Curriculum Vitae of Prof. Dr. Melanie Wilke

Prof. Dr. Melanie Wilke studied from 1997–2001 at the Ludwig Maximilian University (LMU) Psycholinguistics, Neuropsychology and Neurobiology. She graduated from the Max Planck Institute for Biological Cybernetics (Tübingen). From 2005-2011 she worked as a postdoctoral fellow at the National Institutes of Mental Health (Bethesda, MD, USA) and at the California Institute of Technology (Pasadena, CA, USA). Since 4/2011 she is the head of the Department of Cognitive Neurology, which has been established by the Schilling Foundation, at the University Medical Center Göttingen (UMG). She holds a bridge professorship at the German Primate Center (CNG group at DPZ, Göttingen). The focus of her research program is to understand the neural mechanisms underlying normal and impaired conscious perception and decision making and to bridge the gap between basic and clinical research. She studies the influence of brain lesions in non-human primates and humans by means of brain inactivation and stimulation methods in combination with single cell physiology and functional imaging.

Personal:

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Birth	5/1976

Education:

2001-2005	PhD (Dr. rer. nat.) in Neural and Behavioral Sciences ('summa cum laude'), Max Planck Institute for Biological Cybernetics (Dept. Cognitive Neurophysiology), Tübingen; Advisors: Prof. Dr. N.K. Logothetis and Dr. D.A. Leopold Topic: 'Neuronal underpinnings of perceptual suppression'
1997-2001	M.A. in Psycholinguistics, Neuropsychology and Neurobiology (Ludwig-Maximilians-University, Munich) Master Thesis at Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig; Advisor: Dr. E. Ferstl Topic: 'Effects of encoding perspective on recognition of textual information following damage of the frontal lobe'

Working experience:

Since 04/2011	Professor (W3), Director of the Department of Cognitive Neurology, University Medical Center Göttingen (UMG), Georg August University, Göttingen
Since 04/2011	Co-Principal Investigator of the 'Decision and Awareness Group' (DAG) at the German Primate Center (DPZ), Göttingen
2011-2012	Visiting Associate Faculty at the California Institute of Technology (Caltech), Pasadena

2008-2011	Postdoctoral Fellow in the Division of Biology, California Institute of Technology (Caltech), Pasadena Advisor: Prof. R.A. Andersen
2005-2008	Postdoctoral Fellow in the Laboratory of Neuropsychology, NIMH, Bethesda Advisor: Dr. D.A. Leopold
2001-2005	PhD student at the Max Planck Institute for Biological Cybernetics, Tübingen

Patent:

- **09/2014.** Wilke, M., Kagan, I., Andersen, R.A. Brain repair using electrical microstimulation of healthy nodes. DKT No. 065471-0000038US00/CIT-6260 *(granted 09/2014)*

Invited lectures (selected and since 2016)

- **2022** Gordon Conference Thalamocortical Interactions, Lucca, Italy
- **2021** NWG Symposium Speaker Clinical Translation (Zoom)
- **2020** Symposium on Corticothalamic interactions, MIT, Boston, USA
- **2020** Session chair at Gordon conference on Role of Thalamic Circuits in Cognitive Function, Venura, USA
- **2019.** Systems Neuroscience Symposium, Tübingen, Germany
- **2018.** Keynote lecture International Human Brain Project Conference, Barcelona, Spain
- **2017.** Keynote lecture at the Brain Prize Meeting, Copenhagen, Denmark
- **2017**. SfN Symposium on Neural Correlates of Consciousness: Progress and Problems. Washington, D.C., USA
- **2016.** CNP Colloquium Champalimaud Neuroscience Center, Lisbon, Portugal
- **2016.** FENS Symposium on Neural Oscillations, Copenhagen, Denmark

Publications:

Journal articles published in 2022

- Milham, M., Petkov, C., …Wilke, M., …Zuo, Z. Toward next-generation primate neuroscience: A collaboration-based strategic plan for integrative neuroimaging. *Neuron*. 2021. Jan 5;110(1):16-20. doi: 10.1016/j.neuron.2021.10.015. Epub 2021 Nov 2.
- Steinmann, I., Williams, K.A., Wilke, M., Antal, A. Detection of tACS aftereffects is improved by considering the individual electric field strength and self-rated sleepiness. Frontiers in Neuroscience. 2022. (in press)

