenotype Responses to Pain Stress", NIH 1 R01 DA016423, 2004–2008, 5% effort, P.I. Zubieta, $4,413 (subaccount).

"Mu-Opioid Mediated Stress Regulation in BPD", NIH 1 R21 MH069612, 2004–2007, 2% effort, P.I. Zubieta, $125,000.

"Neurocognitive Risk for Alcoholism into Adulthood", NIH 1 R01 AA012217, 2005–2010, 10% effort, P.I. Zucker, $6,473 (subaccount)

"Fast, Quantitative, Perfusion-Based functional-MRI", NIH 1 RO1 EB004346, 2005–2008, 7% effort, P.I. Hernandez, $20,002 (subaccount)

"Alzheimer's Disease Neuroimaging Initiative", NIH, 2005–2006, 0% effort, $37,096, P.I. Weiner/Koeppe.

"Training in Functional Magnetic Resonance Imaging", NIH, 2005–2010, 33% of August, P.I. Jonides, $133,517.

"Imagery, Visual Memory & Aging: A Neuroimaging Approach", NIH R01 AG06265, 2002–2004, 7% effort, P.I. Denise Park.

"Automatic 3D registration for Enhanced Cancer Management Statistics Core", NIH/NCI P01 CA87634, 2002–2007, 5% effort, P.I. Chuck Meyer.

Teaching Experience

Instructor, "Probabilistic and Statistical Inference", University of Warwick Complexity Sciences, Term 2, 2012-2013.

Co-Instructor, "Advanced Topics in Biostatistics", University of Warwick Statistics. Term 1, 2012-2013.

Co-Instructor, "Advanced Topics in Biostatistics", University of Warwick Statistics. Term 1, 2011-2012.

Co-Instructor, "Advanced Topics in Biostatistics", University of Warwick Statistics. Term 1, 2010-2011.

Instructor, "Applied Biostatistics", University of Michigan Biostatistics. Fall 2002, Fall 2003, Fall 2004, Fall 2005.

Instructor, "Introduction to Biostatistics", University of Michigan Biostatistics (600). Fall 2003, Fall 2004.

Instructor, "Introduction to fMRI", University of Michigan Biostatistics. Summer 2001, Summer 2002, Summer 2004, Summer 2005.

Instructor, "Biostatistics" (for non-residential clinical program), University of Michigan Biostatistics. Fall-Winter 2001.

Instructor, "Applied Statistics I: Linear Regression", University of Michigan Biostatistics. Fall 2000, Fall 2001.

NSF VIGRE Teaching Fellow, "Introduction to Statistical Reasoning", CMU Statistics. Fall 1999.

Short Courses Organized

TE Nichols. *SPM Short Course*. Three-day short course, UBC Brain Research Centre, University of British Colubmia, Vancouver, August 5 - 7, 2010.

K Kiehl, V Calhoun, TE Nichols. *fMRI Image Acquisition and Analysis Course*. Three-day short course, Olin Neuropsychiatry Research Center, Institute of Living, Hartford, August 4 - 7, 2005, November 9 - 11, 2005, March 30 - April 1, 2006.

K Kiehl, TE Nichols. *USA SPM Short Course*. Three-day short course, Yale University, April, 2005.

TE Nichols. *Basic & Advanced Group Modeling for fMRI*. Half-day short course. Department of Statistics, Southern Methodist University, Feburary 18, 2005.

TE Nichols. *Current Topics in the Statistical Analysis of fMRI Data*. Full-day short course, Department of Psychology, Columbia University, Feburary 4, 2005.

TE Nichols. *Modeling & Inference of fMRI data w/ SPM*. Two-day short course, Beckman Institute, University of Illinois, Champaign-Urbana, July 2003.

TE Nichols. *Under the Hood of Statistical Parametric Mapping: SPM96, SPM97 & SPM99*. Two day short-course, Cognitive Science and Cognitive Neuroscience Program, University of Michigan, Ann Arbor. October 1999.

Professional Activities

Alan Turing Institute

- Faculty Fellow, 2016 –
- Co-organiser, "Alan Turing Institute Symposium on Reproducibility for Data Intensive Research", Oxford, 6-7 April 2016.
- Co-organiser, "Alan Turing Institute High Value Manufacturing Data Summit", The Shard, 9 March 2016.

American Statistical Association (ASA)

- Co-founder, Section on Statistics in Imaging (2011).
- President, Ann Arbor Chapter, 2005 – 2006.
- Organizer, *Mixed Models, Longitudinal and Incomplete Data* Short Course, Molenberghs & Verbeke speakers, sponsored by Ann Arbor Chapter & UM CSCAR. 90 registrants. Ann Arbor, MI, March 2005
- Vice-President, Ann Arbor Chapter of ASA, 2002 – 2005
- Student of the Year, Pittsburgh Chapter of the ASA, 2000
- Member, 1999 –

Functional Biomedical Informatics Research Network (FBIRN)

- Member, Statistics External Advisory Committee.

International Biometrics Society (ENAR)

- Member, 2001-

International Society for Magnetic Resonance in Medicine (ISMRM)

- Co-organizer, *fMRI Data Analysis* Morning Categorical Course, with S Smith. 10th Scientific Meeting, 2002
- Member, 2001 – 2014.

Institute of Electrical and Electronics Engineers (IEEE)

Co-organizer, *Statistical Modeling and Inference of fMRI Data* tutorial, with K Worsley. IEEE International Symposium on Biomedical Imaging, 2004

Attendee, IEEE EMBS International Summer School on Biomedical Imaging. 1998

Institute for Mathematical Statistics (IMS)

Member, 1999 –

Institute for Pure and Applied Mathematics, University of California Los Angeles

Co-organizer, *Mathematics in Brain Imaging* 2 week Graduate Summer School, with M Miller, R Poldrack, J Taylor, P Thompson, & K Worsley. July 2008

Co-organizer, *Mathematics in Brain Imaging* 2 week Graduate Summer School, with P Thompson, M Miller, R Poldrack & S Osher. July 2004

Laboratory of Neuro Imaging Resource (LONIR), University of Southern California

Member, Scientific Advisory Board, 2013–.

Medical Image Computing and Computer Assisted Intervention (MICCAI) Society

Co-organizer, *Statistical perspective on fMRI data analysis: Beyond Mass-Univariate Modelling* workshop, with B Thirion, A Roche & P Ciuciu. 12th International Conference, London, 2010.

Organization for Human Brain Mapping (OHBM)

Chair, Committee on Best Practice in Data Analysis and Sharing, 2014 – 2016.

Ad hoc member, Program Committee of OHBM, 2014 – 2016.

Elected Secretary, Governing Council of OHBM, 2013 – 2014.

Co-organizer, *Neuroimaging Meta Analysis* Educational Course, with S Eickhoff. 19th–22st Annual Meetings, 2013 – 2016

Co-organizer, *Imaging Genetics* Educational Course, with J-B Poline. 16th–21st Annual Meetings, 2010 – 2015 *(Note: OHBM Educational Courses are awarded based on competitive review.)*

Co-Organizer, *Genetics of the Connectome* Workshop, with David Glahn. 21st Annual Meeting, 2015. *(Note: OHBM Workshops are awarded based on highly competitive review.)*

Co-organizer, *How Not to Analyze Your Data: A Skeptical Introduction to Modeling Methods* Half-day Educational Course, with Victor Solo. 19th Annual Meeting, 2013.

Co-Organizer, *Big Data in Neuroimaging: Big Opportunities or Just a Big Hassle - The Skeptical Neuroimagers View* Morning Workshop, with Martin Lindquist. 19th Annual Meeting, 2013.

Organizer, *Where's Your Signal? Explicit Spatial Models to Improve Interpretability and Sensitivity of Neuroimaging Results* Morning Workshop, 18th Annual Meeting, 2012

Organizer, *How To Be a Skeptical Neuroimager: Functional Connectivity &*

Causal Modeling. Morning Workshop, 17th Annual Meeting, 2011

Co-organizer, *Introduction to Imaging Genetics* 1/2 day Educational Course, with J-B Poline. 15th Scientific Meeting, 2009

Member, Advisory Board, Pittsburgh Brain Connectivity Competition. 15th Annual Meeting, 2009

Past Chair, Education Committee, 2007–2008

Chair, Education Committee, 2005–2007

Member, Advisory Board, Pittsburgh Brain Activity Interpretation Competition: Inferring Experience Based Cognition from fMRI. 12th Annual Meeting, 2006; 13th Annual Meeting, 2007.

Panelist, HBM Functional Imaging Analysis Contest, 11th Annual Meeting, 2005

Co-organizer, *Intersubject Heterogeneity in fMRI RFX Analyses* Morning Workshop, with S Smith. 11th Annual Meeting, 2005

Co-organizer, *Mixed Effects Models* Morning Workshop, with S Smith. 10th Annual Meeting, 2004

Co-organizer, *Inference in Neuroimaging: Thresholding Statistic Images* Morning Workshop, with S Smith. 9th Annual Meeting, 2003

Co-organizer, *Spatiotemporal Modeling in Functional Neuroimaging* Morning Workshop, with S Smith. 8th Annual Meeting, 2002

Member, 1998 –

Royal Statistical Society (RSS)

Co-Organizer, *Statistical Challenges in Brain Imaging* contributed session, with J Aston. RSS Conference 2009.

Fellow, 2008 –

Statisticians in the Pharmecutical Industry (PSI)

Co-organizer, *Biomarkers in Early Development* 1 day meeting. GlaxoSmithKline Clinical Imaging Centre. 18 November, 2008.

Member, Biomarkers Special Interest Group, 2008 – 2010.

Member, 2008 – 2010

Editorial Work

Editorial Boardmember, *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 2015 –

Editor, Special Issue on "Sharing the wealth: Neuroimaging data repositories", *Neuroimage*. With S Eickhoff, JD Van Horn, JA Turner. Volume 124(Pt.B), 2016. PMID 26574120.

