

# Curriculum Vitae – Morten Mørup

Born 1978. Nationality: Danish

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## Current Appointments

- **2020+** Professor of Machine Learning for the Life-Sciences, Section for Cognitive Systems, DTU Compute
- **2018+** Head of Studies BSc. Eng. Artificial Intelligence and Data, DTU Compute (since December 2018)

## Previous Appointments (chronological order)

- **2008 - 2009** PostDoc Intelligent Signal Processing Group at DTU Informatics.
- **2010 - 2012** Assistant Professor, Section for Cognitive Systems, DTU Informatics
- **2012 - 2014** Part time Research scientist/consultant for FOSS (Nov. 2012 – Oct. 2014).
- **2012-2019** Associate Professor, Section for Cognitive Systems, DTU Compute

## Scientific Focus Area

My field of research is machine learning and data science where I research methods for unsupervised learning and pattern recognition. Current research interests include multi-way data analysis, complex network modeling and Bayesian inference with application to life-science data.

## Education:

- Fall 1999 - Summer 2001 Bio-physics and Mathematics at Copenhagen University
- Spring 2004 Exchange student following courses within Computational Neuroscience at Washington State University
- Feb. 2005 Cand. Polyt. Applied Mathematics, Technical University of Denmark
- 2005-2008 PhD at Intelligent Signal Processing Group, DTU Informatics
- Summer 2006 - Fall 2006 Visiting Ph.D. Student at Department for Scientific Computing, Stanford University, Host: Professor Gene H. Golub
- Fall 2007 Visiting Ph.D. Student at Department of Mathematics, UC Berkeley, Host: Morrey Assistant Professor Lek-Heng Lim

## Scientific Supervision & Management

- Supervision: current (in total incl. current): Postdocs: 2(8); PhD: 3(10); numerous MSc./BSc. projects. Taught from introductory to advanced machine learning courses at DTU.
- Organized international workshop/special sessions, and taught at PhD schools.
- Completed in 2016 the Project Management Program for managers of research projects offered by Implement Consulting Group.
- Completed in 2016 the DTU Leadership Programme.

## Funding and Projects

- PI: DFF FTP Project 2 (~6 Mio. DKK, 2022-2026): Learning to EXplore the 2nd Order Advantage of 2D NMR (LEX2)"
- PI: DFF FTP Project 2 (~6 Mio. DKK, 2020-2024): Learning the Structure and Dynamics of Complex Networks.
- PI: Lundbeck Foundation funded project (10 Mio. DKK, 2012-2017): Non-parametric Relational Modeling of Functional and Structural Brain Connectivity, see also [brainconnectivity.compute.dtu.dk](http://brainconnectivity.compute.dtu.dk).
- Supervisor, Industrial PhD Fellow Rasmus M. T. Høegh with Widex on "Probabilistic deep learning for hearing aid speech separation"
- Supervisor, Industrial PhD Fellow Ali Mohebbi with Novo Nordisk on "Improving diabetes treatment outcome by utilizing CGM and insulin injection data for machine learning based decision support"
- Project member of Innovation Foundation Funded project UMAMI (Understanding Mindsets across Markets, Internationally, <https://sf.cbs.dk/umami/main>, 2017-2020), Innovation foundation

## Awards & Prizes

- Elite Research Travel Scholarship 2007: Danish Ministry of Science.
- Best Thesis Award: Direktør Peter Gorm-Petersens Mindelegat 2008.
- Best Teacher at DTU Informatics 2011 (awarded 2012).
- Lundbeck Foundation Fellowship 2012.
- H.K.H. Prinsgemalens Fond 2013.
- Conferred among best reviewers NeurIPS 2018.
- Best student paper (PhD J. L. Hinrich) at IEEE International Workshop on Machine Learning for Signal Processing 2018.
- Ingeborg og Leo Dannins Legat for Videnskabelig Forskning 2021.

## Peer-reviewed Publications

- 52 journal and 65 conference contributions accumulated.
- ISI: 1716 citations, h-index: 17 as of 7th of September 2022,
- Google-Scholar (GS): 4553 citations, h-index: 29 as of 7th September 2022.

## List of Publications (2020-2022, only journal articles listed)

### Journal Articles

1. A.S. Olsen, R.M. Høegh, J.L. Hinrich, K.H. Madsen, M. Mørup, 2022. Combining electro-and magnetoencephalography data using directional archetypal analysis. *Frontiers in Neuroscience*, 16.
2. K.J. Albers, M.G. Liptrot, K.S. Ambrosen, R. Røge, T. Herlau, K.W. Andersen, H. R. Siebner, L. K. Hansen, T.B. Dyrby, K. H. Madsen, M. N. Schmidt, M. Mørup, 2022. Uncovering Cortical Units of Processing From Multi-Layered Connectomes. *Frontiers in Neuroscience*, 16.
3. K.J. Albers, K.S. Ambrosen, M.G. Liptrot, T.B. Dyrby, M.N. Schmidt, M. Mørup, 2021, Using connectomics for predictive assessment of brain parcellations, *NeuroImage* 238, 118170 2.
4. M.N. Schmidt, D. Seddig, E. Davidov, M. Mørup, K.J. Albers, J.M. Bauer, F. K. Glückstad, 2021, Latent profile analysis of human values: What is the optimal number of clusters?, *Methodology* 17 (2), 127-148
5. D.N. Thyde, A. Mohebbi, H. Bengtsson, M.L. Jensen, M. Mørup, 2021. Machine Learning-Based Adherence Detection of Type 2 Diabetes Patients on Once-Daily Basal Insulin Injections. *Journal of Diabetes Science and Technology* 15(1), 98-108.
6. P. Taborsky, P., L. Vermue, M. Korzepa, M. Mørup, 2021. The Bayesian Cut. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 43(11).
7. K.J. Albers, M. Mørup, M.N. Schmidt, F.K. Glückstad, 2020, Predictive evaluation of human value segmentations *The Journal of Mathematical Sociology*, 1-28
8. J. L. Hinrich, M. Mørup, K .H. Madsen, 2020, The probabilistic tensor decomposition toolbox *Machine Learning: Science and Technology*
9. C.S. Musaeus, K. Engedal, P. Høgh, V. Jelic, A.R. Khanna, T.W. Kjær, M. Mørup, M. Naik, A.R. Oeksengaard, E. Santarnecchi, J. Snaedal, 2020. Changes in the left temporal microstate are a sign of cognitive decline in patients with Alzheimer's disease. *Brain and Behavior*, p.e01630.
10. K. S. Ambrosen, S. F. Eskildsen, M. Hinne, K. Krug, H. Lundell, M. N. Schmidt, M. A. v. Gerven, M. Mørup, T. B. Dyrby, 2020, Validation of structural brain connectivity networks: The impact of scanning parameters, *NeuroImage* 204, 116207