Journal articles published in 2021

- Kagan, I., Gibson, L., Spanou, E., Wilke, M., Effective connectivity and spatial selectivity-dependent fMRI changes elicited by microstimulation of pulvinar and LIP. *NeuroImage* 2022. Oct 15;240:118283.
- Klink, P.C., Aubry, J.-F., Ferrera, …, V.P., Wilke, M., Kagan, I., Petkov, C.I., 2021. Combining brain perturbation and neuroimaging in non-human primates. *NeuroImage* 2021. 235, 118017. https://doi.org/10.1016/j.neuroimage.2021.118017
- Poland, E., Bhonsle, A., Steinmann, I., Wilke, M., Reduced alpha amplitudes predict perceptual suppression. *Scientific Reports*. 2021. 11, 13040. https://doi.org/10.1038/s41598-021-92404-8
- Hinze, K., Uslu, Ö., Antono, J.A., Wilke, M.*, Pooresmaeili, A.*. The effect of subliminal incentives on goal-directed eye movements. *Journal of Neurophysiology*. 2021. Nov 10. doi: 10.1152/jn.00414.2021.
- Kottlarz, I., Berg, S., Toscano-Tejeida, D., Steinmann, I., Bähr, M., Luther, S., Wilke, M., Parlitz, U., Schlemmer, A., 2020. Extracting Robust Biomarkers From Multichannel EEG Time Series Using Nonlinear Dimensionality Reduction Applied to Ordinal Pattern Statistics and Spectral Quantities. *Front. Physio*l. 11, 614565. https://doi.org/10.3389/fphys.2020.614565

Journal articles published between 2016-2020

- Miloserdov, K., Schmidt-Samoa, C., Williams, C., Weinrich, C.A., Kagan, I., Bürk, K. Trenkwalder, C., Bähr, M., Wilke, M. Aberrant functional connectivity of resting state

networks related to misperceptions and intra-individual variability in Parkinson‘s disease. *Neuroimage: Clinical*. 2020. Online first: https://doi.org/10.1016/j.nicl.2019.102076.

- Schneider, L., Dominguez-Vargas, A., Gibson, L., Kagan, I.*, Wilke, M.*. Eye position signals in the dorsal pulvinar during fixation and goal-directed saccades. *Journal of Neurophysiology*. 2020 Jan 1;123(1):367-391. doi: 10.1152/jn.00432.2019. Epub 2019 Nov 20.

- Cabral-Calderin, Y. & Wilke, M. Probing the link between perception and oscillations: Lessons from transcranial alternating current stimulation. *Neuroscientist*. 2020. Feb 7:1073858419828646.

- Poland, E., Donner, T., K. Müller, K.M, Leopold, D.A., Wilke, M. Thalamus exhibits less sensory variability quenching than cortex. 2019. *Scientific Reports. 9:7590. doi.org/10.1038/s41598-019-43934-9.*

- Paschke, K., Bähr, M, Wüstenberg, T.*, Wilke, M.* Trunk rotation and handedness modulate cortical activation in neglect-associated regions during temporal order judgments. *Neuroimage: Clinical*. 2019. 23:101898. doi: 10.1016/j.nicl.2019.101898.

- Wilke, M., Schneider, L., Dominguez-Vargas, A., Schmidt-Samoa, C., Miloserdov, K., Nazzal, A., Cabral-Calderin, Y., Dechent, Scherberger, H., Kagan, I., Bähr, M. Reach and grasp deficits following damage to the dorsal pulvinar. *Cortex*. 2018. 99:135-149.

- Moreira, C., Rollwage, M., Kaduk, K., Wilke, M., Kagan, I. Certainty bi-directionality and the efficient use of metacognition. *Cognition.* 2018. Mar 20;176:40-52.

- Storm, F., Boly, M., Casali, M., Massimini, M., Olcese, M., Pennartz, C.M.A., Wilke, M. Consciousness regained: disentangling mechanisms, brain systems, and behavioral responses. *Journal of Neuroscience*. 2017. 8;37(45):10882-10893.

- Dominguez-Vargas, A., Schneider, L., Wilke, M.*, Kagan, I*. Electrical Microstimulation of the Pulvinar Biases Saccade Choices and Reaction Times in a Time-Dependent Manner. *Journal of Neuroscience.* 2017. Feb 22;37(8):2234-2257.

- Wilke, M., Dechent, P., Bähr, M. Sarcoidosis manifestation centered on the thalamic pulvinar leading to persistent astasia. *Movement Disorders: Clinical Practice*. 2017. Nov-Dec ;4(6):898-900.
- Williams, K.A., Cabral-Calderin, Y., Schmidt-Samoa, C., Weinrich, C., Dechent, P., Wilke, M. Simultaneous transcranial alternating current stimulation and functional magnetic resonance imaging. J Vis Exp. 2017. Jun 5 (124).
- Cabral-Calderin, Y.*, Williams, K.*, Dechent, P., Opitz, A., Wilke, M. Transcranial alternating current stimulation modulates spontaneous low frequency fluctuations as measured with fMRI. 2016. *Neuroimage*. 2016 Jul 5. S1053-8119(16)30312-3.
- Cabral-Calderin, Y.*, Weinrich, C.*, Schmidt-Samoa, C., Poland, E., Dechent, P., Bähr, M., Wilke, M. Transcranial alternating current stimulation affects the BOLD signal in a frequency and task-dependent manner. *Human Brain Mapping*. 2016. Jan; 37(1):94-121.

