Julia M Huntenburg

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RESEARCH INTEREST

My research focuses on organizational principles of the human cerebral cortex. I have investigated the relationship between functional network topography and cortical microstructure using ultra-high field magnetic resonance imaging. My work ranges from developing methods for high-resolution image processing to exploring theoretical frameworks from classic neuroanatomy. I am an active contributor to several open source software projects and have spearheaded initiatives to promote open science.

EDUCATION

Max Planck Institute for Human Cognitive and Brain Sciences   2014-2017
PhD candidate Neuroscience   *(expected)*

Thesis working title: *Investigating the convergence of cortical structure and network topography*
Advisors: Daniel S. Margulies, Pierre-Louis Bazin

Free University of Berlin and Charité Medical School Berlin   2011-2014
M.Sc. Neuroscience

Thesis title: *Evaluating nonlinear coregistration of BOLD EPI and T1w images*
Final grade: excellent (1.0, 1 down to 5)
Other research projects:
    Neural mechanisms of mindfulness-based cognitive therapy in chronic depression
    Microglia in Apelin-APJ signalling in glioma pathogenesis

Gottfried Wilhelm Leibniz University of Hannover   2007-2011
B.Sc. Life Science

Thesis title: *Tolerogenic mechanisms of the non-depleting monoclonal α-CD4 antibody YTS177.9*
Final grade: excellent (1.0, 1 down to 5)
Other research projects:
    Influence of incubation time on microarray analysis
    GFP marking and in vivo localization of Rab1-GTPase

PEER-REVIEWED PUBLICATIONS

Huntenburg, J.M., Bazin, P.-L., Goulas, A., Tardif, C.L., Villringer, A., Margulies, D.S. A systematic relationship between functional connectivity and intracortical myelin in the human cerebral cortex. *Cerebral Cortex,* (in press).

Liem, F., Varoquaux, G., Kynast, J., Beyer, F., Kharabian-Maouleh, S., **Huntenburg, J.M.**, Lampe, L., Rahim, M., Abraham, A., Craddock, C.R., Riedel-Heller, S., Luck, T., Loeffler,M., Schroeter,M.L., Witte,A.V., Villringer, A., Margulies, D.S. Predicting brain-age from multimodal imaging data captures cognitive impairment. *Neuroimage*, 148, 179-188, (2017).

Golchert, J., Smallwood, J., Jefferies, E., Seli, P., **Huntenburg, J.M.**, Liem, F., Lauckner, M.E., Oligschlaeger, S., Bernhardt, B.C., Villringer, A., Margulies, D.S. Individual variation in intentionality in the mind-wandering state is reflected in the integration of the default-mode, fronto-parietal, and limbic networks. *Neuroimage*, 146, 226-235, (2017).

Golchert, J., Smallwood, J., Jefferies, E., Liem, F., **Huntenburg, J.M.**, Falkiewicz, M., Lauckner, M.E., Oligschlaeger, S., Villringer, A., Margulies, D.S. In need of constraint: Understanding the neurocognitive basis of the impulsive mind. *Neuroimage*, 146, 804-813, (2017).

Margulies, D.S., Ghosh, S.S., Goulas, A., Falkiewicz, M., **Huntenburg, J.M.**, Langs, G., Bezgin, G., Eickhoff, S.B., Castellanos, F.X., Petrides, M., Jefferies, E., Smallwood, J. Situating the default-mode network along a principal gradient of macroscale cortical organization. *Proceedings of the National Academy of Sciences USA*, 113 (44), 12574-12579, (2016).

Oligschlaeger, S., **Huntenburg, J.M**., Golchert, J., Lauckner, M.E., Bonnen, T., Margulies, D.S. Gradients of connectivity distance are anchored in primary cortex. *Brain Structure and Function*, (2016).

Barnhofer, T., **Huntenburg, J.M.**, Lifshitz, M., Wild, J., Antonova, E., Margulies, D.S. How Mindfulness Training May Help to Reduce Vulnerability for Recurrent Depression: A Neuroscientific Perspective. *Clinical Psychological Science*, 2(4), 328-343, (2016).