Editorial Boardmember, *Scientific Data*, 2014 –

Editorial Boardmember, *PlosOne*, 2014 – 2016

Editorial Boardmember, *Brain Imaging and Behavior*, 2007 –

Editorial Boardmember, *Human Brain Mapping*, 2005 –

Editorial Boardmember, *NeuroImage*, 2005 –

Handling Editor, Modelling & Analysis, *NeuroImage*, 2009 – 2013

Editor, Special Issue on "Mathematics in Brain Imaging", *Neuroimage*. With PM Thompson, MI Miller, RA Poldrack, JE Taylor, KJ Worsley, JT Ratnanather. Volume 45(1S), 2009. PMID 19027863.

Reviewing

External Review

Reviewer, Villum Foundation, Copenhagen, Denmark. 2014.

Member, International Advisory Board, Centre for Integrated Molecular Brain Imaging (CIMBI), Copenhagen, Denmark. 2009 review.

Site Visits

Member, International Advisory Board, Centre for Integrated Molecular Brain Imaging (CIMBI), Copenhagen, Denmark. 2009 review.

Journal Articles

Biological Psychiatry; *Biometrics*; *Brain Research Protocols*; *Cerebral Cortex*; *Cognitive, Affective, & Behavioral Neuroscience*; *Human Brain Mapping*; *IEEE Transactions on Medical Imaging*; *IEEE Transactions on Nuclear Science*; *Journal of the American Statistical Association*; *Journal of Cerebral Blood Flow & Metabolism*; *Journal of Magnetic Resonance Imaging*; *Journal of Neuroscience Methods*; *Magnetic Resonance in Medicine*; *Medical Image Analysis*; *NeuroImage*; *Proceedings of the National Academies of Science*; *Schizophrenia Bulletin*; *Statistics in Medicine*

Book Chapters

Bayesian Statistics 7; *Case Studies in Bayesian Statistics*

Book Proposals

Springer-Verlag

Research Grant Proposals

Wellcome Trust; member of the Cognitive Neuroscience and Mental Health Expert Review Group.

Engineering and Physical Sciences Research Council.

Medical Research Council.

L'Agence Nationale de la Recherche (National Research Agency of France).

University of Washington Alzheimer's Disease Research Center.

American Association for the Advancement of Science, Women's International Science Collaboration program.

Departmental & University Service

University of Warwick

Co-chair, Warwick Medical Imaging Network, a Network of Excellence of the Science and Technology for Health Global Research Priority, 2013 –.

University of Warwick, Warwick Manufacturing Group

Co-chair, fMRI Reading Group, 2009 – 2010

University of Warwick, Department of Statistics

Chair, IT Committee, 2014 –

Chair, Local Organizing Committee, UseR 2011 Conference, 2011

Member, Local Organizing Committee, UseR 2011 Conference, 2009 – 2010

University of Warwick, Department of Computer Science

Member, Program Committee, Medical Image Understanding and Analysis 2010 Conference, 2009 –

University of Michigan, Department of Biostatistics

Chair, Computer Committee, 2000 – 2006

Member, Admissions Committee, 2004 – 2006

Member, Curriculum Committee, 2002 – 2003

Chair, Seminar Committee, 2001 – 2002

Member, Seminar Committee, 2000 – 2001

University of Michigan, School of Public Health

Member, Computing & Network Committee, 2004 – 2006

University of Michigan, Office of the Vice President for Research

Member, Operations Committee, fMRI Lab, 2001 – 2006

Advising & Mentoring

Ph.D. Students Advised, University of Oxford

Thomas Maullin-Sapey. *Distributed large scale neuroimaging analyses*. In Population Health, 2018 –.

Samuel Davenport. *Comprensive inference for local maximum of statistic images*. In Statistics, OxWasp DTC, 2016 –.

Petya Kindalova. *Imaging genetics analyses of brain lesion data*. In Statistics, OxWasp DTC, 2016 –.

Thomas Maullin-Sapey. *Distributed large scale neuroimaging analyses*. In Population Health, 2018 –.

Alex Bowring *Confidence set inference for precise spatial inferences*. In Population Health, 2017 –.

Anderson Winkler. *Design and Analysis of Resting state pharmaco-fMRI clinical trials*. Marie Curie Initial Training Network studentship, through GlaxoSmithKline & University of Maastricht, 2011 – 2016.

Ph.D. Students Advised, University of Warwick

Zhangdaihong (Jessie) Liu. *Population Neuroimaging Genetcs*. In Complexity Sciences DTC, co-advised with Jianfeng Feng, 2015 –.

Marco Palma. *Functional quantile regression for neuroimaging phenotypes*. In Statistics, OxWasp DTC, 2017 –.

Sherman Ip. *Detecting artifacts in 3D printed objects from cone beam CT images*. In Statistics, 2017 –.

Ruth Harbord. *Inferring population differences in dynamic connectivity in task-free fMRI*. In Molecular Organisation and Assembly in Cells DTC. 2014 – 2017.

Bernd Taschler *Spatial modelling of Multiple Sclerosis lesions*. In Complexity Sciences DTC. 2014 – 2016 (expected).

Soroosh Afyouni. *Group inference on graph theoretic mesuares of brain connectivity*. 2013 – 2016 (expected).

Habib Ganjgahi. *Permutation and Random Field Methods for Neuroimaging Heritibilty Analysis*. 2013 – 2016 (expected).

Pantelis Samartsidis. *Statistical Modelling for Neuroimaging Meta-Analysis*. 2012 – 2016.

Dragana Pavlovic. *Optimal Fixed and Adaptive Designs for fMRI Clinical Trials*. MRC CASE Industrial PhD Studentship in Statistics sponsored by GlaxoSmithKline, joint with Prof. Ed Bullmore. 2011 –2015.

Bryan Guillaume. *Improving Group Inference for fMRI Clinical Trials with Task or Task-Free Designs*. Marie Curie Initial Training Network studentship, through GlaxoSmithKline & Leige Université de Liège.) 2011 – 2015.

Tian Ge. *Kernel Machine Approaches to Detecting Genetic Associations in Imaging Data*. Computer Science student, co-advised with Jianfeng Feng. 2011 – 2014.

Lilia Carneiro-da-Costa. *Dynamic Bayesian Models for Resting State fMRI Data*, Co-adviased with F Rigat. 2010 – 2015.

Xu Chen. *Spatially Regulization of Voxel-wise Heritability Estimates*. 2010 – 2015.

George Minas. *Adaptive Design for fMRI Clinical Trials*, Co-adviased with F Rigat, JD Aston & N Stallard. 2009 – 2013.

M.Sc. Student Projects, University of Warwick

Sherman Ip (OxWasp, joint Oxford-Warwick student). *Inside-Out: Characterisation of Computed Tomography Noise in Projection and Image Space with Applications to 3D Printing*, 2015 – 2016.

Nathan Cunningham (OxWasp, joint Oxford-Warwick student). *Examining evidence for neurogenic atrial fibrillation using neuroimaging data*, 2015 – 2016 Ashwath Padinjattayil Shaji, *Supply Change and Market Analysis of Medical Imaging Service in India*, 2014 – 2015.

Tom Watkins. *Advanced State Space Modelling of Driver Performance Data*, 2014 – 2015.

Renming Guo. *State Space Modelling of Driver Performance Data*, 2013 – 2014.

Jade Eaton. *Data Analysis of Driver Behaviour Using Machine Learning Techniques*, 2013 – 2014.

Suchin Jin. *Investigation of random variation in CT validation of Additive Layer Manufacturing*, 2013 – 2014.

Kevin Tang. *Interactive visualisation of high-dimensional brain imaging data and models*. 2013 – 2014.

Jack Stone. *Conjunction Inference for Neuroimaging*, 2012 – 2013.

Alexis Sofianos. *What kind of driver are you? Modelling of driver performance data*, 2012 – 2013.

Sabrina Khushi. *The Classification of Multiple Sclerosis From the Spatial Distribution of Lesions*, 2012 – 2013.

James Kwann. *Classification of Multiple Sclerosis Patients From Lesion Data*, 2012.

Thomas Honnor. *Building a modelling framework for cluster inference: Where's the blob?*, 2012.

Shen Ting Ang. *False Discovery Rate Proceedures for Neuroimaging*, 2011 – 2012.

Romain Hendrickx. *Optimizing the Robustness of fMRI Experimental Designs with a Genetic Algorithm*, visiting from University of Namur, Belgium, 2011.

Sam Cuthbertson. *The Erdös-Rényi Mixture Model for Graph Valued Data from Resting State fMRI Data*, 2010 – 2011.

Chipo Mashayamombe. *Analysis of Proteomic Data During and Outside of a Migraine Attack*, 2010.

Rachel Walton. *Using Clustering to Infer the Structure of Brain Anatomy Heritability*. 2009 – 2010.

B.S. Student Projects, University of Warwick

Peter Williams. *Browser-based Visualisation of NIDM Results Data Structures*. Summer Internship, 2016.

Alex Bowring. *Creating Massive Library of fMRI Analyses in NIDM Results*. Summer Internship, 2015.

Emma Thomas. *Exact Neuroimaging Inference with Nonparametric Permutation*. 3rd Year Engineering Project, 2010 – 2011.

Shen Ting Ang. *Improving the sensitivity of fMRI heritability estimates with spatial regularization*. Undergraduate Research Scholarship Scheme, awarded top-up with EPSRC 2010 Vacation Bursary Programme. 2009 – 2010.

Ph.D. Students Advised, GlaxoSmithKline

David Cole, *Functional network analysis of human brain systems under pharmacological manipulation*. Co-advised with Christian Beckmann. Dept. of Clinical Neurosciences, Imperial College London. 2009 –

Reza Salimi, *Advancing Meta Analysis in fMRI*. Co-advised with Stephen Smith. FMRIB Centre, Oxford. August, 2007 – 2011.

Maria Vounou, *Joint Modelling of Imaging & Genetics Data*. Co-advised with B Whitcher (GSK) & G Montana (IC). Department of Mathematics (Statistics), Imperial College London. August, 2007 –

M.S. Student Projects, GlaxoSmithKline

Matt Silver. *Evaluating Nontationarty Cluster Size Inference for Imaging Genetics VBM Studies*. Co-advised with Giovanni Montana. Department of Mathematics (Statistics), Imperial College London. 2009 – 2010.

Biostatistics Ph.D. Students Advised, University of Michigan

Satoru Hayasaka, *Validating and Improving Cluster Size Inference in Brain Image Analysis*. January, 2001 – December, 2003

Wen-Lin Luo, *General Linear Model for fMRI Time Series Data: Model Formulation, Covariance Estimation, and Model Selection*. September, 2000 – August, 2004

Jeanette Mumford, Covariance modeling in group fMRI models. January, 2003 – June, 2006.

