Mikkel N. Schmidt
Associate Professor, Statistical Machine Learning

Curriculum Vitae

Personalia

Name	Mikkel N. Schmidt
Address	Store Mølle Vej 17, 1. tv., 2300 København S., Denmark
Birth date	6 July 1978
Nationality	Danish

Education

2012	**Programme for PhD supervisors**	
	LearningLab, Technical University of Denmark	
2011	**Education in University Teaching**	
	LearningLab, Technical University of Denmark	
	Module 1: Teaching and Learning. Module 2: Teaching Methods and Course Planning.	
	Module 3: Teaching and Teacher Development. Module 4: Teaching Development Project.	
2008	**Ph.D. in Mathematical Modeling**	
	Technical University of Denmark	
	Thesis: "Single-channel source separation using non-negative matrix factorization"	
	Supervisor: Associate Professor Jan Larsen	
2003	**M.Sc. in Electronic and Electrical Engineering**	
	Aalborg University	
	Specialization: Speech Communication, Signal Processing	
	Masters thesis grade: 11	
2001	**B.Sc. in Engineering**	
	Herning Institute of Business Administration and Technology	
	Grade point average: 11.2	

Employment

2013–	**Associate Professor**	
	DTU Compute, Technical University of Denmark	
2012	**Assistant Professor**	
	DTU Informatics, Technical University of Denmark	
2011–2012	**Postdoctoral researcher**	
	DTU Informatics, Technical University of Denmark	
	Network for Danish Audio Technology.	
2009–2011	**Postdoctoral researcher**	
	DTU Informatics, Technical University of Denmark	
	Grant from Danish Research Council, 2 years	
2008–2009	**Postdoctoral researcher**	
	University of Cambridge	
	Grant from Villum Kann Rasmussen, 1 year	
2008	**Postdoctoral researcher**	
	DTU Informatics, Technical University of Denmark, 7 months	
2007	**Visiting Ph.D. student**	
	LabROSA, Columbia University, New York, 6 months	
2005–2008	**Ph.D. student**	
	DTU Informatics, Technical University of Denmark, 3 years	

Teaching experience

Awarded DTU Lecturer of the Year 2020

Courses

2024–	Advanced machine learning (course design, course responsible, lecturer)
2018–	Introduction to intelligent systems (course design, course responsible, lecturer)
2018–	Machine learning, continuing education (course design, course responsible, lecturer)
2015–2021	Advanced machine learning (group supervisor)
2019–	Deep learning (group supervisor)

2014–18	Introduction to programming and data processing (course design, course responsible, lecturer)
2013–19	Audio information processing systems (course design, co course responsible)
2012–13	Programming of mathematical software (course design, course responsible, lecturer)
2010–	Introduction to machine learning and data mining (course design, co course responsible, lecturer 2010–11)
2010–11	Machine learning for signal processing (lecturer, group supervisor)
2010–14,16,22	Advanced topics in machine learning (lecturer)
2011	Non-linear signal processing (teaching assistant)
2005–06,10–12	Digital signal processing (lecturer, teaching assistant)
2008,10–11	Advanced digital signal processing (lecturer)
2006–07	Applied digital signal processing (group supervisor)
2006	Introduction to computer systems (teaching assistant)

Thesis supervision

- 23 Bachelor's student.
- 39 Master's students.
- 18 Ph.D. students.
- 2 Postdoctoral researchers

Research interests

Statistical models are used in all areas of science to describe stochastic relations between variables. In statistical modeling, probability theory is used to describe the uncertaincy that is present due to inaccurate measurements, model mismatch, missing data, etc. The process of drawing conclusions based on statistical models is called statistical inference. The aim of my research is to develop novel statistical methodology, which includes:

1. Formulating probabilistic models and devising procedures for computational inference, evaluation, and validation.
2. Applying the developed methodology to solve problems in various application areas in science and industry.

Keywords: Bayesian statistical models. Machine learning for supervised and unsupervised learning. Latent variable models and source separation. Approximate inference in statistical and probabilistic models. Non-parametric Bayesian data analysis.

