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Personal Data

Born: July 27, 1983 in Oslo, Norway

Citizenship: Norwegian

Employment

Researcher, Radiology Department, Haukeland University Hospital, 2018–present

Associate Professor, Western Norway University of Applied Sciences, Norway, 2014–present

Postdoctoral researcher (Marie Curie fellow), Inria Bordeaux, France, 2013–2014

Temporary associate professor, Norwegian University of Science and Technology, 2011–2013

Doctoral research fellow, University of Bergen, 2007–2010

Teaching assistant, University of Bergen, 2003–2007

Education

PhD, Numerical analysis, University of Bergen, 2011. Thesis advisors: Hans Z. Munthe-Kaas (Bergen), Kurusch Ebrahimi-Fard (ICMAT, Spain). Evaluation committee: Martin Bordemann (LMIA, France), Ander Murua (EHU, Spain). Thesis title: *Lie–Butcher series and geometric numerical integration on manifolds*

MSc., Topology, University of Bergen, 2007. Thesis advisor: Bjørn I. Dundas. Thesis title: *Higher order cyclic homology for rational algebras*

BSc. Mathematics, University of Bergen, 2005

Publications

A. S. Lundervold and A. Lundervold. *An overview of deep learning in medical imaging focusing on MRI*, Zeitschrift fuer Medizinische Physik, Volume 29, Issue 2, 2019

S. Kaliyugarasan, A. S. Lundervold. *Transfer learning in medical imaging: a case study.* Poster at GTC Europe 2018, Münich, Oct. 2018

A.S. Lundervold, A. Lundervold, K. Sprawka. *Fast estimation of kidney volumes and time courses in DCE-MRI using convolutional neural networks.* ECR 2018, Austria Center Vienna, Austria, Feb. 2018

A. Lundervold, A. Lundervold, J. Rørvik. *Fast semi-supervised segmentation of the kidneys in DCE-MRI using convolutional neural networks and transfer learning.*, Functional Renal Imaging: Where Physiology, Nephrology, Radiology and Physics Meet, Berlin, Oct. 2017

A.S. Lundervold. *"Deep learning" i medisin*, HMT no. 4, 2017

A. Lundervold, E. A. Valestrand, A. Lundervold, T. Hausken. *Predicting irritable bowel syndrome (IBS) from brain MR imaging data using machine learning*, Poster at the 2017 Geilo Winter School in eScience, 2017

A. Lundervold and O.D. Røksund. *Imaging-based modeling of the human larynx for simulation of airflow during exercise.* Abstract, poster and presentation at MedViz 2016

K. L. Cornec, O. Verdier, A. Lundervold, V. Barra, and A. Lundervold. *Python-based software for medical imaging and machine learning - an example from brain imaging in IBS*, Abstract and poster at MedViz 2016

C. B. Rygh, H. Gundersen and A. Lundervold. *Healthy body, healthy mind: Multi-paramatric evaluation of muscle function, performance and cognitive function – can images and biomarkers tell us what we need to know?*, Abstract and poster at MedViz 2016

K. Ebrahimi-Fard, A. Lundervold, I. Mencattini, H.Z. Munthe-Kaas. *Post-Lie algebras and isospectral flows*, Symmetry, Integrability and Geometry: Methods and Applications (SIGMA), Volume 11, Issue 093, 2015

A. Lundervold, K. Ebrahimi-Fard and H.Z. Munthe-Kaas. *On the Lie enveloping algebra of a post-Lie algebra*, Journal of Lie Theory, Volume 25, Issue 4, 2015

A. Lundervold and H.Z. Munthe-Kaas. *On algebraic structures of numerical integration on vector spaces and manifolds*, IRMA Lectures in Mathematics and Theoretical Physics, Volume 21, 2015

K. Ebrahimi-Fard, A. Lundervold and D. Manchon. *Noncommutative Bell polynomials, quasideterminants and incidence Hopf algebras*, International Journal of Algebra and Computation, Volume 24, Issue 5, 2014

H.Z. Munthe-Kaas and A. Lundervold. *On post-Lie algebras, Lie-Butcher series and moving frames*, Foundations of Computational Mathematics, Volume 13, Issue 4, 2013

A. Lundervold and H.Z. Munthe-Kaas. *Backward error analysis and the substitution law for Lie group integrators*, Foundations of Computational Mathematics, Volume 13, Issue 2, 2013

K. Ebrahimi-Fard, A. Lundervold, S.J.A. Malham, H.Z. Munthe-Kaas, A. Wiese. *Algebraic structure of stochastic expansions and universally accurate simulation*, Proceedings of the Royal Society. Mathematical, Physical and Engineering Sciences, Volume 468 (2144), 2012

A. Lundervold and H.Z. Munthe-Kaas. *Hopf algebras of formal diffeomorphisms and numerical integration on manifolds*, Contemporary Mathematics, 539, 2011

A. Lundervold, A. Lundervold, H. Nordby, A.J. Lundervold, I. Reinvang. *Application of nonlinear time series analysis to single-trial ERPs*, Human Brain Mapping Conference, June 18–22, 2003, New York City.

Personal grants

ERCIM Alain Bensoussan Fellowship (Marie Curie Fellow), 2013

Abel Extraordinary Chair from the NILS Mobility Project, 2009

Abelstipend from the Norwegian Mathematical Society, 2005

Carl Johan Storetvedts legat (awarded to talented students at the University of Bergen), 2004

Current projects

Computational medical imaging and machine learning – methods, infrastructure and applications, 2018–2022. Co-coordinator of the project. Hosted by the Mohn Medical Imaging and Visualization Centre, Department of Radiology, Haukeland University Hospital. `https://mmiv.no`.

PI in the machine learning work package of the Digital Life Norway project *Towards better computational approaches and responsible innovation strategies in early drug discovery – application to antibiotics and COPD*, 2019–2022.

Computational medicine: Numerical models for medical images and signals.
`http://computationalmedicine.no`.

Structural and functional brain connectivity based on multimodal brain MRI recordings. A collaboration with the Dept. of Biomedicine, UiB

Idrett, helse, funksjon (*Athletics, health, function*). `http://www.hib.no/forskning/forskergrupper/idrett-helse-og-funksjon/`. An interdisciplinary project at HVL.

Healthy body, healthy mind: Multiparametrisk evaluering av muskelfunksjon, fysisk prestasjon og kognitiv funksjon – hva kan bilder og biomarkører fortelle oss?. A collaboration with the Faculty of Health and Social Sciences, HVL

Founder and developer of *AkademiX*: `https://akademix.no`. An e-learning platform based on Open edX.

Membership in Scientific Societies

Society for Imaging Informatics in Medicine, 2018–present

American Mathematical Society, 2004–present

Norwegian Mathematical Society, 2003–present