Hui Zhang, Random Field Theory for Cluster Mass Inference. May 2005 –

Lei Xu, Bayesian Spatial Modelling of Group fMRI Data. Co-advised with

Timothy Johnson. May, 2005 – October, 2007.

Jian Kang, Bayesian Point Processing Neuroimaging Meta-Analysis Data. Co-advised with Timothy Johnson. September, 2007 – July, 2011.

Biostatistics M.S. Students supported, University of Michigan

Wei Xie, Evaluation of FDR methods under smoothness. September 2004 – May 2006

Hui Zhang, RA for Nichols RO1. Developing SPMd software to evaluate parametric assumptions in fMRI data. September, 2004 – April, 2005

Jun Ding, RA for Nichols RO1. Developing SnPM software for nonparametric permutation inference on neuroimaging data. January, 2004 – May, 2005.

Xioabi Huang, RA for Norman Foster, Neurology. Analysis of FDG-PET image data in Alzheimer's Disease patients & elderly normals. September, 2004 – August, 2007.

Kelly O'Brien, RA for Norman Foster, Neurology. Analysis of FDG-PET ROI data in Alzheimer's Disease patients & elderly normals. January – May, 2004

Erick Heyt-Ender, RA for Thomas Nichols. Accounting for missingness in fMRI slice-to-volume motion-corrected data. May, 2003 – April, 2004

Non-Biostatistics Ph.D. Committees, University of Michigan

Carol Anilowski, Business School, 2005 – 2006

Shao-Hsuan Ho, Psychiatry, 2005 – 2006

James Nelson, Psychology, 2004 – 2005

Anastasia Yendiki, Electrical Engineering, 2004 – 2005

Jennifer Britton, Psychiatry, 2002 – 2005

Alberto Vazquez, Biomedical Engineering, 2001 – 2005

Tor Wager, Psychology, 2002 – 2004

Sangtae Ahn, Electrical Engineering, 2003 – 2004

Brad Sutton, Biomedical Engineering, 2003 – 2004

Paul Hamilton, Psychology, 2003 – 2004

Scott Peltier, Applied Physics, 2001 – 2003

Marko Slyz, Electrical Engineering, 2001 – 2002

Charles Behensky, Psychology, 2001 – 2003

K30 Trainees, Statistical Advisor, University of Michigan

Aine Kelly, 2003 – 2004

Elaine Caioli, 2002 – 2003

External Examiner

Francisca Marie Tan, Ph.D., Electrical and Electronic Engineering, University of Nottingham. 2016.

Joke Durnez, Ph.D., School of Psychology, University of Ghent. 2015.

Christopher Minas, Ph.D., Mathematics/Statistics, Imperial College. 2014.

Gabriella Blokland, Ph.D., School of Psychology, University of Queensland. 2012.

Emma Sprooten, Ph.D., Division of Psychiatry, University of Edinburgh.

2012.

Sara Kherad-Pajouh, Ph.D., Mathematics/Psychology, University of Geneva. 2011.

David Glenn Lawyer, Ph.D., University of Oslo. 2008.

Moh'D Taleb Suleiman Al Odat, M.S., Statistics, McGill University. 2004.

Marnie Shaw, Ph.D., Medical Physics, University of Melbourne. 2002.

Methodological Publications

Publications with primarily statistical content that have received peer review. Student co-authors indicated in **bold** *(91 in total.)*

TE Nichols, J Qi, and RL Leahy. Continuous time dynamic PET imaging using list mode data. In *Information Processing in Medical Imaging*, volume 1613 of *Lecture Notes in Computer Science*, pp 98–111, Berlin, 1999. Springer-Verlag. Proceedings of the 16th International Conference, IPMI'99.

KM Petersson, TE Nichols, J-B Poline, and AP Holmes. Statistical limitations in functional neuroimaging II. Signal detection and statistical inference. *Philosophical Transactions of the Royal Society: Biological Sciences*, 354:1261–1281, 1999. PMID 10466150.

KM Petersson, TE Nichols, J-B Poline, and AP Holmes. Statistical limitations in functional neuroimaging I. Non-inferential methods and statistical models. *Philosophical Transactions of the Royal Society: Biological Sciences*, 354:1239–1260, 1999. PMID 10466149.

E Asma, TE Nichols, J Qi and RM Leahy. 4D Image Reconstruction from List Mode Data. In *Proc. IEEE Nuclear Science Symposium and Medical Imaging Conference*, 2000.

TE Nichols and AP Holmes. Nonparametric Permutation Tests for Functional Neuroimaging: A Primer with Examples. *Human Brain Mapping*, 15:1-25, 2002. PMID 11747097.

CR Genovese, N Lazar and TE Nichols. Thresholding of Statistical Maps in Functional Neuroimaging Using the False Discovery Rate. *NeuroImage*, 15:870-878, 2002. PMID 11906227.

TE Nichols, J Qi, E Asma and RL Leahy. Spatiotemporal Reconstruction of List Mode PET Data. *IEEE Transactions on Medical Imaging*, 21:396–404, 2002. PMID 12022627.

A Ossadtchi, VM Brown, AH Khan, SR Cherry, T Nichols, RM Leahy, and DJ Smith. Statistical analysis of multiplex brain gene expression images. *Neurochemical Research*, 27:1113–1121, 2002. PMID 12462409.

E Asma, TE Nichols, RM Leahy. Temporal Resolution Properties of Dynamic PET Reconstructions. In *Proc. IEEE Nuclear Science Symposium and Medical Imaging Conference*, 2002.

TD Wager and TE Nichols. Optimization of Experimental Design in fMRI: A General Framework Using a Genetic Algorithm. *NeuroImage*, 18:293–309, 2003. PMID 12595184.

WL Luo and TE Nichols. Diagnosis & Exploration of Massively Univariate Neuroimaging Models. *NeuroImage*, 19:1014–1032, 2003. PMID 12880829.

D Pantazis, T Nichols, S Baillet, RM Leahy. Spatiotemporal Localization Of Significant Activation In MEG Using Permutation Tests. In *Information Processing in Medical Imaging*, volume 2732 of *Lecture Notes in Computer Science*, pp 512–523, Berlin, 2003. Proceedings of the 18th International Conference, IPMI 2003. PMID 15344484.

TE Nichols and **S Hayasaka**. Controlling the Familywise Error Rate in Functional Neuroimaging: A Comparative Review. *Statistical Methods in Medical Research*, 12:419–446, 2003. PMID 14599004.

S Hayasaka and TE Nichols. Validating cluster size inference: random field and permutation methods. *NeuroImage*, 20:2343–2356, 2003. PMID 14683734.

S Hayasaka, KL Phan, I Liberzon, KJ Worsley and TE Nichols. Non-Stationary Cluster Size Inference with Random Field and Permutation Methods *NeuroImage*, 22:676–687, 2004. PMID 15193596.

E Asma, TE Nichols, RM Leahy. Temporally Invariant Uniform Spatial Resolution in Dynamic PET. In *Proc. IEEE Nuclear Science Symposium and Medical Imaging Conference*, Portland, OR, 2003.

S Hayasaka and TE Nichols. Combining voxel intensity and cluster extent with permutation test framework. *NeuroImage*, 23:54–63, 2004. PMID 15325352.

D Pantazis, RM Leahy, TE Nichols, M Styner. Statistical surface-based morphometry using a non-parametric approach. In *Proc. IEEE International Symposium on Biomedical Imaging (ISBI'04)*, 1283–1286, 2004.

S Ahn, JA Fessler, TE Nichols, RA Koeppe. Covariance of kinetic parameter estimators based on time activity curve reconstructions: Preliminary study on 1D dynamic imaging. In *Proc. IEEE International Symposium on Biomedical Imaging (ISBI'04)*, 368–371, 2004.

D Pantazis, TE Nichols, S Baillet and RM Leahy. A comparison of random field theory and permutation methods for the statistical analysis of MEG data. *NeuroImage*, 25:3830-394, 2005. PMID 15784416.

TE Nichols, M Brett, J Andersson, T Wager and J-B Poline. Valid conjunction inference with the minimum statistic. *NeuroImage*, 25:653–660, 2005. PMID 15808966.

TE Lund, KH Madsen, K Sidaros, W-L Luo and TE Nichols. Non-white noise in fMRI: Does modelling have an impact? *NeuroImage*, 29:54–66, 2006. PMID 16099175.

J Mumford & TE Nichols. Modeling and inference of multisubject fMRI data - Using mixed-effects models for joint analysis. *IEEE Engineering in Medicine and Biology Magazine*, 25(2):42–51, 2006. PMID 16568936.

H Zhang, W-L Luo, TE Nichols. Diagnosis of single-subject and group fMRI data with SPMd. *Human Brain Mapping*, 27:442–451, 2006. PMID 16615119.

SM Smith, M Jenkinson, H Johansen-Berg, D Rueckert, TE Nichols, CE Mackay, KE Watkins, O Ciccarelli, MZ Cader, PM Matthews and TEJ Behrens. Tract-based spatial statistics: Voxelwise analysis of multi-subject diffusion data. *NeuroImage*, 31:1487–1505, 2006 PMID 16624579.

J Mumford, L Hernandez-Garcia, GR Lee, TE Nichols. Estimation Efficiency and Statistical Power in Arterial Spin Labeling fMRI. *NeuroImage*, 33:103–114, 2006. PMID 16860577.

C Rorden, L Bonilha, TE Nichols. Rank-order versus mean based statistics for neuroimaging. *NeuroImage*, 35(4):1531-1537, 2007. PMID 17391987.

RA Poldrack, PC Fletcher, RN Henson, KJ Worsley, M Brett, TE Nichols. Guidelines for reporting an fMRI study. *NeuroImage*, 40(2):409-414, 2007. PMID 18191585.

JA Mumford, TE Nichols. Power calculation for group fMRI studies accounting for arbitrary design and temporal autocorrelation. *NeuroImage*, 39(1):261-268, 2008. PMID 17919925.