Fissler, M., Winnebeck, E., Schroeter, T., Gummbersback, M., **Huntenburg, J.M.**, Gaertner, M., Barnhofer, T. An Investigation of the Effects of Brief Mindfulness Training on Self-Reported Interoceptive Awareness, the Ability to Decenter, and Their Role in the Reduction of Depressive Symptoms. *Mindfulness*, 1-12, (2016).

Mayer, C.T., **Huntenburg, J.M**., Nandan, A., Schmitt, E., Czeloth, N., Sparwasser,T. CD4 blockade directly inhibits mouse and human CD4+ T cell functions independent of Foxp3+ Tregs. *Journal of Autoimmunity*, 47, 73–82, (2013).

CONFERENCE PROCEEDINGS

Huntenburg, J.M., Wagstyl, K., Steele, C.J., Funck, T., Bethlehem, R.A.I., Foubet, O., Larrat, B., Borrell, V., Bazin, P.-L. Laminar Python: tools for cortical depth-resolved analysis of high-resolution brain imaging data in Python. In: *Brainhack Proceedings 2016*, Research Ideas and Outcomes, 3: e12346, 2017.

Huntenburg, J.M., Abraham, A., Loula, J., Liem, F., Dadi, K., Varoquaux, G. Loading and plotting of cortical surface representations in Nilearn. In: *Brainhack Proceedings 2016*, Research Ideas and Outcomes 3: e12342, 2017.

Huntenburg, J.M., Bazin, P.-L., Goulas, A., Tardif, C.L., Margulies, D.S. A systematic relationship between intracortical myelin and functional connectivity in the human cerebral cortex. Poster session presented at: *46th Annual Meeting of the Society for Neuroscience*; 2016 Nov 12-16; San Diego, CA, USA

Huntenburg, J.M., Bazin, P.-L., Goulas, A. Margulies, D.S. Investigating the relationship of myeloarchitecture and connectivity in the human cortex using MRI. Poster session presented at: *22nd Annual Meeting of the Organization for Human Brain Mappin*g; 2016 Jun 26-30; Geneva, Switzerland

Margulies, D.S., Falkiewicz, M., **Huntenburg, J.M.**, A cortical surface-based geodesic distance package for Python. In: *Brainhack Proceedings 2015*, GigaScience Database, 2016.

Farrugia N., **Huntenburg, J.M.**, Margulies, D.S., Gripon, V. Identifying spatiotemporal patterns of functional connectivity using dictionary learning. Oral presentation at: *22nd Annual Meeting of the Organization for Human Brain Mapping*; 2016 Jun 26-30; Geneva, Switzerland

Daehne, S., **Huntenburg, J.M.**, Babayan, A., Erbey, M., Kumral, D., Reinelt, J., Reiter, A., Roebbig, J., Schaare, H.L., Margulies, D.S., Mueller, K.-R., Villringer, A., Gaebler, M. Detecting resting-state networks using scalable multi-subject spatial canonical correlation analysis. Poster session presented at: *22nd Annual Meeting of the Organization for Human Brain Mapping*; 2016 Jun 26-30; Geneva, Switzerland

Oligschlaeger, S., **Huntenburg, J.M.**, Lauckner, M.E., Golchert, J., Bonnen, T., Margulies, D.S. The spatial organization of connectivity distance in the human cortex. Poster session presented at: *22nd Annual Meeting of the Organization for Human Brain Mapping*; 2016 Jun 26-30; Geneva, Switzerland

Osoianu., A., Oligschlaeger, S., **Huntenburg, J.M.**, Margulies, D.S. Investigating cortical morphology through the dual-origin theory. Poster session presented at: *22nd Annual Meeting of the Organization for Human Brain Mapping*; 2016 Jun 26-30; Geneva, Switzerland

Huntenburg, J.M., Gorgolewski, K.J., Anwander, A., Margulies, D.S. Evaluating nonlinear coregistration of BOLD EPI and T1 images. Poster session presented at: *20th Annual Meeting of the Organization for Human Brain Mapping*; 2014 Jun 8-12; Hamburg, Germany

