ALEXANDER NEERGAARD OLESEN

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EMPLOYMENT HISTORY

Somnoscient	May 2020–present
Research Scientist, self-employed	Copenhagen, DK
Technical University of Denmark	2016–2020
PhD student in the Department of Health Technology	Kgs. Lyngby, DK
Trackman	2016
Development Engineer	Vedbæk, DK
Cathvision	2016
Development Engineer (internship)	Copenhagen, DK
Oticon	2015–2016
Student assistant	Smørum, DK
Novo Nordisk	2013–2014
Student assistant	Smørum, DK
Polyteknisk Forening	2012–2013
Student tutor	Kgs. Lyngby, DK
Technical University of Denmark	2012–2015
Teaching assistant, various courses in the Department of Electrical Engineering	Kgs. Lyngby, DK

EDUCATION AND RESEARCH EXPERIENCE

Technical University of Denmark	2016–2020
PhD, Biomedical Engineering. Thesis title: Deep Learning Methods for Clinical Sleep Analysis	Kgs. Lyngby, DK
Stanford University	2017–2019
Visiting student researcher hosted by Professor Emmanuel Mignot, MD, PhD	Palo Alto, CA, USA
Technical University of Denmark	2013–2016
MScEng, Biomedical Engineering	Kgs. Lyngby, DK
Stanford University	2014
Visiting student researcher hosted by Professor Emmanuel Mignot, MD, PhD	Palo Alto, CA, USA
Technical University of Denmark	2010–2013
BScEng, Biomedical Engineering	Kgs. Lyngby, DK

TECHNICAL SKILLS

Programming languages	Python, MATLAB, R, C++.
Machine learning libraries	PyTorch, Keras, TensorFlow, NumPy, Pandas, scikit-learn.
Developer tools	UNIX shell/bash, git, HPC systems, LaTeX.
Operating systems	Linux (Ubuntu, CentOS), Mac OS X, Microsoft Windows
Languages	danish (native), english (fluent), french (basic), german (basic).

FUNDING AND AWARDS

Best poster award: 37th National Meeting on Biomedical Engineering, DMTS19 (DKK 1.000)	2019
Travel grant: Otto Mønsteds Fond (DKK 7.500)	2019
Travel grant: Otto Mønsteds Fond (DKK 7.500)	2018
Various travel grants for PhD research stay at Stanford University (total DKK 362.500)	2017
Travel grant: Otto Mønsteds Fond (DKK 9.076)	2016
Various travel grants for MScEng research stay at Stanford University (total DKK 141.500)	2014

SCIENTIFIC SERVICE

Volunteer work	EMBC'19
Review experience	Fondation Leenaards, IEEE Journal of Biomedical Health Informatics (J-BHI), IEEE Access, Scientific Reports, IEEE Transactions on Neural Networks and Learning Systems (TNNLS), IEEE Transactions on Biomedial Engineering (TBME).

* shared first authorship

2021

· **A. N. Olesen**, P. J. Jennum, E. Mignot, H. B. D. Sorensen. MSED: a multi-modal sleep event detection model for clinical sleep analysis. `arXiv:2101.02530 [cs.CV]`.

2020

· **A. N. Olesen**, P. J. Jennum, E. Mignot, H. B. D. Sorensen. Automatic sleep stage classification with deep residual networks in a mixed-cohort setting. Sleep, zsaa161, 2020. `DOI:10.1093/sleep/zsaa161` *(in press)*

· **A. N. Olesen**, P. Jennum, E. Mignot, H. B. D. Sorensen. Deep transfer learning for improving single-EEG arousal detection. 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Montreal, QC, Canada, 2020, pp. 99-103, `DOI:10.1109/EMBC44109.2020.9176723`

· A. Ambati, Y.-E. Ju, L. Lin, **A. N. Olesen**, H. Koch, J. J. Hedou, E. B. Leary, V. P. Sempere, E. Mignot, S. Taheri. Proteomic biomarkers of sleep apnea. *Sleep*, zsaa086, 2020. `DOI:10.1093/sleep/zsaa086` *(in press)*

· A. Brink-Kjær, **A. N. Olesen**, P. E. Peppard, K. L. Stone, P. Jennum, E. Mignot, H. B. D. Sorensen. Automatic Detection of Cortical Arousals in Sleep and their Contribution to Daytime Sleepiness. Clinical Neurophysiology, 2020;131:1187-1203. `DOI:10.1016/j.clinph.2020.02.027`

· L. Carvelli, **A. N. Olesen**, A. Brink-Kjaer, E. B. Leary, P. E. Peppard, E. Mignot, H. B. D. Sorensen, P. Jennum. Design of a deep learning model for automatic scoring of periodic and non-periodic leg movements during sleep validated against multiple human experts. Sleep Medicine, 2020;69:109-119. `DOI:10.1016/j.sleep.2019.12.032`

2019

· **A. N. Olesen**, S. Chambon, V. Thorey, P. Jennum, E. Mignot, H. B. D. Sorensen. Towards a flexible deep learning method for automatic detection of clinically relevant multi-modal events in the polysomnogram. 2019 IEEE 41th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 556-561, Berlin, Germany, 2019. `DOI:10.1109/EMBC.2019.8856570`

2018

· J. B. Stephansen*, **A. N. Olesen***, M. Olsen, et al. Neural network analysis of sleep stages enables efficient diagnosis of narcolepsy. Nature Communications, 9:5229, 2018. `DOI:10.1038/s41467-018-07229-3`

· **A. N. Olesen**, P. Jennum, P. E. Peppard, H. B. D. Sorensen, E. Mignot. Deep Residual Networks for Automatic Sleep Stage Classification of Raw Polysomnographic Waveforms. 2018 IEEE 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 1-4, Honolulu, HI, USA, 2018. `DOI:10.1109/EMBC.2018.8513080`

· A. B. Klok*, J. Edin*, M. Cesari, **A. N. Olesen**, P. Jennum, H. B. D. Sorensen. A New Fully Automated Random-Forest Algorithm for Sleep Staging. 2018 IEEE 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 4920–4923, Honolulu, HI, 2018. `DOI:10.1109/EMBC.2018.8513413`

· M. Cesari, J. A. E. Christensen, L. Kempfner, **A. N. Olesen**, G. Mayer, K. Kesper, W. H. Oertel, F. Sixel-Döring, C. Trenkwalder, H. B. D. Sorensen, and P. Jennum. Comparison of computerized methods for REM sleep without atonia detection. Sleep, Volume 41, Issue 10, zsy133, 2018. `DOI:10.1093/sleep/zsy133`

· **A. N. Olesen***, M. Cesari*, J. A. E. Christensen, H. B. D. Sorensen, E. Mignot, and P. Jennum. A comparative study of methods for automatic detection of rapid eye movement abnormal muscular activity in narcolepsy. Sleep Medicine, vol. 44, pp. 97–105, 2018. `DOI:10.1016/j.sleep.2017.11.1141`

2016

· **A. N. Olesen**, J. A. E. Christensen, H. B. D. Sorensen, and P. J. Jennum. A Noise-Assisted Data Analysis Method for Automatic EOG-Based Sleep Stage Classification Using Ensemble Learning. 2016 IEEE 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 3769–3772, Orlando, FL, USA, 2016. `DOI:10.1109/EMBC.2016.7591548`

INVITED TALKS

Neuroscience Centre, Rigshospitalet   March 11, 2021
Title: *Deep Learning Methods for Clinical Sleep Analysis*   Copenhagen, DK
Invited talk, meeting of the Faculty Group