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Assistant Professor

Head of the section - Biomedical statistics and multimodal signal processing,  
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**General information**

Date of Birth: 10 June 1980  
Gender: male  
Nationality: German  
Marital status: Married with 2 children

**Academic education with degree(s)**

2003 – 2005 Master of Science, Technical Faculty, University of Kiel  
1998 – 2002 Bachelor of Engineering, University of Madras

**Scientific degrees**

Since 2015 Habilitation, Technical Faculty, University of Kiel (Prof. Günther Deuschl)  
2010 PhD (Dr.-Ing.), Technical Faculty, University of Kiel (Prof. Ulrich Heute)

**Professional Career**

Since 2016 Assistant Professor (Head of the group Biomedical statistics and multimodal signal processing, Johannes Gutenberg University, Mainz  
2013 - 2016 Senior Scientist, Department of Neurology, Christian Albrecht's University, Kiel  
2010 - 2013 Postdoctoral position, Department of Neurology, Christian Albrecht's University, Kiel  
2006 - 2010 Research Assistant, Institute for circuit and system theory, Technical Faculty, Christian Albrecht's University, Kiel

**Professional duties**

Since 2017 Associate Editor in Frontiers in human Neuroscience  
Since 2017 Associate Editor in Frontiers in Neurology  
Since 2018 Associate Editor in Frontiers in Aging Neuroscience  
Since 2011 Reviewer for – Annals of Neurology, Acta Neurologica Scandinavica, Brain, Biomedical signal processing and control, Brain topography, Clinical Neurophysiology, Frontiers in Neurology, Giga science, Human brain mapping, Journal of neuroscience methods, Journal of Neurophysiology, Movement disorders, Nature scientific reports, Neuroimage, Neurorehabilitation, Plos one, Transactions in biomedical engineering, Transactions on neural systems and rehabilitaton.

**Selected publications (Peer reviewed)**

1. **Muthuraman M**, Bange M, Koirala N, Ciolac D, Pinteá B, Glaser M, Tinkhauser G, Brown P, Deuschl G, Groppa S. Cross-frequency coupling between gamma oscillations and deep brain stimulation in cortico-subcortical networks in Parkinson's disease patients. **Brain: a journal of neurology** 2020 in press.
2. **Muthuraman M**, Fleischer V, Kroth J, Ciolac D, Radetz A, Koirala N, Gonzalez-Escamilla G, Wiendl H, Meuth SG, Zipp F, Groppa S. Covarying patterns of white matter lesions and cortical atrophy predict progression in early MS. **Neurol Neuroimmunol Neuroinflamm**. 2020 Feb 5;7(3): e681.
3. Gouveris H, Bahr K, Schmitt E, Abirani A, Borkstegers T, Fassnacht S, Huppertz T, Groppa S, **Muthuraman M**. Corticoperipheral neuromuscular disconnection in obstructive sleep apnoea. **Brain comm**. 2020, 2(1): fcaa056.
4. McMackin R, **Muthuraman M**, Groppa S, Babiloni C, Taylor J-P, Kiernan MC, Nasserolelami B, Hardiman O. Measuring network disruption in neurodegenerative diseases: New approaches using signal analysis. **Journal of Neurology, Neurosurgery & Psychiatry** 2019: jnnp-2018-319581.
5. **Muthuraman M**, Raethjen J, Koirala N, Anwar A, Mideksa K, Elble R, Groppa S, Deuschl G. Cerebello-cortical network fingerprints differ among essential, Parkinson and mimicked tremors. **Brain: a journal of neurology** 2018 Jun 1;141(6):1770-1781. **(Selected as editor's choice article for the issue)**
6. Tamás G, Chirumamilla VC, Anwar AR, Raethjen J, Deuschl G, Groppa S, **Muthuraman M**. Primary Sensorimotor Cortex Drives the Common Cortical Network for Gamma Synchronization in Voluntary Hand Movements. **Frontiers in Human Neuroscience** 2018; 12(130).
7. Anwar AR, Muthalib M, Perrey S, Galka A, Granert O, Wolff S, Heute U, Deuschl G, Raethjen J, **Muthuraman M**. Effective Connectivity of Cortical Sensorimotor Networks During Finger Movement Tasks: A Simultaneous fNIRS, fMRI, EEG Study. **Brain Topogr** 2016; 29(5): 645-60. **(Awarded as the best paper of the year in brain topography)**
8. **Muthuraman M**, Deuschl G, Anwar AR, Mideksa KG, von Helmolt F, Schneider SA. Essential and aging-related tremor: Differences of central control. **Mov Disord: official journal of the Movement Disorder Society** 2015;30(12):1673-1680.
9. Raethjen J, **Muthuraman M**. Cause or compensation? Complex changes in cerebello-thalamo-cortical networks in pathological action tremor. **Brain**. 2015 Oct;138(Pt 10):2808-10.
10. **Muthuraman M**, Hellriegel H, Paschen S, Hofschulte F, Reese R, Volkmann J, Witt K, Deuschl G, Raethjen J. The central oscillatory network of orthostatic tremor. **Mov Disord** 2013; 28(10): 1424-30.

## **Research Collaborators**

Prof. Günther Deuschl, Department of Neurology, Kiel, Germany  
Prof. Jens Volkmann, Department of Neurology, Würzburg, Germany  
Prof. Sven.G. Meuth, Department of Neurology, Münster, Germany  
Prof. Rodger J. Elble, Southern Illinois University School of Medicine, Springfield, USA  
Dr. R. B. Govindan, Children's National Health System, Washington, USA  
Prof. Vince Calhoun, The University of New Mexico, Albuquerque, USA  
Prof. Alfonso Fasano, Krembil Research Institute, Toronto, Canada  
Prof. Michael Breakspear, QIMR Berghofer, Brisbane, Australia  
Prof. Andrew Zalesky, University of Melbourne, Melbourne, Australia  
Prof. Alfons Schnitzler, Heinrich Heine University, Dusseldorf, Germany  
Prof. Dmitry Budker, Johannes Gutenberg University, Mainz, Germany  
Prof. Thomas P. Burg, Technical university of Darmstadt, Darmstadt, Germany  
Prof. Gertrud Tamas, Semmelweis University, Budapest, Hungary  
Dr. Lars Michels, University of Zurich, Zurich, Switzerland  
Prof. Stephane Perrey, University of Montpellier, Montpellier, France  
Prof. Orla Hardiman, Trinity College University, Dublin, Ireland  
Prof. Peter Brown, University of Oxford, Oxford, UK  
Dr. Rick Helmich, Radboud University, Nijmegen, Netherlands  
Prof. Abdulnasir Hossen, Sultan Qaboos University, Muscat, Oman