Nicklas **Hansen**

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Research interest

I am highly interested in research on the generalization and robustness of deep learning systems, particularly in connection with self-supervision, transfer learning and optimization. I work with reinforcement learning, computer vision, audio, and biomedicine. I strive to make artificial intelligence available to a broader audience through research and open source projects.

Education

University of California, Berkeley — *Berkeley, CA*
Visiting Student & Research Intern at Berkeley Artificial Intelligence Research Lab — *Spring 2020*
A semester devoted to deep learning research at BAIR, supplemented by a class on data-driven innovation.
Participant in Innovation Centre Denmark's SPARK program and recipient of the Spar Nord Foundation Scholarship.

Technical University of Denmark — *Kongens Lyngby, Denmark*
M.Sc. Mathematical Modelling & Computing GPA: 10.7 (-3 to 12) — *Feb 2019 -*
Largely focused on special topics in deep learning such as deep reinforcement learning, deep unsupervised learning, optimization for deep learning and research on novel applications of deep learning.

Technical University of Denmark — *Kongens Lyngby, Denmark*
B.Sc. Software Engineering GPA: 8.2 (-3 to 12) — *Sep 2015 - Dec 2018*
Built a strong foundation in machine learning, linear algebra, statistics, calculus, algorithms and digital signal processing.

Nanyang Technological University — *Singapore*
Exchange Student — *Fall 2017*
Courses in computer vision, cryptology and large-scale software engineering.

Professional experience

Technical University of Denmark — *Kongens Lyngby, Denmark*
Teaching Assistant — *Fall 2019*
02456 Deep Learning & 02454 Introduction to Cognitive Science
I taught 6 hours a week, developed course material, corrected assignments and supervised 50+ students' projects on the topics of deep reinforcement learning and self-supervised learning for audio.

Retune DSP — *Kongens Lyngby, Denmark*
Assistant Software Developer — *Feb 2019 - Dec 2019*
I helped a team of engineers build and maintain deep learning pipelines for embedded voice control systems.

Raffle.ai — *Copenhagen, Denmark*
Machine Learning Intern — *Summer 2019*
I reimplemented the SyntaxSQLNet cross-domain text-to-SQL parser in PyTorch and improved its accuracy by 12%.
https://github.com/raffle-interns/SyntaxSQLNet

Nordic Transition — *Gentofte, Denmark*
Lead Software Developer — *Jul 2017 - Dec 2019*
I developed and maintained a GDPR-compliant data management and analysis platform for the HR industry.

Summer schools

Åbo Akademi — *Turku, Finland*
Development of high-assured autonomous systems — *Aug 2018*

Tallinn Technical University — *Tallinn, Estonia*
High-assured autonomous systems — *Jun 2018*

Certificates

Dansk Standard — *Copenhagen, Denmark*
ISO21500 Guidance on Project Management — *Jan 2018*

Current projects

Short Term Blood Glucose Prediction Based on Continuous Glucose Monitoring Data — *Under review*
Under review for IEEE Engineering in Medicine and Biology Society (Jan 2020)
Pre-print available for download here: https://arxiv.org/abs/2002.02805
A. Mohebbi, A. Johansen, N. Hansen, P. Christensen, J. Tarp, M. Jensen, H. Bengtsson, M. Mørup

Open source contributions

Optimization in deep learning — *Dec 2019*
Collection of recent deep learning optimization algorithms (50+ stars)
https://github.com/nicklashansen/neural-net-optimization

How to build RNNs and LSTMs from scratch with NumPy — *Oct 2019*
Educational material on recurrent neural networks (100+ stars)
https://github.com/nicklashansen/rnn_lstm_from_scratch

Minimal Neural Architecture Search — *Oct 2019*
A minimalistic NAS implementation for educational purposes (30+ stars)
https://github.com/nicklashansen/minimal-nas

Voice Activity Detection in Noisy Environments — *Dec 2018*
Study on VAD systems robust to high noise levels (20+ stars)
https://github.com/nicklashansen/voice-activity-detection

Academic reviews

ACL, Annual Conference of the Association for Computational Linguistics — *2020*
Assisted review

Volunteer work

Atlas, a battleground for the Starcraft II World Championships — *Dec 2012 - Nov 2013*
Used in GSL, GSTL, IPL, DreamHack, Assembly and more (200k+ spectators)

Technical skills

Programming	Python, C#, C++, C, Java, JavaScript, Matlab, SQL
Deep Learning	PyTorch, TensorFlow
Others	Linux, Git, Azure, AWS, Docker, Conda, Jupyter Notebook, Google Colab, Latex