



David Malmgren-Hansen

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● ABOUT ME

My background in electronic engineering has given me a solid understanding of a wide variation of technical concepts. My focus has been on software development of signal processing and data analysis algorithms and it has provided me with knowledge of statistical concepts of data analysis from basic statistics to advanced concepts like Machine Learning. Through my career I have gained experience with many technical aspects and challenges evolving around software development and data analysis.

● WORK EXPERIENCE

01/11/2020 – CURRENT Brøndby, Denmark

HEAD OF COMPUTER VISION AND MACHINE LEARNING GREENWOOD ENGINEERING A/S

Building up Greenwood Engineering's new Computer Vision (CV) and Machine Learning (ML) department.
Tasks:

- Hiring skilled CV and ML engineers.
- supervising development of 3D from stereo cameras measurement system.
- developing Deep Learning algorithms for image data.

31/08/2017 – CURRENT Copenhagen, Denmark

MACHINE LEARNING AND AI CONSULTANT DATAMINES APS

Consultant in Machine Learning- and AI algorithms, including research, development and deployment of algorithms concerning data analysis and statistics.

Owner of DataMines ApS.

DataMines' projects and other short term consulting tasks:

External Consultant @ COWI. Adviser in ML and AI applications for Earth Observation data.

EY - Senior Consultant in Advanced Analytics; Nov. 2017 - Apr. 2018

Dictus ApS - AI and Machine Learning Expert

WORLDBANK – AI Specialist

Scandinavian Highlands - Machine Learning Developer

Terma A/S - Machine Learning Engineer

Find more info on some of the positions below.

31/01/2020 – 30/04/2020

EXPERT RESEARCH REVIEWER EUROPEAN COMMISSION RESEARCH EXECUTIVE AGENCY

Reviewing Horizon 2020 research proposals, as an expert in Artificial Intelligence and Computer Science.

31/10/2017 – CURRENT Lyngby, Denmark

POSTDOC (PART-TIME) TECHNICAL UNIVERSITY OF DENMARK

- Prediction of Sea Ice in Arctic Sea from satellite images (SAR images) with Convolutional Neural Networks.
- Remote Sensing, AI, Machine Learning and Computer Vision.
- Coding in Python.

30/09/2018 – 27/02/2019

AI SPECIALIST WORLDBANK

- Developing AI algorithms for interpreting satellite data that was used for poverty prediction in Mozambique.
- Python + Tensorflow coding of Deep Neural Networks.
- End goal: Map of poverty in 5 cities in Mozambique to help Social Protection employees find people who can enroll in their programs. The maps had one of the highest resolutions of its kind so far and enabled sub-neighborhood poverty detection.

- Developing damage assessment maps for cyclone disasters based on satellite data and statistical image interpretation techniques, <https://www.mdpi.com/2072-4292/12/15/2409/pdf>.

31/05/2016 – 31/03/2018 Holte, Denmark

MACHINE LEARNING DEVELOPER, CONSULTANT SCANDINAVIAN HIGHLANDS HOLDING A/S

- Data analysis for geology and visualization of large quantities of geographic data.
- Statistical algorithms for predicting deposit types.
- Coding in Python, R and working with databases (MSSQL, PostgreSQL).

31/10/2017 – 31/01/2018 Frederiksberg, Denmark

SENIOR CONSULTANT ERNST & YOUNG P/S

Short term employment for EYs Advanced Analytics team in Technology Consulting.

- Business Development and sales related to Advanced Analytics.
- Seminars and presentations to teach and educate in the use of Advanced Statistics and Machine Learning technology.
- Expert in data modelling and Machine Learning.
- Coding in Python and R.

31/08/2017 – 30/12/2017 Herlev, Denmark

MACHINE LEARNING ENGINEER, CONSULTANT TERMA A/S

- Machine Learning on Synthetic Aperture Radar Images.
- Participant in research project about surveillance in arctic regions. Collaboration with the Danish Defense Acquisition and Logistics Organization (DALO) and DTU.
- Coding in Python.

31/08/2014 – 31/08/2017 Lyngby, Denmark

INDUSTRIAL PHD STUDENT TERMA A/S AND TECHNICAL UNIVERSITY OF DENMARK

Project Title: Classification of Targets in Synthetic Aperture Radar Images

- Research Areas: Image Analysis/Object recognition, Machine Learning, Remote Sensing.
- Fields of Study: Deep Learning, Machine Learning/Pattern Recognition, Multivariate Statistics, Synthetic Aperture Radar Sensor Technology, High-Performance Computing

31/08/2012 – 31/07/2014 Broendby, Denmark

SYSTEM DEVELOPER AND CXM GREENWOOD ENGINEERING A/S

- Development of Signal Processing algorithms for Laser based measurement equipment for road quality assessment.
- Tasks in Python, C Sharp and Delphi (Pascal) Programming.
- Customer Experience Manager (CXM). Training, sales, marketing, service/updates and bug-fixes at customer sites.

