

# Matthias Mittner

PROFESSOR OF COGNITIVE NEUROSCIENCE

University of Tromsø, Department of Psychology, 9037 Tromsø, Norway



born September 1, 1982 | +47 471 85 978 | matthias.mittner@uit.no | https://ihrke.github.io | ihrke | Matthias Mittner | Matthias Mittner | 0000-0003-0205-7353

I am a professor at the UiT - The arctic university of Norway in Tromsø and at the Norwegian University of Science and Technology in Trondheim. My main interests within the field of cognitive neuroscience are mind wandering, non-invasive brain stimulation, decision making, pupillometry and selective attention. I am also interested in the development of methodological approaches in my field and enjoy computational methods, cognitive modeling, machine-learning and Bayesian statistics.

## Education

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### Dr. phil.

University of Frankfurt, Germany

PSYCHOLOGY

21.12.2011

- Thesis: 'Binding and Retrieval of Stimulus-Response Episodes in the Negative Priming Paradigm'
- Grade: Summa cum laude

### B. Sc.

Institute of Computer Science, University of Göttingen, Germany

COMPUTER SCIENCE

2005/07 - 2008/04

- Thesis: 'Single Trial Estimation and Timewarped Averaging of Event-Related Potentials'

### Diploma

Department of Psychology, University of Göttingen, Germany

PSYCHOLOGY

2005/07 - 2007/11

- Thesis: 'Negative Priming and Response-Relation: Behavioural and Electroencephalographic Correlates'

### Student at the University of Oslo

Oslo, Norway

PSYCHOLOGY AND COMPUTER SCIENCE

2004/08 - 2005/06

- Erasmus-Scholarship; studies of computer science and psychology

### B. Sc. (equivalent)

Department of Psychology, University of Göttingen, Germany

PSYCHOLOGY

2002/09 - 2004/07

- Thesis: 'An Adaptive Approach to Memory-Span Tasks'

### High-School Diploma

Alexander von Humboldt Gymnasium, Eberswalde, Germany

MAIN SUBJECTS PHYSICS AND MATHEMATICS

2002/06

## Employments

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### Professor II

Trondheim, Norway

QUANTITATIVE METHODS

2021/03 - present

- Department of Psychology, Norwegian University of Science and Technology, Trondheim

### Professor

Tromsø, Norway

COGNITIVE NEUROSCIENCE

2020/09 - present

- Institute of Psychology, University of Tromsø, Tromsø

### Associate Professor

Tromsø, Norway

COGNITIVE NEUROSCIENCE

2014/04 - 2020/09

- Institute of Psychology, University of Tromsø, Tromsø

### Post-Doctoral Researcher

Amsterdam, The Netherlands

COGNITIVE NEUROSCIENCE

2013/04 - 03/2014

- Cognitive Science Center Amsterdam, Universiteit van Amsterdam

- Supervisor: Prof. Birte Forstmann

### Post-Doctoral Researcher

Göttingen, Germany

THEORETICAL NEUROSCIENCE

2012/09 - 2013/03

- Max-Planck Institute for Experimental Medicine, Göttingen
- Supervisor: Prof. Robert Gütig

## PhD-Student

Göttingen, Germany

### COMPUTATIONAL NEUROSCIENCE

2008/10 - 2012/01

- Max-Planck Institute for Dynamics and Self-Organization, Göttingen
- Göttingen Graduate School for Neurosciences and Molecular Biosciences (GGNB)
- Doctoral Program: Theoretical and Computational Neuroscience (PTCN)
- Supervisor: Prof. Marcus Hasselhorn

## Guest Researcher

Göttingen, Germany

### COMPUTATIONAL NEUROSCIENCE

2008/03 - 2008/09

- Max-Planck Institute for Dynamics and Self-Organization, Göttingen
- Project: cognitive modelling and data-mining (EEG)

## Guest Researcher

Saarbrücken, Germany

### COMPUTER GRAPHICS

2007/11 - 2008/02

- Max-Planck Institute for Informatics, Saarbrücken
- Project: optical modelling and psychophysics

## Research Assistant

Göttingen, Germany

### COMPUTATIONAL NEUROSCIENCE

2005/09 - 2007/10

- Bernstein Center for Computational Neuroscience, Göttingen
- Project: cognitive modelling; psychophysical experiments

## Student Assistant

Göttingen, Germany

### PSYCHOLOGY

2003/09 - 2004/08

- Department for Developmental Psychology, University of Göttingen
- Duties: computer administration and development of experimental software

## Publications

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### Books

(76) Mehmetoglu, M. & Mittner, M. (2021). *Applied Statistics Using R*. SAGE. <https://tinyurl.com/svddmm>

(75) Mehmetoglu, M. & Mittner, M. (2020). *Innføring i R for statistiske dataanalyser*. Universitetsforlaget. <https://tinyurl.com/wx4xbfp>

### Preprints

(74) Aasen, S. R., Babiker, S. M. E., Vangen, A. M. K., Haugan, S. B., Sandell, S. A. O., Saksvik-Lehouillier, I., Kam, J., Mittner, M., & Csifcsák, G. (2025). The Effects of Partial Sleep Deprivation on Mind Wandering, Executive Performance and Affect. *Preprint*. [https://osf.io/kmqfz\\_v3/](https://osf.io/kmqfz_v3/) (submitted)

### Journal articles

(73) Csifcsák, G. & Mittner, M. (2026). Reward Processing under Illusion of Control: The Sensitivity of the Feedback-Related Negativity to Prediction Errors Is Not Altered When Random Outcomes Are Perceived as the Consequence of One's Own Actions. *International Journal of Psychophysiology*, 219, 113300. <https://doi.org/10.1016/j.ijpsycho.2025.113300>

(72) Alexandersen, A., Aasen, S. R., Csifcsák, G., & Mittner, M. (2025). Evidence for the Efficacy of Theta-Burst Stimulation above the Angular Gyrus for Reducing Mind Wandering Propensity: A Successful Pre-Registered Study. *Cortex*. <https://doi.org/10.1016/j.cortex.2025.07.006>