CS Carter, S Heckers, T Nichols, DS Pine, S Strother. Optimizing the Design and Analysis of Clinical FMRI Research Studies. *Biological Psychiatry*, 64(10):842–849, 2008. PMID 18718572.

S Purkayastha, TD Wager, and TE Nichols. Inferring individual differences in fMRI: Finding brain regions with significant within subject correlation. *Statistica Sinica*, 18(4):1483–1500, 2008.

H Zhang and TE Nichols and TD Johnson. Cluster mass inference via random field theory. *NeuroImage*, 44(1):51–61, 2009. PMID 18805493.

SM Smith and TE Nichols. Threshold-free cluster enhancement: Addressing problems of smoothing, threshold dependence and localisation in cluster inference. *NeuroImage*, 44(1):83–98, 2009. PMID 18501637.

D Pantazis, GV Simpson, DL Weber, CL Dale, TE Nichols and RM Leahy. A novel ANCOVA design for analysis of MEG data with application to a visual attention study. *NeuroImage*, 44(1):164–174, 2009. PMID 18691661.

TE Nichols, J-B Poline. Commentary on Vul et al.'s (2009) "Puzzlingly High Correlations in fMRI Studies of Emotion, Personality, and Social Cognition". *Perspectives on Psychological Science* 4:291-293, 2009.

TD Wager, MA Lindquist, TE Nichols, H Kober, JX Van Snellenberg. Evaluating the consistency and specificity of neuroimaging data using meta-analysis. *NeuroImage*, 45:S210–S221, 2009. PMID 19063980.

G Salimi-Khorshidi, SM Smith, JR Keltner, TD Wager, TE Nichols. Meta-analysis of neuroimaging data: A comparison of image-based and coordinate-based pooling of studies. *NeuroImage*, 45(3):810–823, 2009. PMID 19166944.

JA Mumford, T Nichols. Simple group fMRI modeling and inference. *NeuroImage*, 47(4):1469–1475, 2009. PMID 19463958.

L Xu, TD Johnson, TE Nichols, DE Nee. Modeling inter-subject variability in fMRI activation location: A Bayesian hierarchical spatial model. *Biometrics*, 65(4):10410–51, 2009. PMID 19210732.

G Salimi-Khorshidi, SM Smith, TE Nichols. Adjusting the neuroimaging statistical inferences for nonstationarity. *Medical Image Computing & Computer Assisted Intervention* 12(Pt 1):992-9, 2009. PMID 20426085.

N Kriegeskorte, MA Lindquist, TE Nichols, RA Poldrack, E Vul. Everything you never wanted to know about circular analysis, but were afraid to ask. *Journal of Cerebral Blood Flow & Metabolism*, 30(9):1551-7, 2010. PMID 20571517.

M Vounou, TE Nichols, G Montana; Alzheimer's Disease Neuroimaging Initiative. Discovering genetic associations with high-dimensional neuroimaging phenotypes: A sparse reduced-rank regression approach. *NeuroImage*, 53(3):1147-59, 2010. PMID 20624472.

SM Smith, KL Miller, G Salimi-Khorshidi, M Webster, CF Beckmann, TE Nichols, JD Ramsey, MW Woolrich. Network modelling methods for FMRI. *NeuroImage*, 54(2):875-891, 2011. PMID 20817103.

M Silver, G Montana, TE Nichols, the Alzheimer's Disease Neuroimaging Initiative. False positives in neuroimaging genetics using voxel-based morphometry data. *NeuroImage*, 54(2):992-1000, 2011. PMID 20849959.

G Salimi-Khorshidi, SM Smith, TE Nichols. Adjusting the effect of nonstationarity in cluster-based and TFCE inference. *NeuroImage*, 54(3):2006-19, 2011. PMID 20955803.

J Kang, TE Nichols, TD Wager, TD Johnson. Meta Analysis of Functional Neuroimaging Data via Bayesian Spatial Point Processes. *Journal of the American Statistical Association*, 106(493):124-134, 2011. PMID 21706069.

G Salimi-Khorshidi, TE Nichols, SM Smith and MW Woolrich. Using Gaussian-Process Regression for Meta-analytic Neuroimaging Inference Based on Sparse Observations. *IEEE Transactions on Medical Imaging*, 30(7):1401-1416, 2011. PMID 21382766..

T Yarkoni, RA Poldrack, TE Nichols, DC Van Essen, TD Wager. Large-scale automated synthesis of human functional neuroimaging data. *Nature Methods*, 8:665–670, 2011. PMID 21706013.

CE Ginestet, TE Nichols, ET Bullmore, A Simmons. Brain network analysis: separating cost from topology using cost-integration. *PLoS One*, 6(7):e21570, 2011. PMID 21829437.

G Minas, F Rigat, TE Nichols, JAD Aston, N Stallard. A hybrid procedure for detecting Global Treatment Effects in Multivariate Clinical Trials: Theory and Applications to fMRI Studies. *Statistics in Medicine*, 31(3):253-268, 2012. PMID 22170084.

SM Smith, PA Bandettini, KL Miller, TE Behrens, KJ Friston, O David, T Liu, MW Woolrich, TE Nichols. The danger of systematic bias in group-level FMRI-lag-based causality estimation. *NeuroImage*, 59(2):1228–1229, 2012. PMID 21867760.

TE Nichols. Multiple testing corrections, nonparametric methods, and random field theory. *NeuroImage*, 62(2):811–815, 2012. PMID 22521256.

T Ge, J Feng, DP Hibar, PM Thompson and 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. PMID 22800732.

TD Johnson, Z Liu, AJ Bartsch and TE Nichols. A Bayesian non-parametric Potts model with application to pre-surgical FMRI data. *Statistical Methods in Medical Research*, 22(4):364–81, 2013 PMID 22627277.

AM Winkler, MR Sabuncu, BT Yeo, B Fischl, DN Greve, P Kochunov, TE Nichols, J Blangero, DC Glahn. Measuring and comparing brain cortical surface area and other areal quantities. *NeuroImage*, 61(4):1428–43, 2012. PMID 22446492.

A Sorrentino, AM Johansen, JAD Aston, TE Nichols, WS Kendall. Dynamic Filtering of Static Dipoles in Magnetoencephalography. *The Annals of Applied Statistics*, 7(2):955–988, 2013.

PM Thompson, **T Ge**, DC Glahn, N Jahanshad, TE Nichols. Genetics of the Connectome. *NeuroImage*, 80:475–88, 2013.

N Jahanshad, P Kochunov, DC Glahn, J Blangero, TE Nichols, KL McMahon, *et al.*. (2014). Power Estimates for Voxel-Based Genetic Association Studies Using Diffusion Imaging. In *Computational Diffusion MRI and Brain Connectivity*, T. Schultz, G. Nedjati-Gilani, A. Venkataraman, L. O'Donnell & E. Panagiotaki (Eds.), (pp. 229–238). Springer. (Proceedings of "Mathematical Methods from Brain Connectivity" workshop, MICCAI 2013, Nagoya, Japan).

J Durnez, B Moerkerke, A Bartsch, TE Nichols. Alternative-based thresholding with application to presurgical fMRI. *Cognitive, Affective & Behavioral Neuroscience*, 13(4):703-713, 2013. PMID 23868644.

J Durnez, B Moerkerke, TE Nichols. Post-hoc power estimation for topological inference in fMRI. *NeuroImage*, 84:45–64, 2014. PMID 23927901.

SM Smith, D Vidaurre, CF Beckmann, MF Glasser, M Jenkinson, *et al.*. Functional connectomics from resting-state fMRI. *Trends in Cognitive Sciences*, 17(12):666–82, 2014. PMID 24238796.

AM Winkler, GR Ridgway, MA Webster, SM Smith, TE Nichols. Permutation inference for the general linear model. *NeuroImage*, 92C, 381–397, 2014. PMID 24530839.

B Guillaume, X Hua, PM Thompson, L Waldorp, TE Nichols. Fast and Accurate Modelling of Longitudinal and Repeated Measures Neuroimaging Data. *NeuroImage*, 94:287–302, 2014. PMID 24650594.

WY Hua, TE Nichols, D Ghosh. Multiple comparison procedures for neuroimaging genomewide association studies. *Biostatistics*, 16(1):17–30, 2015. PMID 24963012.

Pavlovic DM, Vértes PE, Bullmore ET, Schafer WR, Nichols TE. Stochastic blockmodeling of the modules and core of the Caenorhabditis elegans connectome. *PLoS One*. 9(7):e97584, 2014. PMID 24988196.

CR Pernet, M Latinus, TE Nichols, GA Rousselet. Cluster-based computational methods for mass univariate analyses of event-related brain potentials/fields: A simulation study. *Journal of Neuroscience Methods*, S0165-0270(14)00287-8, 2014. PMID 25128255.

CJ Oates, **L Costa**, TE Nichols. Toward a Multisubject Analysis of Neural Connectivity. *Neural Computation*, 27(1):151-70, 2015. PMID 25380333.

J Kang, TE Nichols, TD Wager, TD Johnson. A Bayesian hierarchical spatial point process model for multi-type neuroimaging meta-analysis. *The Annals of Applied Statistics*, 8(3), 1800–1824, 2014. PMID 25426185.

T Ge N Müller-Lenke, K Bendfeldt, TE Nichols, TD Johnson. Analysis of Multiple Sclerosis Lesions via Spatial Varying Coefficients. *The Annals of Applied Statistics*, 8(2):1095–1118, 2014. PMID 25431633.

ME Koran, TA Thornton-Wells, N Jahanshad, DC Glahn, PM Thompson, J Blangero, TE Nichols, P Kochunov, BA Landman. Impact of family structure and common environment on heritability estimation for neuroimaging genetics studies using Sequential Oligogenic Linkage Analysis Routines. *Journal of Medical Imaging*, 1(1):014005, 2014. PMID 25558465.

B Taschler, T Ge, K Bendfeldt, N Müller-Lenke, TD Johnson, TE-Nichols. Spatial Modeling of Multiple Sclerosis for Disease Subtype Prediction. In P. Golland, N. Hata, C. Barillot, J. Hornegger, & R. Howe (Eds.), *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2014*, Lecture Notes in Computer Science, 8674:797–804, 2014. PMID 25485453.

