Nicklas **Hansen**

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Research Interest

I am broadly interested in developing intelligent systems that continuously learn, generalize, and adapt.
My work is at the intersection of **machine learning**, **robotics**, and **computer vision**.

Education

University of California, San Diego   *San Diego, CA, USA*
PhD student, Computer Science and Engineering   *Fall 2021 -*
· Advised by Xiaolong Wang and Hao Su.

University of California, Berkeley   *Berkeley, CA, USA*
Visiting Student, GPA: 4.0/4.0   *Spring 2020*
· Spar Nord Fonden's FinTech scholarship recipient, SCET's Collider Cup finalist.

Technical University of Denmark   *Kongens Lyngby, Denmark*
MSc Mathematical Modeling & Computation, GPA: 11.2/12.0   *Feb 2019 - Jan 2021*
· Special topics in machine learning. Thesis: https://nicklashansen.github.io/MS. Advised by Ole Winther.

Technical University of Denmark   *Kongens Lyngby, Denmark*
BSc Software Technology, GPA: 8.2/12.0, final year GPA: 10.8/12.0   *Sep 2015 - Dec 2018*
· **Nanyang Technological University, Singapore** - semester abroad, Fall 2017.

Research Experience

University of California, San Diego   *San Diego, CA, USA*
Visiting Researcher   *July 2020 - Aug 2021*
· Reinforcement learning. Advised by Xiaolong Wang and Hao Su.

University of California, Berkeley - Berkeley Artificial Intelligence Research (BAIR)   *Berkeley, CA, USA*
Graduate Research Intern   *Jan 2020 - July 2020*
· Reinforcement learning. Supervised by Xiaolong Wang & Lerrel Pinto in Alexei A. Efros' group.

Technical University of Denmark - Section for Cognitive Systems   *Kongens Lyngby, Denmark*
Student Researcher   *Fall 2019*
· Transfer learning for deep sequence modeling in personalized healthcare. Advised by Morten Mørup.

Publications and Pre-prints

Learning Vision-Guided Quadrupedal Locomotion with Cross-Modal Transformers   *Pre-print*
arXiv, pre-print   *2021*
Ruihan Yang*, Minghao Zhang*, **Nicklas Hansen**, Hauzhe Xu, Xiaolong Wang
https://arxiv.org/abs/2107.03996

Stabilizing Deep *Q*-Learning with ConvNets and Vision Transformers under Data Augmentation   *Pre-print*
arXiv, pre-print   *2021*
Nicklas Hansen, Hao Su, Xiaolong Wang
https://arxiv.org/abs/2107.00644

Generalization in Reinforcement Learning by Soft Data Augmentation   *Poster*
International Conference on Robotics and Automation **(ICRA)**   *2021*
Nicklas Hansen, Xiaolong Wang
https://arxiv.org/abs/2011.13389

Self-Supervised Policy Adaptation during Deployment *Spotlight*
International Conference on Learning Representations **(ICLR)** *2021*
Nicklas Hansen, Rishabh Jangir, Yu Sun, Guillem Alenyà, Pieter Abbeel, Alexei A. Efros,
Lerrel Pinto, Xiaolong Wang
https://arxiv.org/abs/2007.04309
https://openreview.net/forum?id=o_V-MjyyGV_

Short Term Blood Glucose Prediction Based on Continuous Glucose Monitoring Data *Poster*
IEEE Engineering in Medicine and Biology Conference **(EMBC)** *2020*
Ali Mohebbi, Alexander R. Johansen, **Nicklas Hansen**, Peter E. Christensen, Jens M. Tarp,
Morten L. Jensen, Henrik Bengtsson, Morten Mørup
https://arxiv.org/abs/2002.02805

Teaching

Technical University of Denmark *Co-organizer*
Reinforcement Learning *Jan 2021*
 · Special course that I co-organized w/ Prof. Ole Winther for a group of students. Three weeks of full-time study.

Technical University of Denmark *Teaching Assistant*
02456 Deep Learning *Fall 2019, Fall 2020*
 · Significant course material contributions, **supervised 100+ students' projects** on reinforcement learning.

02454 Introduction to Cognitive Science *Fall 2019*
 · Assisted tutorial sessions, corrected assignments.

Invited Talks

G-Research "Agents that Generalize and Adapt" *February 2021*
Neural AI "An Introduction to Reinforcement Learning" *June 2019*

Academic Service

2021 International Conference on Machine Learning (**ICML**) *Assisted review*
2021 Association for the Advancement of Artificial Intelligence (**AAAI**) *Reviewer*
2020 Annual Conference of the Association for Computational Linguistics (**ACL**) *Assisted review*
2020 SIGNLL Conference on Computational Natural Language Learning (**CoNLL**) *Assisted review*

Work Experience

raffle.ai *Copenhagen, Denmark*
Machine Learning Intern *Summer 2019*
 · I built and open-sourced a cross-domain text-to-SQL parser in PyTorch.

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

Nordic Transition *Gentofte, Denmark*
Student Software Developer *Jul 2016 - Dec 2019*
 · I developed and maintained a data management and analysis platform for the HR industry.

Awards

2020	**Spar Nord Fond Scholarship**	*Scholarship*
	· A scholarship to study a semester at UC Berkeley (5 recipients nation-wide).	
2020	**UC Berkeley's SCET Collider Cup Finalist**	*Award*
	· Biannual startup competition. Best student project from each class is nominated.	
2020	**Innovation Center Denmark's SPARK Winner**	*Award*
	· Best project in a 6-month entrepreneurial program in the Bay Area.	
2017	**Otto Mønsted Fonds Legat**	*Scholarship*
	· A grant for high-achieving students (GPA >8.0) that wish to study a semester abroad.	

Selected Open-Source Projects

DMControl Generalization Benchmark   *Nov 2020*
· Benchmark for generalization in continuous control from pixels.
https://github.com/nicklashansen/dmcontrol-generalization-benchmark

Optimization in Deep Learning   *Dec 2019*
· Implementation and benchmark of recent deep learning optimization algorithms.
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.
https://github.com/nicklashansen/rnn_lstm_from_scratch

Programming	Python, C, C++, C#, JavaScript
Machine Learning	PyTorch, TensorFlow
Others	Linux, Docker, Git, Kubernetes, AWS, MuJoCo, Latex