Journal articles published between 2012-2015

- Tsuchiya, N., Wilke, M., Frässle, S., Lamme, V. No-report paradigms: Extracting the true neural correlates of consciousness. *Trends in Cognitive Sciences*. 2015. Dec;19(12):757-70.
- Cabral-Calderin, Y., Schmidt-Samoa, C., Wilke, M. Rhythmic gamma stimulation affects bistable perception. *Journal of Cognitive Neuroscience*. *2*015. 20:1-10.
- Paschke, K., Kagan, I., Wüstenberg, T., Bähr, M., Wilke, M. Trunk rotation affects temporal order judgments with direct saccades: influence of handedness. *Neuropsychologia*. 2015 Oct 27. pii: S0028-3932(15)30207-4.
- Hwang, E., Hauschild, M., Wilke, M., Andersen, R.A. Spatial and Temporal Eye-Hand Coordination Relies on the Parietal Reach Region. *Journal of Neuroscience.* 2014. 34:12884-92.
- Wilke, M., Kagan, I., Andersen, R.A. Effects of pulvinar inactivation on spatial decision making between equal and asymmetric reward options. *Journal of Cognitive Neuroscience*. 2013. 25(8), 1270-83.

- Helms, G., Garea-Rodriguez, E., Schlumbohm, C., König, J., Dechent, P., Fuchs, E., Wilke, M. Structural and quantitative neuroimaging of the common marmoset monkey using a clinical MRI system. *Journal of Neuroscience Methods*. 2013. 215(1):121-31.
- Boly, M., Seth, A., Wilke, M., Igmundson, P., Baars, D., Laureys, S., Edelman, D., Tsuchiya, N. Consciousness in humans and non-human animals: recent outstanding advances, and possible future directions. *Frontiers in Consciousness Research*. 2013. 4:625.
- Hwang, E.J., Hauschild, M., Wilke, M., Andersen, R.A. Inactivation of the parietal reach region causes optic ataxia, impairing reaches but not saccades. *Neuron*. 2012. 76(5):1021-9.
- Wilke, M.*, Kagan, I.*, Andersen R.A. Functional Imaging Reveals Rapid Reorganization of Cortical Activity after Parietal Inactivation in Monkeys. *PNAS*. 2012. 109:8274-9.

Journal articles published between 2002-2011

- Schmid, M.C., Mrowka, S., Turchi, J., Saunders, R., Wilke, M., Ye, F., Leopold, D.A. Blindsight functions depend on the lateral geniculate nucleus. *Nature*. 2010. 466(7304):373-7.
- Wilke, M., Turchi, J., Smith, K., Mishkin, M., Leopold, D.A. Pulvinar inactivation disrupts selection of movement plans. *Journal of Neuroscience*. 2010. 30:8650-9.
- Wilke, M, Mueller, K.M., Leopold, D.A. Visibility related modulation of neural responses in visual thalamic nuclei. *PNAS*. 2009. 106(23):9465-70.
- Mueller, K.M., Wilke, M., Leopold, D.A. Neural responses in monkey area V4 following visual shape adaptation. *Neuroscience.* 2009. 161(2):655-62.
- Cui, J., Wilke, M., Logothetis, N.K., Leopold, D.A, Liang, H. Visibility states modulate microsaccade rate and direction. *Vision Research*. 2009. 49(2):228-36.
- Maier, A., Wilke, M., Aura, C., Zhu, C., Ye, F.Q., Leopold, D.A. Divergence of electrical and fMRI signals in primary visual cortex during perceptual suppression. *Nature Neuroscience*. 2008. 11(10):1193-200.
- Wilke, M., Logothetis, N.K., Leopold, D.A. Local field potentials reflect perceptual suppression in monkey visual cortex. *PNAS*. 2006. 103(46):17507-12.
- Wilke, M., Logothetis, N.K., Leopold, D.A. Generalized flash suppression of salient visual targets. *Neuron*. 2003. 39(6):1043-52.

- Maier, A., Wilke, M., Logothetis, N.K., Leopold, D.A. Perception of temporally interleaved ambiguous patterns. *Current Biology*. 2003. 13(13):1076-85.
- Leopold, D.A., Wilke, M., Maier, A., Logothetis, N.K. Stable perception of visually ambiguous patterns. *Nature Neuroscience*. 2002. 5(6):605-9.