T Ge, TE Nichols, D Ghosh, EC Mormino, JW Smoller, MR Sabuncu. A kernel machine method for detecting effects of interaction between multidimensional variable sets: An imaging genetics application. *NeuroImage*, 109:505–14, 2015. PMID 25600633.

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 of the United States of America*, 112(8):2479–84, 2015. PMID 25675487.

H Ganjgahi, **AM Winkler**, DC Glahn, J Blangero, P Kochunov, TE Nichols. Fast and Powerful Heritability Inference for Family-Based Neuroimaging Studies. *NeuroImage*, 115:256–68, 2015. PMID 25812717.

TD Wager, J Kang, TD Johnson, TE Nichols, AB Satpute, LF Barrett. A Bayesian Model of Category-Specific Emotional Brain Responses. *PLOS Computational Biology*, 11:e1004066, 2015. PMID 25853490.

L Costa, J Smith, T Nichols, J Cussens, EP Duff, TR Makin. Searching Multiregression Dynamic Models of Resting-State fMRI Networks Using Integer Programming. *Bayesian Analysis*, 10(2):441–478, 2015

KJ Gorgolewski, G Varoquaux, G Rivera, Y Schwartz, VV Sochat, SS Ghosh, C Maumet, TE Nichols, J-B Poline, T Yarkoni, DS Margulies, RA Poldrack. NeuroVault.org: A repository for sharing unthresholded statistical maps, parcellations, and atlases of the human brain. *NeuroImage*, 124(Pt.B):1242–1244, 2015. PMID 25869863.

H Li, LD Nickerson, X Zhao, TE Nichols, J-H Gao. A voxelation-corrected non-stationary 3D cluster-size test based on random field theory. *NeuroImage*, 118:676–682, 2015. PMID 26067343.

KJ Gorgolewski, G Varoquaux, G Rivera, Y Schwarz, SS Ghosh, C Maumet, *et al*. NeuroVault.org: a web-based repository for collecting and sharing unthresholded

statistical maps of the human brain. Frontiers in Neuroinformatics, 9:8, 2015. PMID 25914639.

AM Winkler, MA Webster, D Vidaurre, TE Nichols, SM Smith. Multi-level block permutation. *NeuroImage*, 123:253–68, 2015. PMID 26074200.

M Huang, T Nichols, C Huang, Y Yu, Z Lu, RC Knickmeyer, *et al*. FVGWAS: Fast voxelwise genome wide association analysis of large-scale imaging genetic data. *NeuroImage*, 118:613–27, 2015. PMID 26025292.

C Scarpazza, TE Nichols, D Seramondi C Maumet, G Sartori, A Mechelli. When the Single Matters more than the Group (II): Addressing the Problem of High False Positive Rates in Single Case Voxel Based Morphometry Using Non-parametric Statistics. *Frontiers in Neuroscience*, 10:6, 2016. PMID 26834533.

AM Winkler, MA Webster, JC Brooks, I Tracey, SM Smith, TE Nichols. Non-parametric combination and related permutation tests for neuroimaging. *Human Brain Mapping*, 37(4):1486-1511, 2016. PMID 26848101.

Y Tong, Q Chen, TE Nichols, R Rasetti, JH Callicott, KF Berman, DR Weinberger, VS Mattay. Seeking optimal region-of-interest (ROI) single-value summary measures for fMRI studies in imaging genetics. *PLoS ONE*, 11(3):1–20, 2016 PMID 26974435

A Kueh, JM Warnett, GJ Gibbons, J Brettschneider, TE Nichols, MA Williams, WS Kendall. Modelling the penumbra in Computed Tomography. *Journal of X-Ray Science and Technology*, 24(4):583–597, 2016. PMID 27232198.

AM Winkler, GR Ridgway, G Douaud, TE Nichols, SM Smith. Faster permutation inference in brain imaging. *NeuroImage*, 141:502–516, 2016. PMID 27288322.

KJ Gorgolewski, T Auer, VD Calhoun, RC Craddock, S Das, EP Duff, G Flandin, SS Ghosh, T Glatard, YO Halchenko, DA Handwerker, M Hanke, D Keator, X Li, Z Michael, C Maumet, BN Nichols, TE Nichols, J Pellman, JB Poline, A Rokem, G Schaefer, V Sochat, W Triplett, JA Turner, G Varoquaux, RA Poldrack. The brain imaging data structure, a format for organizing and describing outputs of neuroimaging experiments. *Scientific Data*, 2016. PMID 27326542

SB Eickhoff, TE Nichols, AR Laird, F Hoffstaedter, K Amunts, PT Fox, D Bzdok, CR Eickhoff. Behavior, sensitivity, and power of activation likelihood estimation characterized by massive empirical simulation. *Neuroimage*, 137:70-85, 2016. PMID 27179606

A Eklund, TE Nichols, H Knutsson. Cluster failure: Why fMRI inferences for spatial extent have inflated false-positive rates. *Proceedings of the National Academy of Sciences of the United States of America*, 113(28):7900-5, 2016. PMID 27357684

C Tao, TE Nichols, X Hua, CR Ching, ET Rolls, PM Thompson, J Feng, Alzheimer's Disease Neuroimaging Initiative. Generalized reduced rank latent factor regression for high dimensional tensor fields, and neuroimaging-genetic applications. *Neuroimage*, 144:35-57, 2017. PMID 27666385

R Pauli, A Bowring, R Reynolds, G Chen, TE Nichols, C Maumet. Exploring fMRI Results Space: 31 Variants of an fMRI Analysis in AFNI, FSL, and SPM. *Frontiers in Neuroinformatics*, 10:24, 2016. PMID 27458367

C Maumet, T Auer, **A Bowring**, G Chen, S Das, G Flandin, ..., TE Nichols. (2016). Sharing brain mapping statistical results with the neuroimaging data model. *Scientific Data*, 3, 160102. PMID 27922621

J Westfall, TE Nichols, T Yarkoni (2016). Fixing the stimulus-as-fixed-effect fallacy in task fMRI. *Wellcome Open Research* 1:23.

TE Nichols, S Das, SB Eickhoff, AC Evans, T Glatard, M Hanke, N Kriegeskorte, MP Milham, RA Poldrack, J-B Poline, E Proal, B Thirion, DC van Essen, T White,BTT Yeo (2017). Best practices in data analysis and sharing in neuroimaging using MRI. *Nature Neuroscience*, 20(3), 299–303. PMID 28230846

A Eklund, TE Nichols, H Knutsson. (2017). Reply to Brown and Behrmann, Cox, et al., and Kessler et al.: Data and code sharing is the way forward for fMRI. *Proceedings of the National Academy of Sciences*, 114(17), E3374–E3375.

AM Winkler, DN Greve, KJ Bjuland, TE Nichols, MR Sabuncu, *et al.* (2017). Joint Analysis of Cortical Area and Thickness as a Replacement for the Analysis of the Volume of the Cerebral Cortex. *Cerebral Cortex*, 28(2):738-749.

Nichols, T. E., Eklund, A., & Knutsson, H. (2017). A defense of using resting-state fMRI as null data for estimating false positive rates. *Cognitive Neuroscience*, 8(3):144-149.

Tao, C., Nichols, T. E., Hua, X., Ching, C. R. K., Rolls, E. T., Thompson, P. M., & Feng, J. (2017). Generalized reduced rank latent factor regression for high dimensional tensor fields, and neuroimaging-genetic applications. NeuroImage, 144(Pt A):35-57.

Poldrack, R. A., Baker, C. I., Durnez, J., Gorgolewski, K. J., Matthews, P. M., Munafò, M. R., ... Yarkoni, T. (2017). Scanning the horizon: towards transparent and reproducible neuroimaging research. *Nature Reviews. Neuroscience*, 18(2):115-126.

Samartsidis, P., Montagna, S., Johnson, T. D., & Nichols, T. E. (2017). The Coordinate-Based Meta-Analysis of Neuroimaging Data. *Statistical Science*, 32(4):580-599.

S Montagna, T Wager, LF Barrett, TD Johnson, TE Nichols (2018). Spatial Bayesian latent factor regression modeling of coordinate-based meta-analysis data. *Biometrics*, 74(1):342-353.

S Schwab, **R Harbord**, V Zerbi, L Elliott, S Afyouni, JQ Smith, MW Woolrich, SM Smith TE Nichols (2018). Directed functional connectivity using dynamic graphical models. *NeuroImage*, 175:340-353.

SM Smith, TE Nichols (2018). Statistical Challenges in "Big Data" Human Neuroimaging. *Neuron*, 97(2):263-268.

HK Wong, PA Tiffin, MJ Chappell, TE Nichols, PR Welsh, OM Doyle, ..., P Tiňo. (2017). Personalized medication response prediction for attention-deficit hyperactivity disorder: Learning in the model space vs. learning in the data space. *Frontiers in Physiology*, 8:199.

S Afyouni, TE Nichols (2018). Insight and inference for DVARS. *NeuroImage*, 172:291-312.

L Costa, TE Nichols, JQ Smith (2017). Studying the effective brain connectivity using multiregression dynamic models. *Brazilian Journal of Probability and Statistics*, 31(4):765-800.

L Costa, JQ Smith, TE Nichols (2019). A group analysis using the Multiregression Dynamic Models for fMRI networked time series. *Journal of Statistical Planning and Inference*, 19:43-61.

BM Adhikari, N Jahanshad, D Shukla, DC Glahn, J Blangero, ..., TE Nichols, LE Hong, PM Thompson, P Kochunov (2018). Heritability estimates on resting state fMRI data using ENIGMA analysis pipeline. *Pacific Symposium on Biocomputing*, 23:307-318.

BM Adhikari, N Jahanshad, D Shukla, DC Glahn, J Blangero, PT Fox, ..., TE Nichols, LE Hong, PM Thompson, P Kochunov (2018). Comparison of heritability estimates on resting state fMRI connectivity phenotypes using the ENIGMA analysis pipeline. *Human Brain Mapping*, *in press*.

H Ganjgahi, AM Winkler, DC Glahn, J Blangero, B Donohue, P Kochunov, TE Nichols (2018). Fast and powerful genome wide association of dense genetic data with high dimensional imaging phenotypes. *Nature Communications*, *in press*.