(71) Alexandersen, A., Dahlberg, K., Csifcsák, G., & Mittner, M. (2025). Unravelling the Threads of Thought: Probing the Impact of Contextual Factors on Mind Wandering. *Consciousness and Cognition*, 131, 103870. <https://doi.org/10.1016/j.concog.2025.103870>

(70) Babiker, S., Luzzi, F., Mittner, M., & Csifcsák, G. (2025). The Interplay Between Experimental Heat Pain and Noninvasive Stimulation of the Medial Prefrontal Cortex on Reinforcement Learning With Manipulated Outcome Contingencies. *European Journal of Neuroscience*, 61(7), e70089. <https://doi.org/10.1111/ejn.70089>

(69) Drevland, R. N., Aasen, S. R., Csifcsák, G., & Mittner, M. (2025). Reducing Mind Wandering Using Continuous Theta Burst Stimulation. *Transcranial Magnetic Stimulation*, 100181. <https://doi.org/10.1016/j.transm.2025.100181>

(68) Mehmetoglu, M., Määttänen, I., & Mittner, M. (2025). The Link Between Mate Value Discrepancy and Relationship Satisfaction—An Empirical Examination Using Response Surface Analysis. *Behavioral Sciences*. <https://doi.org/10.3390/bs15081131>

(67) Mittner, M. & Groot, J. M. (2025). A Novel Method for Modeling Tonic and Phasic Pupil Dynamics in Humans. *Behavior Research Methods*, 57(9), 233. <https://doi.org/10.3758/s13428-025-02755-7>

- (66) Schultheiss, D. L., Turi, Z., Marmavula, S., Reinacher, P. C., Demerath, T., Straehle, J., Boedecker, J., *Mittner, M.*, & Vlachos, A. (2025). Efficient Prospective Electric Field-Informed Localization of Motor Cortical Targets of Transcranial Magnetic Stimulation. *Imaging Neuroscience*. <https://doi.org/10.1162/IMAG.a.1056>
- (65) Vékony, T., Farkas, B. C., Brezóczki, B., *Mittner, M.*, Csifcsák, G., Simor, P., & Németh, D. (2025). Mind Wandering Enhances Statistical Learning. *iScience*, 28(2). <https://doi.org/10.1016/j.isci.2024.111703>
- (64) Aasen, S. R., Drevland, R. N., Csifcsák, G., & *Mittner, M.* (2024). Increasing Mind Wandering with Accelerated Intermittent Theta Burst Stimulation over the Left Dorsolateral Prefrontal Cortex. *Neuropsychologia*, 204, 109008. <https://doi.org/10.1016/j.neuropsychologia.2024.109008>
- (63) Groot, J. M., Miletic, S., Isherwood, S. J., Tse, D. H. Y., Habli, S., Håberg, A. K., Bazin, P., *Mittner, M.*, & Forstmann, B. U. (2024). A High-Resolution 7 Tesla Resting-State fMRI Dataset Optimized for Studying the Subcortex. *Data in Brief*.
- (62) Mehmetoglu, M., Määttänen, I., & *Mittner, M.* (2024). Testing Sexual Strategy Theory in Norway. *Behavioral Sciences*, 14(6), 438. <https://doi.org/10.3390/bs14060438>
- (61) Sluppaug, K. S., Mehmetoglu, M., & *Mittner, M.* (2024). Modsem: An R Package for Estimating Latent Interactions and Quadratic Effects. *Structural Equation Modeling: A Multidisciplinary Journal*, 0(0), 1-13. <https://doi.org/10.1080/10705511.2024.2417409>
- (60) Groot, J. M., Miletic, S., Isherwood, S. J., Tse, D. H., Habli, S., Håberg, A. K., Forstmann, B. U., Bazin, P., & *Mittner, M.* (2023). Echoes from Intrinsic Connectivity Networks in the Subcortex. *Journal of Neuroscience*. <https://doi.org/10.1523/JNEUROSCI.1020-23.2023>
- (59) Kreis, I., Zhang, L., *Mittner, M.*, Syla, L., Lamm, C., & Pfuhl, G. (2023). Aberrant Uncertainty Processing Is Linked to Psychotic-like Experiences, Autistic Traits, and Is Reflected in Pupil Dilation during Probabilistic Learning. *Cognitive, Affective, & Behavioral Neuroscience*. <https://doi.org/10.3758/s13415-023-01088-2>
- (58) Nawani, H., *Mittner, M.*, & Csifcsák, G. (2023). Modulation of Mind Wandering Using Transcranial Direct Current Stimulation: A Meta-Analysis Based on Electric Field Modeling. *NeuroImage*, 120051. <https://doi.org/10.1016/j.neuroimage.2023.120051>
- (57) Ørbo, M. C., Grønli, O. K., Larsen, C., Vangberg, T. R., Friberg, O., Turi, Z., *Mittner, M.*, Csifcsák, G., & Aslaksen, P. M. (2023). The Antidepressant Effect of Intermittent Theta Burst Stimulation (iTBS): Study Protocol for a Randomized Double-Blind Sham-Controlled Trial. *Trials*, 24(1), 627. <https://doi.org/10.1186/s13063-023-07674-6>
- (56) Rasmussen, I. D., *Mittner, M.*, Boayue, N. M., Csifcsák, G., & Aslaksen, P. M. (2023). Tracking the Current in the Alzheimer's Brain - Systematic Differences between Patients and Healthy Controls in the Electric Field Induced by tDCS. *NeuroImage: Reports*, 3(2), 100172. <https://doi.org/10.1016/j.ynirp.2023.100172>
- (55) Sedlinska, T., Bolte, L., Melsæter, E., *Mittner, M.*, & Csifcsák, G. (2023). Transcranial Direct-Current Stimulation Enhances Pavlovian Tendencies during Intermittent Loss of Control. *Frontiers in Psychiatry*, 14. <https://doi.org/10.3389/fpsyg.2023.1164208>
- (54) Alexandersen, A., Csifcsák, G., Groot, J., & *Mittner, M.* (2022). The Effect of Transcranial Direct Current Stimulation on the Interplay between Executive Control, Behavioral Variability and Mind Wandering: A Registered Report. *NeuroImage: Reports*, 2(3), 100109. <https://doi.org/10.1016/j.ynirp.2022.100109>
- (53) Groot, J. M., Csifcsák, G., Wientjes, S., Forstmann, B. U., & *Mittner, M.* (2022). Catching Wandering Minds with Tapping Fingers: Neural and Behavioral Insights into Task-unrelated Cognition. *Cerebral Cortex*, bhab494. <https://doi.org/10.1093/cercor/bhab494>
- (52) Hawkins, G. E., *Mittner, M.*, Forstmann, B. U., & Heathcote, A. (2022). Self-Reported Mind Wandering Reflects Executive Control and Selective Attention. *Psychonomic Bulletin & Review*. <https://doi.org/10.3758/s13423-022-02110-3>
- (51) Kam, J. W. Y., *Mittner, M.*, & Knight, R. T. (2022). Mind-Wandering: Mechanistic Insights from Lesion, tDCS, and iEEG. *Trends in Cognitive Sciences*, 0(0). <https://doi.org/10.1016/j.tics.2021.12.005>
- (50) Csifcsák, G., Bjørkøy, J., Kuyateh, S., Reithe, H., & *Mittner, M.* (2021). Transcranial Direct Current Stimulation above the Medial Prefrontal Cortex Facilitates Decision-Making Following Periods of Low Outcome Controllability. *eNeuro*. <https://doi.org/10.1523/ENEURO.0041-21.2021>
- (49) Groot, J. M., Boayue, N. M., Csifcsák, G., Boekel, W., Huster, R., Forstmann, B. U., & *Mittner, M.* (2021). Probing the Neural Signature of Mind Wandering with Simultaneous fMRI-EEG and Pupillometry. *NeuroImage*, 224, 117412. <https://doi.org/10.1016/j.neuroimage.2020.117412>
- (48) Kreis, I., Biegler, R., Tjelmland, H., *Mittner, M.*, Reitan, S. K., & Pfuhl, G. (2021). Overestimation of Volatility in Schizophrenia and Autism? A Comparative Study Using a Probabilistic Reasoning Task. *PLOS ONE*, 16(1), e0244975. <https://doi.org/10.1371/journal.pone.0244975>
- (47) Rasmussen, I. D., Boayue, N. M., *Mittner, M.*, Bystad, M., Grønli, O. K., Vangberg, T. R., Csifcsák, G., & Aslaksen, P. M. (2021). High-Definition Transcranial Direct Current Stimulation Improves Delayed Memory in Alzheimer's Disease Patients: A Pilot Study Using Computational Modeling to Optimize Electrode Position. *Journal of Alzheimer's Disease*, 83(2). <https://doi.org/10.3233/JAD-210378>