Grants and stipends

- Principal investigator, Bayesian neural networks for molecular discovery
  Novo Nordisk Foundation, Data Science Investigator—Ascending
  5 years, DKK 9.7 M. Technical University of Denmark, 2023.
- Principal investigator, Machine learning-enabled fiber-optic communication (MARBLE)
  Villum Fonden Synergy Grant
  2 years, DKK 3.0 M., Technical University of Denmarks, 2021.
- Principal investigator, Towards real time Raman molecular imaging of living organisms
  The Danish Council for Independent Research, Technology and Production Sciences,
  3 years, DKK 2.8 M., Technical University of Denmark, 2019.
- WP-lead, Self-correcting Unsupervised Reaction Energies (SURE).
  Novo Nordisk Foundation, PI: T Vegge / O Winther.
  2 years research project. DKK 5.0M. DTU Energy / DTU Compute (2020-2022)
- Co-investigator, Understanding Mindsets across Markets Internationally (UMAMI)
  Innovation Fund Denmark, PI: A Josiassen / FK Glückstad.
  4 year research and innovation project, DKK 4.7M,
  Copenhagen Business School / Technical University of Denmark 2017
- Co-investigator, Modeling of Functional and Structural Brain Connectivity
  The Lundbeck Foundation, PI: M Mørup,
  5 years research project, DKK 10M, Technical University of Denmark
- Principal investigator, Source separation using machine learning
  The Danish Council for Independent Research, Technology and Production Sciences postdoc grant,
  2 years, DKK 1.7 M., Technical University of Denmark, 2009.
- Principal investigator, Matrix factorization with non-parametric Bayesian priors for source separation
  Villum Kann Rasmussen postdoc scholarship,
  1 year, DKK 0.5M., Cambridge University, UK., 2008.

- NVIDIA Academic hardware grant
  Algorithms and Numerical Techniques, Big Data, Machine Learning and AI, 2014.
- Financial support for external research
  Marie & M. B. Richters Fond, Oticon Fonden, and Otto Mønsteds Fond, 2007
- Ph.D stipend Technical University of Denmark Ph.D. stipend, 3 years, 2005.

Scientific publications and citations

- Refereed journal papers: 34
- Refereed conference papers: 56
- Number of citations (according to Google Scholar): 3731
- H-index (according to Google Scholar): 28

Editorial Roles

- Senior Area Chair, Neural Information Processing Systems (NeurIPS), Conf. on

Service in peer review

Grant proposals
- US National Science Foundation, (NSF), Information and Intelligent Systems.
- Netherlands Organisation for Scientific Research, (NWO), Physical Sciences.
- Natural Sciences and Engineering Research Council of Canada (NSERC).
- Italian Ministry for universities and research (MUR), Italian Science Fund (FIS)

Journals
- Audio, Speech, and Language Processing, IEEE Transactions on
- Audio, Speech, and Music Processing, EURASIP Journal on, Hindawi
- Bernoulli Society for Mathematical Statistics and Probability, Journal of the
- Computational Intelligence and Neuroscience, Hindawi
- Chemometrics and Intelligent Laboratory Systems, Elsevier
- Electronic Journal of Statistics
- Image Processing, IEEE Transactions on
- Information Fusion, Elsevier
- Machine Learning Research (JMLR), Journal of
- Machine Learning Research (TMLR), Transactions on
- Neurocomputing, Elsevier
- Pattern Recognition, Elsevier
- Pattern Analysis and Machine Intelligence, IEEE Transactions on
- Plos One
- Signal Processing, EURASIP, Elsevier
- Signal Processing, EURASIP Journal of advances in, Hindawi
- Signal Processing, IEEE Transactions on
- Signal Processing Letters, IEEE
- Signal Processing Systems, Journal of
- Technometrics, Taylor & Francis

Conferences
- Acoustics, Speech, and Signal Processing (ICASSP), IEEE Intl. Conf. on
- Artificial Intelligence and Statistics (AISTATS)
- Artificial Neural Networks (ICANN), Intl. Conf. on
- Circuits and Systems (ISCAS), IEEE Intl. Symposium on
- Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP), IEEE
- European Signal Processing Conference (EUSIPCO), EURASIP
- Independent Component Analysis and Signal Separation, Intl. Conf. on
- Learning & Reasoning (IJCLR), Intl. Joint Conf. on
- Learning Representation (ICLR), Intl. Conf. on
- Machine Learning (ICML), Intl. Conf. on
- Machine Learning for Signal Ppocessing (MLSP)
- Music Information Retrieval (ISMIR), Intl. Conf. on
- Neural Information Processing Systems (NeurIPS), Conf. on
- Statistical And Perceptual Audition (SAPA)