F Gutierrez-Barragan, VK Ithapu, C Hinrichs, C Maumet, SC Johnson, TE Nichols, V Singh (2017). Accelerating permutation testing in voxel-wise analysis through subspace tracking: A new plugin for SnPM. *NeuroImage*, 159: 79-98.

VI Müller, EC Cieslik, AR Laird, ..., TE Nichols, ..., SB Eickhoff (2018). Ten simple rules for neuroimaging meta-analysis. *Neuroscience and Biobehavioral Reviews*, 84:151-161.

Other Publications

Other publications that have received peer review. Student co-authors indicated in **bold** *(72 in total.)*

DJ Diehl, MS Keshavan, E Kanal, RD Nebes, TE Nichols, and JS Gillen. Post-ECT increases in MRI regional T2 relaxation times and their relationship to cognitive side effects: a pilot study. *Psychiatry Research*, 54(2):177–84, 1994. PMID 7761551.

SB Baumann, DC Noll, DS Kondziolka, W Schneider, TE Nichols, MA Mintun, JD Lewine, H Yonas, WW Orrison, and RJ Sclabassi. Comparison of functional magnetic resonance imaging with positron emission tomography and magnetoencephalography to identify the motor cortex in a patient with an arteriovenous malformation. *Journal of Image Guided Surgery*, 1(4):191–197, 1995. PMID 9079445.

JT Becker, MA Mintun, K Aleva, MB Wiseman, T Nichols, and ST Dekosky. Alterations in functional neuroanatomical connectivity in Alzheimer's disease. *Annals of the New York Academy of Sciences*, 777:239–242, 1996. PMID 8624091.

S Clark, M Dickinson, T King, A Jones, A Chen, S Derbyshire, DW Townsend, PE Kinahan, MA Mintun, T Nichols. Laser stimulation for pain research. In *Proc. Biomedical Optoelectronics in Clinical Chemistry and Biotechnology*, 2629:197-205, 1996.

JT Becker, MA Mintun, K Aleva, MB Wiseman, T Nichols, and ST DeKosky. Compensatory reallocation of brain resources supporting verbal episodic memory in alzheimer's disease. *Neurology*, 46(3):692–700, Mar 1996. PMID 8618669.

AN Herbster, TE Nichols, MB Wiseman, MA Mintun, ST DeKosky, and JT Becker. Functional connectivity in auditory-verbal short-term memory in Alzheimer's disease. *NeuroImage*, 4(2):67–77, 1996. PMID 9345498.

JJ Mann, KM Malone, DJ Diehl, J Perel, TE Nichols, and MA. Mintun. Positron emission tomographic imaging of serotonin activation effects on prefrontal cortex in healthy volunteers. *Journal of Cerebral Blood Flow & Metabolism*, 16(3):418–26, 1996. PMID 8621746.

CS Carter, MA Mintun, TE Nichols, and JD Cohen. Anterior cingulate gyrus dysfunction and selective attention deficits in schizophrenia: [O-15]H2O PET study during single-trial Stroop task performance. *American Journal of Psychiatry*, 154(12):1670–1675, 1997. PMID 9396944.

R Ganguli, C Carter, M Mintun, J Brar, J Becker, R Sarma, T Nichols, and E Bennington. PET brain mapping study of auditory verbal supraspan memory versus visual fixation in schizophrenia. *Biological Psychiatry*, 41(1):33–42, 1997. PMID 8988793.

GS Smith, JC Price, BJ Lopresti, Y Huang, N Simpson, D Holt, NS Mason, CC Meltzer, R Sweet, T Nichols, D Sashin, and C Mathis. Test-retest variability of positron emission tomography (PET) and [18F]-altanserin for the in vivo imaging of serotonin (5-HT2A) receptors in the human brain. *Synapse*, 30:380–392, 1998. PMID 9826230.

AP Holmes, JD Watson, and TE Nichols. Holmes and Watson on 'Sherlock'. *Journal of Cerebral Blood Flow & Metabolism*, 18(6):697–8, 1998. Comment on Performance of a randomization test for single-subject (15)O-water PET activation studies, M Halber, K Herholz, K Wienhard, G Pawlik, WD Heiss, *JCBFM* 17:1033-9. PMID 9626194.

EA Nofzinger, TE Nichols, DJ Kupfer, and RY Moore. Changes in forebrain function from waking to REM sleep in depression: Preliminary analyses of [18F]-FDG PET studies. *Psychiatry Research: Neuroimaging*, 91(2):59–78, 1999. PMID 10515462.

CC Meltzer, PE Kinahan, PJ Greer, TE Nichols, C Comtat, MN Cantwell, and JC Price. Comparative evaluation of MR-based partial volume correction schemes for PET. *Journal of Nuclear Medicine*, 40:2053–2065, 1999. PMID 10616886.

CS Carter, JD Cohen, T Nichols, M Mintun. More stringent threshold needed - Dr. Carter and colleagues reply. Letter to The Editor. *American Journal of Psychiatry*, 156(5):804, 1999.

SWG Derbyshire, TE Nichols, AKP Jones, DW Townsend, and L Firestone. Gender differences in patterns of cerebral activation during equal experience of painful laser stimulation. *The Journal of Pain*, 3:401–411, 2002. PMID 14622744.

RL Albin, TE Nichols, KA Frey. Brain Imaging to Assess the Effects of Dopamine Agonists on Progression of Parkinson Disease. Letter to The Editor. *Journal of the American Medical Association*, 288:311–312, 2002. PMID 12117386.

CY Sylvester, TD Wager, SC Lacey, L Hernandez, TE Nichols EE Smith and J Jonides. Switching attention and resolving interference: fMRI measures of executive functions. *Neuropsychologia*, 41:357–370, 2003. PMID 12457760.

KL Phan, SF Taylor, RC Welsh, LR Decker, DC Noll, TE Nichols, JC Britton, I Liberzon. Activation of the Medial Prefrontal Cortex and Extended Amygdala by Individual Ratings of Emotional Arousal: An fMRI Study. *Biological Psychiatry*, 53:211–215, 2003. PMID 12559653.

TA Leil, A Ossadtchi, TE Nichols, RM Leahy R.M and DJ Smith. Genes regulated by learning in the hippocampus. *Journal of Neuroscience Research*, 71(6):763–768, 2003. PMID 12605401.

RL Albin, RA Koeppe, NI Bohnen, TE Nichols, P Meyer, K Wernette, S Minoshima, MR Kilbourn, FA Frey. Increased ventral striatal monoaminergic innervation in Tourette syndrome. *Neurology*, 61:310–315, 2003. PMID 12913189.

GR Abecasis, D Ghosh and TE Nichols. Linkage disequilibrium: ancient history drives the new genetics. *Human Heredity*, 59:118–24, 2005 PMID 15838181.

TD Wager, J Jonides, EE Smith, TE Nichols. Toward a taxonomy of attention shifting: individual differences in fMRI during multiple shift types. *Cognitive, Affective & Behavioral Neuroscience*, 5:127-43, 2005. PMID 16180620.

J-K Zubieta, JA Bueller, LR Jackson, DJ Scott, Y Xu, RA Koeppe, TE Nichols and CS Stohler. Placebo Effects Mediated by Endogenous Opioid Activity on μ-Opioid Receptors. *The Journal of Neuroscience*, 25:7754–7762, 2005. PMID 16120776.

C Enzinger, S Smith, F Fazekas, G Drevin, S Ropele, T Nichols, T Behrens, R Schmidt, PM Matthews. Lesion probability maps of white matter hyperintensities in elderly individuals: Results of the Austrian stroke prevention study. *Journal of Neurology*, 253:1064-1070, 2006 PMID 16607471.

J-K Zubieta, Y Smith, CS Stohler, TE Nichols, JA Bueller, RA Koeppe. Pronociceptive and antinociceptive effects of estradiol through endogenous opioid neurotransmission in women. *The Journal of Neuroscience*, 25(34):7754–7762, 2006 PMID 16723535.

A Meyer-Lindenberg, TE Nichols, J Callicot, **J Ding**, R Straub, B Kolachana, J Buckholtz, VS Mattay, M Egan, DR Weinberger. Impact of complex genetic variation in COMT on human brain function. *Molecular Psychiatry*, 11(9):867–877, 2006. PMID 16786032.

YR Smith, T Love, CC Persad, A Tkaczyk, TE Nichols, J-K Zubieta. Impact of Combined Estradiol and Norethindrone Therapy on Visuospatial Working Memory Assessed by Functional Magnetic Resonance Imaging *Journal of Clinical Endocrinology and Metabolism*, 91(11):4476–4481, 2006.

SM Smith, H Johansen-Berg, M Jenkinson, D Rueckert, TE Nichols, KL Miller, MD Robson, DK Jones, JC Klein, AJ Bartsch, TE Behrens. Acquisition and voxelwise analysis of multi-subject diffusion data with tract-based spatial statistics. *Nature Protocals*, 2(3):499-503, 2007. PMID 17406613.

D Pantazis, GV Simpson, DL Weber, CL Dale, TE Nichols and RM Leahy. Exploring Human Visual Attention in an MEG Study of a Spatial Cueing Paradigm Using

a Novel Ancova Design. In *Proc. IEEE International Symposium on Biomedical Imaging (ISBI'07)*, 1096–1099, 2007.

OG Cameron, GC Huang, T Nichols, RA Koeppe, S Minoshima, D Rose, KA Frey. Reduced gamma-aminobutyric Acid(A)-benzodiazepine binding sites in insular cortex of individuals with panic disorder. *Archives of General Psychiatry*, 64(7):793-800, 2007. PMID 17606813.

N Filippini, A Rao, S Wetten, RA Gibson, M Borrie, D Guzman, A Kertesz, I Loy-English, J Williams, T Nichols, B Whitcher and PM Matthews. Anatomically-distinct genetic associations of APOE ε4 allele load with regional cortical atrophy in Alzheimer's disease. *NeuroImage*, 44(3):724–728, 2009. PMID 19013250.

K Bendfeldt, P Kuster, S Traud, H Egger, S Winklhofer, N Mueller-Lenke, Y Naegelin, A Gass, L Kappos, PM Matthews, T Nichols, E-W Radue and SJ Borgwardt. Association of regional gray matter volume loss and progression of white matter lesions in multiple sclerosis – A longitudinal voxel-based morphometry study. *NeuroImage*, 45(1):60-67, 2009. PMID 19013533.