- (46) Turi, Z., Lenz, M., Paulus, W., Mittner, M., & Vlachos, A. (2021). Selecting Stimulation Intensity in Repetitive Transcranial Magnetic Stimulation Studies: A Systematic Review between 1991 and 2020. *European Journal of Neuroscience*, n/a(n/a). <https://doi.org/10.1111/ejn.15195>
- (45) Zmeykina, E., Mittner, M., Paulus, W., & Turi, Z. (2021). Short-Lived Alpha Power Suppression Induced by Low-intensity Arrhythmic rTMS. *Neuroscience*, 466, 1-9. <https://doi.org/10.1016/j.neuroscience.2021.04.027>
- (44) Boayue, N. M., Csifcsák, G., Kreis, I. V., Schmidt, C., Finn, I., Vollsund, A. E. H., & Mittner, M. (2020). The Interplay between Executive Control, Behavioral Variability and Mind Wandering: Insights from a High-Definition Transcranial Direct-Current Stimulation Study. *European Journal of Neuroscience*, n/a(n/a). <https://doi.org/10.1111/ejn.15049>
- (43) Mittner, M. (2020). Pupilometry: A Python Package for Pupillometric Analyses. *Journal of Open Source Software*, 5(51), 2348. <https://doi.org/10.21105/joss.02348>
- (42) Turi, Z., Mittner, M., Lehr, A., Bürger, H., Antal, A., & Paulus, W. (2020). Theta-Gamma Cross-Frequency Transcranial Alternating Current Stimulation over the Trough Impairs Cognitive Control. *eNeuro*. <https://doi.org/10.1523/ENEURO.0126-20.2020>
- (41) Zmeykina, E., Mittner, M., Paulus, W., & Turi, Z. (2020). Weak rTMS-induced Electric Fields Produce Neural Entrainment in Humans. *Scientific Reports*, 10(1), 11994. <https://doi.org/10.1038/s41598-020-68687-8>
- (40) Boayue, N. M., Csifcsák, G., Aslaksen, P., Turi, Z., Antal, A., Groot, J., Hawkins, G. E., Forstmann, B., Opitz, A., Thielscher, A., & Mittner, M. (2019). Increasing Propensity to Mind-Wander by Transcranial Direct Current Stimulation? A Registered Report. *The European Journal of Neuroscience*. <https://doi.org/10.1111/ejn.14347>
- (39) Csifcsák, G., Boayue, N. M., Aslaksen, P. M., Turi, Z., Antal, A., Groot, J., Hawkins, G. E., Forstmann, B. U., Opitz, A., Thielscher, A., & Mittner, M. (2019). Commentary: “Transcranial Stimulation of the Frontal Lobes Increases Propensity of Mind-Wandering without Changing Meta-Awareness”. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.00130>
- (38) Csifcsák, G., Melsæter, E., & Mittner, M. (2019). Intermittent Absence of Control during Reinforcement Learning Interferes with Pavlovian Bias in Action Selection. *Journal of Cognitive Neuroscience*, 1-18. [https://doi.org/10.1162/jocn\\_a\\_01515](https://doi.org/10.1162/jocn_a_01515)
- (37) Hawkins, G. E., Mittner, M., Forstmann, B. U., & Heathcote, A. (2019). Modeling Distracted Performance. *Cognitive Psychology*, 112, 48-80. <https://doi.org/10.1016/j.cogpsych.2019.05.002>
- (36) Hetland, A., Kjelstrup, E., Mittner, M., & Vittersø, J. (2019). The Thrill of Speedy Descents: A Pilot Study on Differences in Facially Expressed Online Emotions and Retrospective Measures of Emotions During a Downhill Mountain-Bike Descent. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.00566>
- (35) Turi, Z., Csifcsák, G., Boayue, N. M., Aslaksen, P., Antal, A., Paulus, W., Groot, J., Hawkins, G. E., Forstmann, B., Opitz, A., Thielscher, A., & Mittner, M. (2019). Blinding Is Compromised for Transcranial Direct Current Stimulation at 1 mA for 20 Min in Young Healthy Adults. *European Journal of Neuroscience*, 0(0). <https://doi.org/10.1111/ejn.14403>
- (34) Boayue, N. M., Csifcsák, G., Puonti, O., Thielscher, A., & Mittner, M. (2018). Head Models of Healthy and Depressed Adults for Simulating the Electric Fields of Non-Invasive Electric Brain Stimulation. *F1000Research*, 7, 704. <https://doi.org/10.12688/f1000research.15125.2>
- (33) Csifcsák, G., Boayue, N. M., Puonti, O., Thielscher, A., & Mittner, M. (2018). Effects of Transcranial Direct Current Stimulation for Treating Depression: A Modeling Study. *Journal of Affective Disorders*, 234, 164-173. <https://doi.org/10.1016/j.jad.2018.02.077>
- (32) Hetland, A., Vittersø, J., Oscar Bø Wie, S., Kjelstrup, E., Mittner, M., & Dahl, T. I. (2018). Skiing and Thinking About It: Moment-to-Moment and Retrospective Analysis of Emotions in an Extreme Sport. *Frontiers in Psychology*, 9(971). <https://doi.org/10.3389/fpsyg.2018.00971>
- (31) Turi, Z., Schäfer, S. A., Antal, A., Paulus, W., & Mittner, M. (2018). Data from ‘Placebo Enhances Reward Learning in Healthy Individuals’. *Journal of Open Psychology Data*, 6(1), 2. <https://doi.org/10.5334/jopd.34>
- (30) Turi, Z., Bjørkedal, E., Gunkel, L., Antal, A., Paulus, W., & Mittner, M. (2018). Evidence for Cognitive Placebo and Nocebo Effects in Healthy Individuals. *Scientific Reports*, 8(1), 17443. <https://doi.org/10.1038/s41598-018-35124-w>
- (29) Csifcsák, G. & Mittner, M. (2017). Linking Brain Networks and Behavioral Variability to Different Types of Mind-Wandering. *Proceedings of the National Academy of Sciences of the United States of America*, 114(30). <https://doi.org/10.1073/pnas.1705108114>
- (28) Hawkins, G. E., Mittner, M., Forstmann, B. U., & Heathcote, A. (2017). On the Efficiency of Neurally-Informed Cognitive Models to Identify Latent Cognitive States. *Journal of Mathematical Psychology*, 76, 142-155. <https://doi.org/10.1016/j.jmp.2016.06.007>
- (27) Turi, Z., Mittner, M., Paulus, W., & Antal, A. (2017). Placebo Intervention Enhances Reward Learning in Healthy Individuals. *Scientific Reports*, 7, 41028. <https://doi.org/10.1038/srep41028>
- (26) Mittner, M., Hawkins, G. E., Boekel, W., & Forstmann, B. U. (2016). A Neural Model of Mind Wandering. *Trends in Cognitive Sciences*, 20(8), 570-578. <https://doi.org/10.1016/j.tics.2016.06.004>
- (25) Rodríguez-Aranda, C., Mittner, M., & Vasylenko, O. (2016). Association Between Executive Functions, Working Memory, and Manual Dexterity in Young and Healthy Older Adults: An Exploratory Study. *Perceptual and Motor Skills*, 122(1), 165-192. <https://doi.org/10.1177/0031512516628370>