31/08/2007 – 31/05/2009 Lyngby, Denmark

ASSISTANT TEACHER TECHNICAL UNIVERSITY OF DENMARK

Assisting the professor in helping students during group assignments.

- Elementary C Programming for Bachelor students in electrical engineering. Fall semester 2007 and spring semester 2009.
- Digital Data Techniques, microprocessor and FPGA design. Fall semesters 2008 and 2009.

31/03/2008 – 31/08/2012 Broendby, Denmark

HARDWARE DEVELOPER - STUDENT ASSISTANT GREENWOOD ENGINEERING A/S

- Design of high-power LED light system with intelligent intensity control.

- Programming of microprocessors, printed board circuit design, optical video systems, heat sink capacity estimation, Visual Studio .NET Programming.

● EDUCATION AND TRAINING

31/08/2014 – 31/08/2017 Lyngby, Denmark

PHD IN COMPUTER SCIENCE Technical University of Denmark

- Thesis title: Convolutional Neural Networks – Generalizability and Interpretations.
- Focus: Machine Learning and Deep Learning for Computer Vision.
- Industrial PhD in collaboration with Terma A/S. See description above.

Level in EQF EQF level 8

31/08/2010 – 31/08/2012 Lyngby, Denmark

MASTER OF SCIENCE ELECTRICAL ENGINEERING Technical University of Denmark

- GPA 10.5 Danish scale
- Thesis: "System analysis and signal processing for surveillance radar"
- Studies: Image Analysis, Machine Learning, Signal Processing, Remote Sensing and Radar Systems.

Level in EQF EQF level 7

31/01/2007 – 31/08/2010 Lyngby, Denmark

BACHELOR OF ENGINEERING Technical University of Denmark

- GPA 9.1 Danish scale
- Thesis: "Review and Redesign of Microprocessor Board for LED Lamp Intensity Control"
- Fundamental courses in mathematics, physics, electronics, programming and Signal Processing.

Level in EQF EQF level 6

● LANGUAGE SKILLS

Mother tongue(s): **DANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
SPANISH	A2	A2	A1	A1	A1
GERMAN	B1	B1	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● ADDITIONAL INFORMATION

PUBLICATIONS

Publications

FULL LIST OF PUBLICATIONS:

<http://scholar.google.dk/citations?user=o60s11UAAAAJ&hl=da&oi=sra>

SELECTED PAPERS:

Peer-reviewed,

Malmgren-Hansen, D., Pedersen, L. T., Nielsen, A. A., Kreiner, M. B., Saldo, R., Skriver, H., ... & Krane, K. H. (2020). **A Convolutional Neural Network Architecture for Sentinel-1 and AMSR2 Data Fusion**. IEEE Transactions on Geoscience and Remote Sensing.

- Malmgren-Hansen, D., Sohnesen, T., Fisker, P., & Baez, J. (2020). **Sentinel-1 Change Detection Analysis for Cyclone Damage Assessment in Urban Environments**. *Remote Sensing*, 12(15), 2409.
- Malmgren-Hansen, D., Laparra, V., Nielsen, A. A., & Camps-Valls, G. (2019). **Statistical retrieval of atmospheric profiles with deep convolutional neural networks**. *ISPRS Journal of Photogrammetry and Remote Sensing*, 158, 231-240.
- Malmgren-Hansen, D., Kusk, A., Dall, J., Aasbjerg Nielsen, A., Engholm, R., & Skriver, H. (2017). **Improving SAR Automatic Target Recognition Models with Transfer Learning from Simulated Data**. *IEEE Geoscience and Remote Sensing Letters*.
- Malmgren-Hansen, D., Engholm, R., & Pedersen, M. O. (2016, June). **Training Convolutional Neural Networks for Translational Invariance on SAR ATR**. In *EUSAR 2016: 11th European Conference on Synthetic Aperture Radar, Proceedings of* (pp. 1-4). VDE.
- Malmgren-Hansen, D., & Nobel-J, M. (2015, December). **Convolutional neural networks for SAR image segmentation**. In *Signal Processing and Information Technology (ISSPIT), 2015 IEEE International Symposium on* (pp. 231-236). IEEE.
- Nobel-Jørgensen, M., Malmgren-Hansen, D., Bærentzen, J. A., Sigmund, O., & Aage, N. (2016). **Improving topology optimization intuition through games**. *Structural and Multidisciplinary Optimization*, 54(4), 775-781.

Workshop publications,

- Malmgren-Hansen, D., Nielsen, A. A., & Engholm, R. (2017). **Analyzing Learned Convnet Features with Dirichlet Process Gaussian Mixture Models**. *NIPS Workshop: Practical Bayesian Nonparametrics 2017*.

ORGANISATIONAL SKILLS

Organisational skills David has obtained a lot of project management experience from his industrial PhD project with a university and a company as stakeholders: Aligning expectations, informing about results, knowledge dissemination across company and university colleagues were some of the challenges. He also took a course in modern people manager leadership provided by his PhD fund (Innovation Fund Denmark)· Course in Leadership - *Breakthrough Leadership*; Harvard Business Publishing; January 2016.