RL Albin, RA Koeppe, K Wernette, **W Zhuang**, TE Nichols, MR Kilbourn, and KA Frey. Striatal [11C]Dihydrotetrabenazine and [11C]Methylphenidate Binding in Tourette Syndrome. *Neurology*, 72(16):1390–6, 2009.

B Inkster, TE Nichols, PG Saemann, DP Auer, F Holsboer, P Muglia, PM Matthews. Association of GSK3beta polymorphisms with brain structural changes in major depressive disorder. *Archives of General Psychiatry*, 66(7):721–728, 2009. PMID 19581563.

K Bendfeldt, H Egger, TE Nichols, P Loetscher, N Denier, P Kuster, S Traud, N Mueller-Lenke, Y Naegelin, A Gass, L Kappos, EW Radue, SJ Borgwardt. Effect of immunomodulatory medication on regional gray matter loss in relapsing-remitting multiple sclerosis–a longitudinal MRI study. *Brain Research*, 1325:174–82, 2010. PMID 20167205.

K Bendfeldt, JO Blumhagen, H Egger, P Loetscher, N Denier, P Kuster, S Traud, N Mueller-Lenke, Y Naegelin, A Gass, J Hirsch, L Kappos, TE Nichols, EW Radue, SJ Borgwardt. Spatiotemporal distribution pattern of white matter lesion volumes and their association with regional grey matter volume reductions in relapsing-remitting multiple sclerosis. *Human Brain Mapping*, 31(10):1542-55, 2010. PMID 20108225.

B Inkster, TE Nichols, PG Saemann, DP Auer, F Holsboer, P Muglia, PM Matthews. Pathway-based approaches to imaging genetics association studies: Wnt signaling, GSK3beta substrates and major depression. *NeuroImage*, 53(3):908-17, 2010 PMID 20219685.

Inkster B, Rao AW, Ridler K, Filippini N, Whitcher B, Nichols TE, Wetten S, Gibson RA, Borrie M, Kertesz A, Guzman DA, Loy-English I, Williams J, Saemann PG, Auer DP, Holsboer F, Tozzi F, Muglia P, Merlo-Pich E, Matthews PM. Genetic variation in GOLM1 and prefrontal cortical volume in Alzheimer's disease. *Neurobiology of Aging*, 33(3):457-465, 2012. PMID 20570408.

Tzimopoulou S, Cunningham VJ, Nichols TE, Searle G, Bird NP, Mistry P, Dixon IJ, Hallett WA, Whitcher B, Brown AP, Zvartau-Hind M, Lotay N, Lai RY, Castiglia M, Jeter B, Matthews JC, Chen K, Bandy D, Reiman EM, Gold M, Rabiner

EA, Matthews PM. A Multi-Center Randomized Proof-of-Concept Clinical Trial Applying [18F]FDG-PET for Evaluation of Metabolic Therapy with Rosiglitazone XR in Mild to Moderate Alzheimer's Disease. *Journal of Alzheimers Disease*, 22(4):1241-56, 2010. PMID 20930300.

B Inkster, AW Rao, K Ridler, TE Nichols, PG Saemann, DP Auer, F Holsboer, F Tozzi, P Muglia, E Merlo-Pich, PM Matthews. Structural Brain Changes in Patients with Recurrent Major Depressive Disorder Presenting with Anxiety Symptoms. *Journal of Neuroimaging*, 21(4):375-382, 2011. PMID 20977527.

L Dixson, K Ridler, TE Nichols, PG Saemann, DP Auer, F Holsboer, P Muglia, PM Matthews, B Inkster. Thyroid hormone transporter genes and grey matter changes in patients with major depressive disorder and healthy controls. *Psychoneuroendocrinology*, 36(6):929-34, 2011. PMID 21208750.

RA Comley, S Cervenka, SE Palhagen, G Panagiotidis, JC Matthews, RY Lai, C Halldin, L Farde, TE Nichols, BJ Whitcher. A Comparison of Gray Matter Density in Restless Legs Syndrome Patients and Matched Controls Using Voxel-Based Morphometry. *Journal of Neuroimaging*, 22(1):28-32, 2012. PMID 21091816.

P Kochunov, DC Glahn, TE Nichols, AM Winkler, EL Hong, HH Holcomb, JL Stein, PM Thompson, JE Curran, MA Carless, RL Olvera, MP Johnson, SA Cole, V Kochunov, J Kent, J Blangero. Genetic analysis of cortical thickness and fractional anisotropy of water diffusion in the brain. *Frontiers in Neuroscience*, 5:120, 2011. PMID 22028680.

L Filli, L Hofstetter, P Kuster, S Traud, N Mueller-Lenke, Y Naegelin, L Kappos, A Gass, T Sprenger, TE Nichols, H Vrenken, F Barkhof, C Polman, E-W Radue, SJ Borgwardt, K Bendfeldt. Spatiotemporal Distribution of White Matter Lesions: Differences between Relapsing-Remitting and Secondary Progressive Multiple Sclerosis. *Multiple Sclerosis Journal*, 18(11):1577–84, 2012. PMID 22495945.

K Bendfeldt, S Klöppel, TE Nichols, R Smieskova, P Kuster, S Traud, N Mueller-Lenke, Y Naegelin, L Kappos, EW Radue, SJ Borgwardt. Multivariate pattern classification of gray matter pathology in multiple sclerosis. *NeuroImage*, 60(1):400–8, 2012. PMID 22245259.

DM Cole, CF Beckmann, GE Searle, C Plisson, AC Tziortzi, TE Nichols, RN Gunn, et al. (2011). Orbitofrontal Connectivity with Resting-State Networks Is Associated with Midbrain Dopamine D3 Receptor Availability. *Cerebral cortex*, 22(12):2784-93, 2012. PMID 22186675.

JL Stein, SE Medland, A Vasquez, DP Hibar, RE Senstad, **AM Winkler**, R. Toro, *et al*. Identification of common variants associated with human hippocampal and intracranial volumes. *Nature Genetics*, 44(5):552–61, 2012. PMID 22504417.

K Bendfeldt, L Hofstetter, P Kuster, S Traud, N Mueller-Lenke, Y Naegelin, L Kappos, A Gass, TE Nichols, F Barkhof, H Vrenken, SD Roosendaal, JJ Geurts, EW Radue, JS Borgwardt. Longitudinal gray matter changes in multiple sclerosis–differential scanner and overall disease-related effects. *Human Brain Mapping*, 33(5):1225-45, 2012. PMID 21538703.

N Jahanshad, P Kochunov, E Sprooten, RC Mandl, TE Nichols, L Almassy, J Blangero, *et al*. Multi-Site Genetic Analysis of Diffusion Images and Voxelwise Heritabil-

ity Analysis: A Pilot Project of the ENIGMA-DTI Working Group. *NeuroImage*, 81:455-69, 2013. PMID 23629049.

P Kochunov, J Charlesworth, **A Winkler**, LE Hong, T Nichols, JE Curran, E Sprooten, N Jahanshad, PM Thompson, MP Johnson, JW Kent Jr, BA Landman, B Mitchell, SA Cole, TD Dyer, EK Moses, HH Goring, L Almasy, R Duggirala, RL Olvera, DC Glahn, J Blangero. Transcriptomics of cortical gray matter thickness decline during normal aging. *NeuroImage*, 82:273-83, 2013. PMID 23707588.

G Douaud, H Refsum, CA de Jager, R Jacoby, TE Nichols, SM Smith, AD Smith (2013). Preventing Alzheimer's disease-related gray matter atrophy by B-vitamin treatment. *Proceedings of the National Academy of Sciences of the United States of America*, 110(23), 9523–8. PMID 23690582.

L Hofstetter, Y Naegelin, L Filli, P Kuster, S Traud, R Smieskova, N Mueller-Lenke, L Kappos, A Gass, T Sprenger, IK Penner, TE Nichols, H Vrenken, F Barkhof, C Polman, EW Radue, SJ Borgwardt, K Bendfeldt. Progression in disability and regional grey matter atrophy in relapsing-remitting multiple sclerosis. *Multiple Sclerosis Journal*, 20(2):202–213, 2014. PMID 23804554.

PM Thompson, JL Stein, SE Medland, DP Hibar, AA Vasquez, ME Renteria, *et al.* The ENIGMA Consortium: large-scale collaborative analyses of neuroimaging and genetic data. *Brain Imaging and Behavior*, 8(2):153–82, 2014. PMID 24399358.

JE Hardee, BJ Weiland, TE Nichols, RC Welsh, *et al.*. Development of Impulse Control Circuitry in Children of Alcoholics. *Biological Psychiatry*, 76(9):708–16, 2014. PMID 24742620.

P Kochunov, N Jahanshad, E Sprooten, TE Nichols, *et al.*. Multi-site study of additive genetic effects on fractional anisotropy of cerebral white matter: Comparing meta and megaanalytical approaches for data pooling. *NeuroImage*, 95:136-150, 2014. PMID 24657781.

M Zeller, A Müller, M Gutberlet, T Nichols, D Hahn, H Köstler, AJ Bartsch. Boosting BOLD fMRI by K-space density weighted echo planar imaging. *PLoS One*, 8(9):e74501, 2013. PMID 24040262.

DG Ashbrook DG, RW Williams, L Lu, JL Stein, DP Hibar, TE Nichols, SE Medland, PM Thompson, R Hager. Joint genetic analysis of hippocampal size in mouse and human identifies a novel gene linked to neurodegenerative disease. *BMC Genomics*, 15(1):850, 2014. PMID 25280473.

EW Dickie, A Tahmasebi, L French, N Kovacevic, T Banaschewski, GJ Barker, A Bokde, C Büchel, P Conrod, H Flor, H Garavan, J Gallinat, P Gowland, A Heinz, B Ittermann, C Lawrence, K Mann, J-L Martinot, F Nees, T Nichols, M Lathrop, E Loth, Z Pausova, M Rietschel, MN Smolka, A Ströhle, R Toro, G Schumann, T Paus. Global genetic variations predict brain response to faces. *PLoS Genetics*, 10(8):e1004523, 2014. PMID 25122193.