- (24) Hawkins, G. E., Mittner, M., Boekel, W., Heathcote, A., & Forstmann, B. U. (2015). Toward a Model-Based Cognitive Neuroscience of Mind Wandering. *Neuroscience*, 310, 290-305. <https://doi.org/10.1016/j.neuroscience.2015.09.053>
- (23) Høifødt, R. S., Mittner, M., Lillevoll, K., Katla, S. K., Kolstrup, N., Eisemann, M., Friberg, O., & Waterloo, K. (2015). Predictors of Response to Web-Based Cognitive Behavioral Therapy With High-Intensity Face-to-Face Therapist Guidance for Depression: A Bayesian Analysis. *Journal of Medical Internet Research*, 17(9), e197. <https://doi.org/10.2196/jmir.4351>
- (22) Turi, Z., Mittner, M., Opitz, A., Popkes, M., Paulus, W., & Antal, A. (2015). Transcranial Direct Current Stimulation over the Left Prefrontal Cortex Increases Randomness of Choice in Instrumental Learning. *Cortex*, 63, 145-154. <https://doi.org/10.1016/j.cortex.2014.08.026>
- (21) Mittner, M., Behrendt, J., Menge, U., Titz, C., & Hasselhorn, M. (2014). Response-Retrieval in Identity Negative Priming Is Modulated by Temporal Discriminability. *Frontiers in Psychology*, 5, 621. <https://doi.org/10.3389/fpsyg.2014.00621>
- (20) Mittner, M., Boekel, W., Tucker, A. M., Turner, B. M., Heathcote, A., & Forstmann, B. U. (2014). When the Brain Takes a Break: A Model-Based Analysis of Mind Wandering. *Journal of Neuroscience*, 34(49), 16286-16295. <https://doi.org/10.1523/JNEUROSCI.2062-14.2014>
- (19) Ihrke, M., Behrendt, J., Schrobsdorff, H., Visser, I., & Hasselhorn, M. (2013). Negative Priming Persists in the Absence of Response-Retrieval. *Experimental Psychology*, 60(1), 12-21. <https://doi.org/10.1027/1618-3169/a000169>
- (18) Mittner, M. (2013). Functional Integration of Large-Scale Brain Networks. *Journal of Neuroscience*, 33(48), 18710-18711. <https://doi.org/10.1523/JNEUROSCI.4084-13.2013>
- (17) Schrobsdorff, H., Ihrke, M., Behrendt, J., Herrmann, J. M., & Hasselhorn, M. (2012). Identity Negative Priming: A Phenomenon of Perception, Recognition or Selection?. *PLoS One*, 7(3), e32946. <https://doi.org/10.1371/journal.pone.0032946>
- (16) Schrobsdorff, H., Ihrke, M., Behrendt, J., Hasselhorn, M., & Herrmann, J. M. (2012). Inhibition in the Dynamics of Selective Attention: An Integrative Model for Negative Priming. *Frontiers in Psychology*, 3, 491. <https://doi.org/10.3389/fpsyg.2012.00491>
- (15) Ihrke, M. & Behrendt, J. (2011). Automatic Generation of Randomized Trial Sequences for Priming Experiments. *Frontiers in Psychology*, 2, 225. <https://doi.org/10.3389/fpsyg.2011.00225>
- (14) Ihrke, M., Schrobsdorff, H., & Herrmann, J. M. (2011). Recurrence-Based Estimation of Time-Distortion Functions for ERP Waveform Reconstruction. *International Journal of Neural Systems*, 21(1), 65-78. <https://doi.org/10.1142/S0129065711002651>
- (13) Ihrke, M., Behrendt, J., Schrobsdorff, H., Michael Herrmann, J., & Hasselhorn, M. (2011). Response-Retrieval and Negative Priming: Encoding- and Retrieval-Specific Effects.. *Experimental Psychology*, 58(2), 154-161. <https://doi.org/10.1027/1618-3169/a000081>
- (12) Ihrke, M. & Brennen, T. (2011). Sharing One Biographical Detail Elicits Priming between Famous Names: Empirical and Computational Approaches. *Frontiers in Psychology*, 2(75). <https://doi.org/10.3389/fpsyg.2011.00075>
- (11) Behrendt, J., Gibbons, H., Schrobsdorff, H., Ihrke, M., Herrmann, J. M., & Hasselhorn, M. (2010). Event-Related Brain Potential Correlates of Identity Negative Priming from Overlapping Pictures. *Psychophysiology*, 47(5), 921-930. <https://doi.org/10.1111/j.1469-8986.2010.00989.x>
- (10) Ritschel, T., Ihrke, M., Frisvad, J. R., Coppens, J., Myszkowski, K., & Seidel, H. (2009). Temporal Glare: Real-Time Dynamic Simulation of the Scattering in the Human Eye. *Computer Graphics Forum*, 28(2), 183-192. <https://doi.org/10.1111/j.1467-8659.2009.01357.x>
- (9) Ritschel, T., Smith, K., Ihrke, M., Grosch, T., Myszkowski, K., & Seidel, H. (2008). 3D Unsharp Masking for Scene Coherent Enhancement. *ACM Transactions on Graphics*, 27(3), 90:1-90:8. <https://doi.org/10.1145/1399504.1360689>
- (8) Schrobsdorff, H., Ihrke, M., Kabisch, B., Behrendt, J., Hasselhorn, M., & Herrmann, J. M. (2007). A Computational Approach to Negative Priming. *Connection Science*, 19(3), 203-221. <https://doi.org/10.1080/09540090701507823>