Comments/Book chapters

- Tsuchiya, N., Frässle, S., Wilke, M., Lamme, V. No-Report and Report-Based Paradigms Jointly Unravel the NCC: Response to Overgaard and Fazekas. *Trends in Cognitive Sciences*. 2016 Apr; 20(4):242-3.
- Wilke, M., Dechent, P., Schmidt-Samoa, C. Experimentelle Modelle für räumlichen Neglect (Studien in humanen und nicht-humanen Primaten). *Neuroforum*. 2012. 1:178-89.
- Leopold, D.A., Wilke, M., Neuroimaging: seeing the trees for the forest. *Current Biology* 2005. 15(18):766-8.
- Leopold, D.A., Maier, A., Wilke, M., Logothetis, N.K. Binocular rivalry and the illusion of monocular vision. Binocular rivalry and perceptual ambiguity. 2005. (Eds.) David Alais and Randoph Blake, MIT Press, Cambridge, MA.

Third Party Funding:

Research Grants obtained between 2016-2020

- **2021-2024.** Marie Skłodowska-Curie Innovative Training Networks: 2020-MSCA-ITN-2020. "In2PrimateBrain". Total sum network: 4,005, 134. Project Topic: Probing the link between perceptual visibility and brain oscillations in monkeys. Coordinator: B. Kilavik/P. Brochier (U D'Aix Marseille, France). Co-PI with Treue/Kagan (DPZ Göttingen), Project Fund: 250.000 Euro.
- **2020-2023. Leibniz Cooperative Excellence.** Topic: "Neurophysiological mechanisms of primate interactions in dynamic sensorimotor settings". Coordinator. Stefan Treue. Total Sum: 999.659. Co-PI as Project Fund: 132.500 Euro.
- **2020-2023**. **Volkswagen Stiftung.** Topic: Deep Movement Diagnostics. Co-PI. Total Sum: 1.194.900. Investigators: A. Gail (Coordinator), H. Scherberger, F. Wörgötter, M. Bähr. Co-PI: Wilke/Bähr: 288.200 Euro.

- **2020-2022. Seed fund from the Else-Kröner Fresenius Stiftung.** Total sum: 500.000 (Coordinators: Bähr/Hasenfuss): Co-PI: 150.00 Euro to establish autonomic challenge paradigms in primates.
- **2020-2022. Key project funding by the Else Kröner-Fresenius Foundation**. Topic: The brain waste-clearing system in humans – a MRI- and CSF-based evaluation. Total sum: 500.000 (Coordinator: M. Bähr): Co-PI with P. Dechent (150.000 Euro to establish imaging techniques).
- **2016-2022. European Cooperation in Science and Technology (COST Action).** Topic: The neural architecture of consciousness (Co-PI)* 130.000 Euro per annum for all members.
- **2017. DFG/ Niedersächsisches Ministerium für Wissenschaft und Kultur. Upgrade MRI-Scanner.** Coordinator/Co-PI. 1.392.15 Euro.

Previous:

- **2016-2017. Leibnitz Science Campus/Seed fund Primate Cognition.** VW-Stiftung. Topic: "Developing autonomous measures for visual consciousness and decision making". Principle Investigator: M. Wilke; Co-Investigators: A. Schacht, A. Pooresmaeili; 9.600 Euro for 18 months.
- **2016-2017. Leibnitz Science Campus/Seed fund Primate Cognition.** VW-Stiftung. Topic: “The effect of subliminal reward signals on sensory perception”. Leibniz-Science Campus. 9.600 Euro for 18 months. Co-PI with Dr. A. Pooresmaeili.
- 2**014-2017 DFG RU Primate Systems Neuroscience** (FOR 1847/KA 3726/2-1). The Physiology of Distributed Computing Underlying Higher Brain Functions in Non-Human Primates. Topic: "Bilateral decision networks for eye and arm movements". Principle Investigators: I. Kagan & M. Wilke, 319.500 Euro for 36 months.
- **2014-2017. ENC Network project** - cycle 4.
  Topic: "Towards a non-invasive approach to evaluate abnormal network oscillations in Parkinson's disease: combined tACS and fMRI studies"
  Principle Investigators: M. Wilke & M. Bähr, Co-Investigators: P. Achermann, H. Berendse, 290.000 Euro for 36 months.
  2013-2017 "Nanoscale Microscopy and Molecular Physiology of the Brain" (CNMPB) Pool-grant for the platform ‘Primate Models’ (D3).
  Main topic: "Combined deep brain stimulation and fMRI in non-human primates". 300.000 Euro (60.000 per year)

- **2012-2016. DFG Einzelantrag** (WI 406/1-1). Topic: "Neural basis of spatial neglect symptoms in thalamo-cortical circuits." Principle Investigators: M. Wilke, Co-Investigator: I. Kagan 276.985 Euro for 36 months.