A Nazeri, **H Ganjgahi**, T Roostaei, T Nichols, M Zarei. Imaging proteomics for diagnosis, monitoring and prediction of Alzheimer's disease. *NeuroImage*, 102(Pt 2):657–65, 2014. PMID 25173418.

DP Hibar, JL Stein, ME Renteria, A Arias-Vasquez, S Desrivieres, N Jahanshad, *et al.* Common genetic variants influence human subcortical brain structures. *Nature*, 520(7546):224–229, 2015. PMID 25607358.

ET Rolls, MB Kellerhals, TE Nichols. Age differences in the brain mechanisms of good taste. *NeuroImage*, 113:298–309, 2015. PMID 25842291.

S Eickhoff, TE Nichols, JD Van Horn, JA Turner. Sharing the wealth: Neuroimaging data repositories. *NeuroImage*, 124(Pt.B):1065–1068, 2016. PMID 26574120.

AG Thomas, A Dennis, NB Rawlings, CJ Stagg, L Matthews, M Morris, SH Kolind, S Foxley, M Jenkinson, TE Nichols, H Dawes, PA Bandettini, H Johansen-Berg. Multi-modal characterization of rapid anterior hippocampal volume increase associated with aerobic exercise. *NeuroImage*, 131:162–170, 2016. PMID 26654786.

PM Thompson, OA Andreassen, A Arias-Vasquez, CE Bearden, PS Boedhoe, RM Brouwer, *et al*. ENIGMA and the Individual: Predicting Factors that Affect the Brain in 35 Countries Worldwide. *NeuroImage*, 145:389-408, 2017. PMID 26658930.

P Kochunov, PM Thompson, A Winkler, M Morrissey, M Fu, TR Coyle, *et al*. The common genetic influence over processing speed and white matter microstructure: Evidence from the Old Order Amish and Human Connectome Projects. *NeuroImage*, 125:189–197, 2015. PMID 26499807.

P Kochunov, N Jahanshad, D Marcus, A Winkler, E Sprooten, TE Nichols, *et al*. Heritability of fractional anisotropy in human white matter: a comparison of Human Connectome Project and ENIGMA-DTI data. *NeuroImage*, 111:300–11, 2015. PMID 25747917.

SM Smith, TE Nichols, D Vidaurre, AM Winkler, TEJ Behrens, MF Glasser, *et al*. A positive-negative mode of population covariation links brain connectivity, demographics and behavior. *Nature Neuroscience*, 18(11):1565–7, 2015. PMID 26414616.

K Bendfeldt, R Smieskova, N Koutsouleris, S Klöppel, A Schmidt, A Walter, F Harrisberger, J Wrege, A Simon, **B Taschler**, T Nichols, *et al*. Classifying individuals at high-risk for psychosis based on functional brain activity during working memory processing. *NeuroImage: Clinical*, 9:555–563, 2015 PMID 26640767.

BA Gutman, N Jahanshad, CRK Ching, Y Wang, PV Kochunov, TE Nichols, PM Thompson (2015). Medial Demons Registration Localizes The Degree of Genetic Influence Over Subcortical Shape Variability: An N = 1480 Meta-Analysis. In proceedings, *IEEE International Symposium on Biomedical Imaging: From Nano to Macro. IEEE International Symposium on Biomedical Imaging*, 2015, 1402–1406. PMID 26413211.

A Dennis, AG Thomas, NB Rawlings, J Near, TE Nichols, S Clare, H Johansen-Berg, CJ Stagg (2015). An Ultra-High Field Magnetic Resonance Spectroscopy Study of Post Exercise Lactate, Glutamate and Glutamine Change in the Human Brain. *Frontiers in Physiology*, 6:351, 2016. PMID 26732236.

B Franke, JL Stein, S Ripke, V Anttila, DP Hibar, JKE van Hulzen, A Arias-Vasquez, JW Smoller, TE Nichols, *et al.* Genetic influences on schizophrenia and

subcortical brain volumes: large-scale proof of concept. *Nature Neuroscience*, 19(3):420–31, 2016. PMID 26854805.

P Kochunov, **H Ganjgahi**, **A Winkler**, S Kelly, DK Shukla, X Du, N Jahanshad, L Rowland, H Sampath, B Patel, P O'Donnell, Z Xie, SA Paciga, CR Schubert, J Chen, G Zhang, PM Thompson, TE Nichols, LE Hong. Heterochronicity of white matter development and aging explains regional patient control differences in schizophrenia. *Human Brain Mapping*, PMID 27477775.

P Kochunov, H Ganjgahi, A Winkler, S Kelly, DK Shukla, ..., TE Nichols, LE Hong (2016). Heterochronicity of white matter development and aging explains regional patient control differences in schizophrenia. *Human Brain Mapping*, 37(12):4673-4688.

HHH Adams, DP Hibar, V Chouraki, JL Stein, ..., TE Nichols, ..., Thompson, P. M. (2016). Novel genetic loci underlying human intracranial volume identified through genome-wide association. *Nature Neuroscience*, 19(12):1569-1582.

A Eklund, TE Nichols (2017). How open science revealed false positives in brain imaging. *Significance*, 14(1), 30–33.

Rizos, T., Bartsch, A. J., Johnson, T. D., Dittgen, F., Nichols, T. E., Malzahn, U., & Veltkamp, R. (2017). Voxelwise distribution of acute ischemic stroke lesions in patients with newly diagnosed atrial fibrillation: Trigger of arrhythmia or only target of embolism? PloS One, 12(5), e0177474. http://doi.org/10.1371/journal.pone.0177474

Houtkoop, B., Bishop, D., Chambers, C. D., Macleod, M. R., Nichols, T. E., & Wagenmakers, E.-J. (2017). Data Sharing in Psychology: A Survey on Barriers and Preconditions. Advances in Methods and Practices in Psychological Science.

BRAINS (Brain Imaging in Normal Subjects) Expert Working Group, Shenkin, S. D., Pernet, C., Nichols, T. E., Poline, J.-B., Matthews, P. M., ... Wardlaw, J. M. (2017). Improving data availability for brain image biobanking in healthy subjects: Practice-based suggestions from an international multidisciplinary working group. NeuroImage, 153, 399–409.

Colclough, G. L., Smith, S. M., Nichols, T. E., Winkler, A. M., Sotiropoulos, S. N., Glasser, M. F., ... Woolrich, M. W. (2017). The heritability of multi-modal connectivity in human brain activity. eLife, 6, 1–19. http://doi.org/10.7554/eLife.20178

T Rizos, AJ Bartsch, TD Johnson, F Dittgen, TE Nichols, U Malzahn, R Veltkamp (2017). Voxelwise distribution of acute ischemic stroke lesions in patients with newly diagnosed atrial fibrillation: Trigger of arrhythmia or only target of embolism? *PloS One*, 12(5):e0177474.

DP Hibar, HHH Adams, N Jahanshad, ..., TE Nichols, ..., MA Ikram (2017). Novel genetic loci associated with hippocampal volume. *Nature Communications*, 8:13624.

PA Kragel, M Kano, L Van Oudenhove, HG Ly, P Dupont, ..., TE Nichols, TD Wager (2018). Generalizable representations of pain, cognitive control, and negative emotion in medial frontal cortex. *Nature Neuroscience*, 21(2), 283–289.

Books

KJ Friston, JT Ashburner, SJ Kiebel,TE Nichols, WD Penny, Eds, *Statistical Parametric Mapping: The Analysis of Functional Brain Images*, Academic Press, New York, 2006.

R Poldrack, J Mumford & TE Nichols, *Handbook of fMRI Data Analysis*, Cambridge University Press, 2011.

Chapters

MW Woolrich, CF Beckmann, TE Nichols, SM Smith. "Statistical Analysis of fMRI Data" in *fMRI Techniques and Protocols, Vol 41*, M Filippi, Ed. Springer-Verlag, New York, 2016.

S Tzimopoulou, VJ Cunningham, TE Nichols, G Searle, NP Bird, P Mistry, IJ Dixon, et al. "Validation and Pilot Application of [18F]FDG-PET in Evaluation of a Metabolic Therapy for Alzheimerâs Disease" in *Handbook of Imaging the Alzheimer Brain*, JW Ashford, A Rosen, M Adamson, et al. Eds. IOS Press, 2011.

MW Woolrich, CF Beckmann, TE Nichols, SM Smith. "Statistical Analysis of fMRI Data" in *fMRI Techniques and Protocols, Vol 41*, M Filippi, Ed. Springer-Verlag, New York, 2009.

TE Nichols. "False Discovery Rate procedures" in *Statistical Parametric Mapping: The Analysis of Functional Brain Images*, KJ Friston, JT Ashburner, SJ Kiebel, TE Nichols, WD Penny, Eds. Academic Press, New York, 2006.

TE Nichols, AP Holmes. "Non-parametric procedures" in *Statistical Parametric Mapping: The Analysis of Functional Brain Images*, KJ Friston, JT Ashburner, SJ Kiebel,TE Nichols, WD Penny, Eds. Academic Press, New York, 2006.

NL Foster, RE Koeppe, BJ Giordani, TE Nichols and AP Lieberman. "Variations of the Phenotype in Frontotemporal Dementias," in *Genotype – Protéotype – Phenotype Relationships in Neurodegenerative Diseases*, Cummings et al. Eds. Springer, New York, 2005.

J Jonides, CY Sylvester, SC Lacey, TD Wager, TE Nichols, and E Awh. "Modules of Working Memory", pages 113–134 in *Principles of Learning and Memory*, RH Kluwe, G Luer, and F Rosler, Eds. Birkhauser Verlag, Basel, 2003.

TE Nichols and AP Holmes. "Nonparametric Permutation Tests for Functional Neuroimaging," in *Human Brain Function, 2nd Edition*, R Frackowiak, KJ Friston, C Frith and R Dolan, Eds. Academic Press, New York, 2003.

Software

Statistical Nonparametric Mapping, SnPM. A nonparametric toolbox for SPM. Last updated July 2016.

"randomise" tool in FSL. Nonparametric inference for the general linear model, latest FSL version, 2015.

False Discovery Rate for Statistical Parametric Mapping, FDR for SPM. Integration of FDR into SPM99 (subsequently adopted into core codebase) 2001.

Statistical Parametric Mapping Diagnosis, SPMd. A diagnostics toolbox for SPM99. Released, May 2002.