## Book chapters

- (7) Csifcsák, G., Forstmann, B., & Mittner, M. (2021). Transcranial stimulation and decision-making. In Wassermann, E. M., Peterchev, A. V., Zieman, U., Lisanby, S. H., Siebner, H. R., & Walsh, V. (Ed.), *The Oxford Handbook of Transcranial Stimulation*. <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780198832256.001.0001/oxfordhb-9780198832256>
- (6) Ihrke, M., Schrobsdorff, H., & Herrmann, J. M. (2009). Denoising and Averaging Techniques for Electrophysiological Data. In Velazquez, J. L. P. & Wennberg, R. (Ed.), *Coordinated Activity in the Brain: Measurements and Relevance to Brain Function and Behavior* (pp. 165-189). Springer New York. [https://doi.org/10.1007/978-0-387-93797-7\\_9](https://doi.org/10.1007/978-0-387-93797-7_9)

## Conference proceedings

- (5) Schrobsdorff, H., Ihrke, M., & Herrmann, J. M. (2013). Modeling Structure and Dynamics of Selective Attention. In *Biologically Inspired Cognitive Architectures 2012* (pp. 287-295). [https://doi.org/10.1007/978-3-642-34274-5\\_50](https://doi.org/10.1007/978-3-642-34274-5_50)
- (4) Ihrke, M., Ritschel, T., Smith, K., Grosch, T., Myszkowski, K., & Seidel, H. (2009). A perceptual evaluation of 3D unsharp masking. In *Human Vision and Electronic Imaging XIV* (pp. 72400R). <https://doi.org/10.1117/12.809026>
- (3) Ihrke, M., Schrobsdorff, H., & Herrmann, J. M. (2009). Recurrence-Based Synchronization of Single Trials for EEG-Data Analysis. In *Intelligent Data Engineering and Automated Learning - IDEAL 2009* (pp. 118-125). [https://doi.org/10.1007/978-3-642-04394-9\\_15](https://doi.org/10.1007/978-3-642-04394-9_15)

- (2) Ihrke, M., Schrobsdorff, H., & Herrmann, J. M. (2008). Compensation for Speed-of-Processing Effects in EEG-Data Analysis. In *Intelligent Data Engineering and Automated Learning – IDEAL 2008* (pp. 354-361). [https://doi.org/10.1007/978-3-540-88906-9\\_45](https://doi.org/10.1007/978-3-540-88906-9_45)
- (1) Yoshida, A., Ihrke, M., Mantiuk, R., & Seidel, H. (2008). Brightness of the Glare Illusion. In *Proceedings of the 5th Symposium on Applied Perception in Graphics and Visualization* (pp. 83-90). <https://doi.org/10.1145/1394281.1394297>