Schaare, H.L., Rohr, C.S., Schaefer, A., **Huntenburg, J.M.**, Margulies, D.S., Pampel, A., Erbey, M., Reinelt, J., Reiter, A., Roebbig, J., Sacher, J., Dreyer, M., Okon-Singer, H., Babayan, A., Villringer, A. Resting-State Functional Connectivity Associated with Blood Pressure . Poster session presented at: *20th Annual Meeting of the Organization for Human Brain Mapping*; 2014 Jun 8-12; Hamburg, Germany

STIPENDS AND AWARDS

Full PhD student scholarship of the German National Academic Foundation	2015-2017
Full PhD student scholarship of the Max Planck Society *(declined 2015)*	2014-2016
Conference travel grant of the German Academic Exchange Service	2016
Travel grant of the German National Academic Foundation	2016
EuroScipy conference travel grant	2016
Full student scholarship of the German National Academic Foundation	2007-2013
First year stipend of the Leibniz University of Hannover	2007
Award for extraordinary coursework of the German Life Sciences Association	2007
Award for year's best graduate in Chemistry of the German Chemical Sociecty	2007

ADVANCED TRAINING COURSES

Advanced Scientific Programming in Python, G-Node, BCCN & Graduate School of Systemic Neurosciences Munich	2015
Nonlinear Methods for Complex Systems Analysis, University Cologne, CA III: Quantitative Modeling of Complex Systems	2015
Methods and Concepts for fMRI of the Human Brain, International Society for Magnetic Resonance in Medicine	2015
Neural Metrics: Quantitative Analysis of Neural Organization & Function, Radboud University Nijmegen, Donders Institute for Brain, Cognition & Behaviour	2014
Brain Research in Cognitive Neurosciences, German National Academic Foundation Life Science College	2012-2014

OPEN SCIENCE EVENTS

Brainhack Neuroanatomy, Pasteur Institute Paris, France *(invited speaker)*	2016
EuroScipy : Scientific programmin in Python, Erlangen, Germany	2016
Organization for Human Brain Mapping Hackathon, Univercité Lausanne, Switzerland	2016
Brainhack, Pasteur Institute Paris, France	2016
Nilearn Coding Sprint, Neurospin Paris, France	2015
Nipype Coding Sprint, Max Planck Institute Leipzig, Germany	2015
Organization for Human Brain Mapping Hackathon, c-Base Berlin, Germany	2014

PROFESSIONAL EXPERIENCE

Cluster of Excellence Languages of Emotion, Free University Berlin Student research assistant	2013-2014
BBMG Medical Marketing, Berlin Text and research	2012-2013
Dr. Stoll and Dr. Reles, Berlin Medical assistant gynaecology and obstetrics	2012
Twincore Center for Experimental and Clinical Infection Research, Hannover Student research assistant	2010-2011
TectoYou, Planet4 GmbH, Hannover Technology tourguide	2009-2012
Corvay Life Science Consulting GmbH, Hannover Office assistant	2009-2010

ACADEMIC SERVICE

Co-organizer of Brainhack global Leipzig	2017
Founding member of Python co-learning group, Max Planck Insitute Leipzig	since 2015
Founding member of Equal Opportunities workgroup, Max Planck Society PhDnet	
Organizer of Girl's Career Day programming workshop, Max Planck Institute Leipzig	
Python mentor at *Jugend hackt* kids hackathons , Open Knowledge Foundation Berlin	
Science outreach within interdisciplinary project *Hubbub*, Wellcome Trust London	2014-2016

SKILLS

MRI data analysis
  Analysis of high-resolution structural and functional MR images using various software tools (Nipype, Nilearn, FSL, ANTs, AFNI, Freesurfer, CBSTools, etc.)

Programming
  Advanced scientific programming and software development in Python, system navigation under Linux, basic web programming with Javascript/Html

Molecular biology
  Handling, genotyping and dissection of experimental animals (mouse), cell culture, multi-channel flow cytometry, histology, immunohistochemistry, microarray, PCR