## Grants and Scholarships

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### Research Grants

UiT Talent Infrastructure (4.6 million NOK, ≈ 420,000 EUR)	2025
<ul style="list-style-type: none"> <li>COCAMAP: Cognitive causal mapping: Stimulation-based brain-mapping of cognitive functions</li> <li>acquisition of a robotic system for cognitive causal mapping</li> </ul>	
MSCA-PF (host) (2.4 million NOK, ≈ 210,000 EUR)	2024/25 - 2026/27
<ul style="list-style-type: none"> <li>Controlling the flow of attention: Transition dynamics of attention and distraction across external and internal domains (MIND-FLOW)</li> <li>2 year post-doc project</li> </ul>	
UiT High Score/UiT Talent (3 million NOK, ≈ 350,000 EUR)	2024 - 2027
<ul style="list-style-type: none"> <li>Neural mechanisms of off-focus cognition</li> <li>3 year full-time post-doc project</li> </ul>	
HelseNord project PFP1237_15 (3 million NOK (≈ 350,000 EUR))	2015 - 2018
<ul style="list-style-type: none"> <li>Optimizing transcranial direct current stimulation for treatment of chronic pain and depression</li> <li>3 year full-time post-doc project</li> </ul>	
PhD candidate from Health faculty, UiT	2016 - 2020
<ul style="list-style-type: none"> <li>Neural and computational correlates of mind wandering</li> <li>4 year PhD project</li> </ul>	

### Personal Scholarships and Awards

Incentive grant (200k NOK, ≈ 18,000 EUR)	2017
<ul style="list-style-type: none"> <li>Grant awarded by the Faculty of Health for excellent grades in external applications</li> </ul>	
Incentive grant (200k NOK, ≈ 18,000 EUR)	2016
<ul style="list-style-type: none"> <li>Grant awarded by the Faculty of Health for excellent grades in external applications</li> </ul>	
Research Prize	2015
<ul style="list-style-type: none"> <li>Research prize from the Institute for Psychology</li> </ul>	
GGNB Fellowship	2009/05 - 2012/01
<ul style="list-style-type: none"> <li>Full-time PhD Scholarship offered by Göttingen Graduate School for Neurosciences and Molecular Biosciences (GGNB)</li> </ul>	
GGNB Bridging Fund Scholarship	2008/10 - 2008/12
<ul style="list-style-type: none"> <li>Scholarship offered by Göttingen Graduate School for Neurosciences and Molecular Biosciences (GGNB)</li> </ul>	
DFG Scholarship	2009/01 - 2009/04
<ul style="list-style-type: none"> <li>Full-time Scholarship “Passungsverhältnisse schulischen Lernens: Verstehen und Optimieren”</li> </ul>	
Erasmus Scholarship	2004/07 - 2005/08
<ul style="list-style-type: none"> <li>Scholarship for studies abroad</li> </ul>	

## Presentations

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### Invited Presentations

Cognitive Neuroscience Meeting (CNS)	Boston, US
SELECTED INVITED PRESENTATIONS	2025
Seminar series Max-Planck Institute for Human Development	Berlin, Germany
INVITED SEMINAR	2025
IMBIT seminar series, University of Freiburg	Freiburg, Germany
INVITED SEMINAR	2025
Institute du Cerveau	Paris, France

INVITED WORKSHOP LECTURER		2024
Network Modeling for Transcranial Magnetic Stimulation (NEMO-TMS)	Freiburg, Germany	
INVITED PRESENTATION		2023
University of Oslo	Oslo, Norway	
INVITED SYMPOSIUM		2023
International Conference on Cognitive Neuroscience (ICON)	Helsinki, Finland	
INVITED PRESENTATION		2022
Laboratoire de Sciences Cognitives et Psycholinguistique, École Normale Supérieure	Paris, France	
INVITED PRESENTATION		2022
Organization for Human Brain Mapping (OHBM)	Online	
INVITED PRESENTATION		2021
NRSN National Neuroscience Symposium	Norway	
INVITED PRESENTATION		2021
fMRI 20-year Anniversary Seminar, University of Trondheim	Trondheim, Norway	
INVITED PRESENTATION		2019
The Role of Neural Oscillations in Human Cognition (Summer School)	Uslar, Germany	
INVITED PRESENTATION		2017
Mind-Wandering Symposium, University of Amsterdam	Amsterdam, The Netherlands	
INVITED PRESENTATION		2016
International Conference on Cognitive Neuroscience (ICON)	Brisbane, Australia	
INVITED PRESENTATION		2014

## Supervision

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### Post-doctoral researchers

Sam Verschooren	“Controlling the flow of attention: Transition dynamics of attention and distraction across external and internal domains”	2025
Josephine Groot	“Neural mechanisms of off-focus cognition”	2024
Hema Nawani	“ADHD and mind-wandering” (co-supervisor, main supervisor: Gábor Csifcsák)	2020-2023
Gábor Csifcsák	“Optimizing transcranial direct current stimulation for treatment of chronic pain and depression”	2016-2019

### PhD students

Steffen Rygg Aasen	“Executive functions and mind wandering” (co-supervisor, main supervisor: Gábor Csifcsák)	2024
Andreas Alexandersen	“Unraveling the cognitive and neural mechanisms of mind wandering using transcranial electric stimulation”	2023
Maren Angel Christensen	“Structural differences in brain structure after trauma: An analysis based on the HUNT study and the Tromsø Study”	2022
Malin Gullsvåg	“The relation between respiratory mechanisms and cognitive abilities in adolescence and adulthood” (co-supervisor, main supervisor: Claudia Rodríguez-Aranda)	2020
Josephine Groot	“Neural mechanisms of off-focus cognition”	2018-2023
Nya Mehnwole Boayue	“Neural and computational correlates of mind wandering”	2016-2020
Isabel Viola Kreis	“Too precise or too imprecise: which parameter is gone awry in autism and psychosis” (co-supervisor, main supervisor: Gerit Pfuhl)	2017-2021
Zsolt Turi	“Methodological and cognitive aspects of transcranial electrical stimulation” (co-supervisor, main supervisor: Andrea Antal)	2011-2015
Wouter Boekel	“When the brain takes a break: Neural correlates of mind-wandering” (co-supervisor, main supervisor: Birte Forstmann)	2013-2017

### Research Line students (forskerlinje)

Almina Selimovic	“Through the lens of attention: Factors that systematically modulate pupil dilation” (co-supervisor, main supervisor: Josephine Groot)	2025
Mathilde Aursand	“Being with the body: The impact of meditation on interoceptive attention” (co-supervisor, main supervisor: Sam Verschooren)	2025

Ragnhild Drevland	“The effect of cTBS over the left AG on mind wandering” <a href="https://osf.io/vjsm7">https://osf.io/vjsm7</a>	2021-2024
Steffen Rygg Aasen	“The effect of iTBS over the left DLPFC on mind wandering” <a href="https://osf.io/txpu2">https://osf.io/txpu2</a>	2021-2024
Samy Babiker	“Modulating loss of control using rTMS during chronic pain” (co-supervisor, main supervisor: Gábor Csifcsák) <a href="https://osf.io/r74uk">https://osf.io/r74uk</a>	2021-2024
Andreas Alexandersen	“Investigating the relationship between executive control and mind-wandering using transcranial direct current stimulation”	2020-2022
<b>Master students</b>		
Tim Cools	“Does mind wandering modulate the relationship between gaze and stimulus value?” <a href="https://osf.io/ca95r">https://osf.io/ca95r</a>	2023-2024
Kjell Slupphaug	“Moderation and interaction effects in structural equation modeling” (co-supervisor, main supervisor: Mehmet Mehmetoglu) <a href="https://modsem.org/">https://modsem.org/</a>	2023-2024
Ceylin Karayel	“Exploring the Link Between Mind-Wandering and Reinforcement Learning” <a href="https://osf.io/ca95r">https://osf.io/ca95r</a>	2023-2024
Krister Karlßen	“Mind wandering and online experimentation” <a href="https://osf.io/wjkv2">https://osf.io/wjkv2</a>	2021-2022
Maren Christensen	“Volumetric changes in brain structures due to trauma”	2021-2022
Andreas Alexandersen	“The effect of transcranial direct current stimulation on the interplay between executive control, behavioral variability and mind wandering: A registered report” <a href="https://hdl.handle.net/10037/25274">https://hdl.handle.net/10037/25274</a>	2020-2022
Caroline Angen	“The effect of chronic pain and loss of control on value-based decision making” (co-supervisor, main supervisor: Gábor Csifcsák)	2020-2021
Ina Klakegg	“Intermittent absence of control during reinforcement learning interferes with Pavlovian bias in action selection” (co-supervisor, main supervisor: Gábor Csifcsák) <a href="https://osf.io/89mdr">https://osf.io/89mdr</a>	2019
Anastasija Kuprejeva	“Mindfulness and Psoriasis: A pilot study” <a href="https://munin.uit.no/handle/10037/15507">https://munin.uit.no/handle/10037/15507</a>	2016
Eirik Melsæter	“Eksistensiell dynamisk terapi på inneliggende pasienter - en eksplorende studie av utfall og relasjonelle virkningsmekanismer” (co-supervisor, main supervisor: Jørgen Sundby)	2014-2015
Tarjej Hotvedt	“Wandering body, wandering mind? The relationship between bodily movement, creativity and mind-wandering” <a href="https://munin.uit.no/handle/10037/9143">https://munin.uit.no/handle/10037/9143</a>	2014-2015
Are Svendsen	“Negatives Priming als Identifikations- oder Selektionsphänomen” (co-supervisor, main supervisor: Jörg Behrendt)	2010
Ida Marie Opdahl		
Ira Beckmann		
<b>Professional students (Hovedoppgave)</b>		
Ida Jespersen Rønningsen	“The effect of excitatory and inhibitory TBS over the left AG on mind wandering” <a href="https://osf.io/x2vmt">https://osf.io/x2vmt</a>	2023
Marcus Buvik	“The effect of transcranial temporal interference stimulation (tTIS) on value-based decision making in healthy adults”	2022
Jostein Ilvær	“Parafilia og selvregulering: En normeringsstudie” <a href="https://osf.io/sgrk8v">https://osf.io/sgrk8v</a>	2022
Andreas Thommesen	“Psykologi i rettens tjeneste: Hvilke faktorer påvirker årsaksattribusjon i erstatningssaker for psykisk helseskade?” (co-supervisor, main supervisor: Jørgen Sundby) <a href="https://munin.uit.no/handle/10037/21126">https://munin.uit.no/handle/10037/21126</a>	2020
Emilia Judith Olsen		
Nora N. Holmboe		
Robert Taknes		
Tim Lockertsen		
Pål Ovanger Stensland	“The role of eye-movements and pupillometry in the representation of value in a reinforcement-learning context”	2021
Celina Jakobsen	“Klinikers vurdering mtp kjønn og ADHD utredninger” (co-supervisor, main supervisor: Jørgen Sundby)	2021
Joakim		
<b>Bachelor students</b>		

Christian Fossheim	“Moment-to-moment fluctuations in emotional valence and mind-wandering”	2015
Ingrid Marie Skjerstad	“The wandering mind of the long-distance runner”	2017
Anna Elfrida Vollsund	“Effectiveness of HD-tDCS on influencing executive control during mind wandering”	2018
Iselin Finn	<a href="https://osf.io/nm2sz/">https://osf.io/nm2sz/</a>	
Kristian Østhagen Haukås	“The wandering mind of the long-distance runner”	2019
Aurora Vangen	“The effect of sleep-deprivation on mind-wandering: an EEG study” (co-supervisor, main supervisor: Gábor Csifcsák)	2021
Samy Babiker	<a href="https://osf.io/xq6wr">https://osf.io/xq6wr</a>	
Sanna Sandell		
Silje Haugan		
Steffen Rygg Aasen		
Emily Haga	“Transcranial Magnetic Stimulation Efficacy in Depression - A Systematic Review and Meta-Analysis”	2021
August Lullau		
Caroline Angen	“Employment of mental effort and representation of environmental volatility during intermittent absence of control over rewards and losses under different feedback schedules” (co-supervisor, main supervisor: Gábor Csifcsák)	2020
Marlene Holdt	<a href="https://osf.io/7wcej/">https://osf.io/7wcej/</a>	
Jorunn Bjørkøy	“Transcranial direct current stimulation above the medial prefrontal cortex facilitates decision-making following periods of low outcome controllability” (co-supervisor, main supervisor: Gábor Csifcsák)	2018
Sarjo Kuyateh	<a href="https://psyarxiv.com/rbeuz/">https://psyarxiv.com/rbeuz/</a>	
Håkon Reithe		

## Exchange students and Interns

Stefan Weinhardt	“The effect of respiration on internal and externally directed attention” (co-supervisor, main supervisor: Sam Verschooren)	2025
Thea Waldleben	“High-precision multi-session estimation of individual functional connectivity networks”	2025
Federica Luzzi	“The effect of transcranial temporal interference stimulation (tTIS) on value-based decision making”	2022
Sven Wientjes	<a href="https://osf.io/rc756">https://osf.io/rc756</a>	
Terezie Sedlinska	“Hidden Markov Models for estimating attentional focus”	2020
	“The impact of loss-of-control on system arbitration”	2019-2021
	<a href="https://osf.io/73huk">https://osf.io/73huk</a>	
Tabea Brödel	“Methods for blink detection in pupillometric data”	2021
Isabel Kreis	“The role of executive functions in mind wandering”	2016
	<a href="https://doi.org/10.1111/ejn.15049">https://doi.org/10.1111/ejn.15049</a>	
Carole Schmidt	“The role of executive functions in mind wandering”	2017
	<a href="https://doi.org/10.1111/ejn.15049">https://doi.org/10.1111/ejn.15049</a>	
Divyaratna Popli	“Eye-tracking and pupillometric correlates of mind wandering”	2013

## Teaching

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### Lectures and supervision (University of Tromsø)

Tromsø, Norway

from 2014

#### Undergraduate

- Methods and Statistics III (PSY-1513)
- Methods and Statistics I (PSY-1511)
- Open Science (PSY-2901)
- Cognitive Neuroscience (PSY-2547, PSY-2553)
- Affective Neuroscience (PSY-2549)
- Biological Psychology (PSY-1004)
- Psychometrics (PSY-1504)
- Practical Course: Gerontopsychology (PSY-2543)
- Research Practical (PSY-1509/1510)
- Research skills for Master students (PSY-3900)
- Research communication (PSY-1702)

#### PhD Courses

- Quantitative Research Methods (HEL-8024)
- Applied Linear Regression (HEL-8030)

- Research Design and Statistics (PSY-8002)
- Quantitative Method in Clinical Health Research (HEL-8017)
- Informal reading club for PhD students and faculty: Bayesian statistics

## Lectures and supervision (NTNU, Trondheim)

Trondheim, Norway  
from 2021

### Continuing Education and Professional Development

- Learning R for research and reporting: From basics to advanced applications (PSY6016)

### PhD Courses

- Multivariate quantitative research methods (PSY8003)

### Undergraduate

- Research Methods (PSY3100)
- Statistics and quantitative research methods (PSY2017)
- Research Design (PSY2022)

## Lectures and supervision (University of Amsterdam)

Amsterdam, The Netherlands  
summer 2013

### Master

- Introduction to Neuroscientific Methods and Brain Anatomy: lecture and practical on electroencephalography

## Lectures and supervision (University of Göttingen)

Göttingen, Germany

### GGNB Methods Course (introductory level)

- Introduction to Python Programming (A123) – winter term, 2011/2012
- Matlab and Python Programming (A109) – winter term, 2010/2011

### Teaching Seminar

- Gestaltung von Lehr-Lernprozessen – summer term, 2010: Introductory seminar to the psychology of learning and teaching for students pursuing teaching certification

## Service and Leadership

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### Appointments

Head of research, Institute of Psychology, UiT - The arctic university of Norway, Norway 2022--2024

Research group leader (RG Cognitive Neuroscience), Institute of Psychology, UiT - The arctic university of Norway, Norway 2022--

### Selected advisory and managerial activities

Management committee COST action CA24148 2025

<https://www.cost.eu/actions/CA24148/>

Reviewer Riksbankens Jubileumsfond RJ 2025

Review panel member, online course on 'Statistical research methods', Epigum (Sage Publications) 2024

European Research Council (reviewer for ERC Consolidator Grant, ECoG) 2024

Reviewer The French National Centre for Scientific Research (CNRS) - ATIP - Avenir program 2022

Reviewer Netherlands Organisation for Scientific Research (NWO) - Vici Social Sciences and Humanities 2019

Advisor Hertie Foundation Project: Improvement of school education by neuroscientific research 2017

### Professional development

Research group leader development program (University of Tromsø) 2021--2022

Program for young research leaders; joint program University of Oslo, University of Bergen, University of Trondheim, University of Tromsø - leadership, networking, financing, communication, strategy 2014--2015

<https://www.uib.no/psyfa/43678/program-ylngre-forskningsledere>

Recording and Analysis of Eye-Movements, Cologne, Germany 2008

Computational Neuroscience at the Max-Planck-Institute for Dynamics and Self-Organization 2005

### Institutional Responsibilities

Selection committee for Associate professor in quantitative methods (University of Trondheim)	2022
Evaluation committee for evaluation of qualification for professorship (University of Tromsø)	2022
Head of the Research Ethics Committee at the Institute for Psychology (IPS-REC, University of Tromsø)	2022--2024
<a href="https://en.uit.no/research/ethics/ips">https://en.uit.no/research/ethics/ips</a>	
Head of committee IPS Research forum (University of Tromsø)	2022--2024
Member of faculty-level PhD committee (University of Tromsø)	2022--2024
Head of selection committee for Associate professor in cognitive neuroscience (University of Bergen)	2021
Selection committee for PhD positions (University of Trondheim, University of Bergen, University of Helsinki)	2021
Evaluation committee for several PhD and post-doc positions (University of Tromsø)	2014--

## Skills

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### Experimental Methods

fMRI, EEG/ERP, EOG, tDCS, TMS, eye-tracking, pupillometry

### Programming Languages

*Very Good:* Python, R, C, C++, Matlab/Octave

*Good:* Perl, Java, SQL, PHP, Presentation

*Moderate:* F77, Assembler, Objective C, Bash, Javascript

### Computing

Parallel Programming (MPI), GPU Programming (OpenGL), Unix/Linux Administration, LaTeX, HTML/CSS

## Languages

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**German** (native)

**English** (fluently written, read and spoken)

**Norwegian** (fluently written, read and spoken)

**French** (basic skills)

**Dutch** (basic skills)

## Interests

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running, skiing, judo, rock-climbing, hiking, table-tennis, football