Peter Ebert Christensen

Berkeley, CA
+45 30 62 64 62
peter_ebert@live.dk
CaptainE, captaine.github.io
pebertc

Research Interest

I'm very interested in research within the areas of generalization and robustness of Deep neural networks, in particularly in connection to optimization, transfer learning and unsupervised learning.

I believe the best way to learn about Deep Learning is through open source projects and research.

Education

FEB 2019 -

Visiting Graduate Student / University of California, Berkeley

I'm one of the few recipients of the Innovation Fund Denmark and Spar Nord Fonden Fellowship, which are dedicated to elite students to spend a semester abroad in UC Berkley. The semester is expected to be related to special topics in deep learning as well as data-driven innovation.

FEB 2019 -

Msc. in Mathematical Modelling and Computing / Technical University of Denmark

I'm currently enrolled in special version of the Msc. In Mathematical Modelling and Computing with deep focus on Natural language processing and Reinforcement Learning with twice as many elective ETCS as I have completed all my specialization courses prior to enrollment. My current grade is 11.2/12.0 (-3 to 12) placing me in the top 5% of students at the university.

SEP 2015 – JAN 2019

Bsc. In Mathematics and Technology / Technical University of Denmark

I have obtained a fundamental understanding of several mathematical fields as well as deep knowledge within Machine Learning (ML) as I completed most ML courses DTU has to offer before my Masters. I achieved a grade of 9/12 (-3 to 12) placing me in the top 20 % of students at the university.

Experience

FALL 2019

Teaching Assistant in Deep Learning / DTU

I've been assigned to teach the next generation of Deep learning practitioners (300 students) for the fall semester in the Deep learning course at the technical university of Denmark. Here I teach 4 hours a week, develop course material, correct assignment and super projects for over 50 + students within the topics of Reinforcement Learning, NLP and Computer vision.

SUMMER 2019

Machine Learning Intern / Raffle.ai, Langelinie pier47

I applied state of the art Deep learning techniques within Natural language processing for creating a chatbot / virtual assistant that can answer difficult questions in relation to data found in a database. This consisted of reimplementing the SyntaxSQLNet cross-domain text-to-SQL parser in PyTorch and improving its accuracy by 12%.

2019

Student assistant / DTU Energy

Under the supervision of professor Tejs Vegge, I worked with creating the underlying infrastructure for the AIMade project (http://www.aimade.org). This includes novel software and machine learning tools for autonomous material discovery and analysis. See aimade.org for more information.

2016

Mentor / GoKarakter

I taught high school students in chemistry, physics and mathematics

Activities

2019

Neural / DTU Skylab

I have been given the honor to present three speeches at DTU Skylab, together with companies such as Oticon and KPMG, one within Applying Artificial intelligence to molecular physics in discover better materials used for solar cells and batteries. And later on, two talks about applying Reinforcement learning to computer games.

Publications

2019

Autoencoding unidirected molecular graphs with neural networks

Submitted for Journal of Chemical Information and Modeling Nov 2019

J.J.W Olsen, P.E Christensen, M. H. Hansen, A.R. Johansen

A language model in form of the Transformer was used to make an embedding using the chemical dataset QM9 to enhance the performance of molecular property prediction.

2019

A Deep Learning Approach to Short Term Blood Glucose Prediction on Continuous Glucose Monitoring Data

To be submitted for IEEE Engineering in Medicine and Biology Society by Jan 2020

A. Mohebbi, A. Johansen, N. Hansen, P.E Christensen, M. Jensen, J. Tarp, H. Bengtsson, M. Mørup

A pilot study was made to investigate the usage of Transfer Learning using language models from Deep learning models and classical statistical models for predicting continuous glucose monitoring data from real patients.

Open source contributions skills

OCT 2019

Deep Unsupervised Learning & A3C

Repository containing the homework material of the CS294-158 Berkeley Deep Unsupervised Learning

https://github.com/CaptainE/Deep-Unsupervised-Learning

OCT 2019

How to build RNNs and LSTMs from scratch with NumPy

Repository containing material of related the 02456 Deep Learning course from DTU in which Nicklas Hansen, Alexander Johansen and I developed new course material for week 5. The project has 100+ stars

https://github.com/nicklashansen/rnn_lstm_from_scratch

JUN 2019

Deep Reinforcement Learning & A3C

Repository containing material of the CS294-122 Berkeley Deep reinforcement learning course and an implementation and ablation study of A3C as a project

https://github.com/CaptainE/Deep-reinforcement-learning-A3C

NOV 2018

Proximal Policy Optimization (PPO) & Random Network Distillation (RND)

Repository containing my project in the 02456 Deep Learning course in which I implemented the PPO and improved it's performance using RND to solve the pommerman challenge *https://www.pommerman.com* which was sponsored by Google AI, Facebook AI Research and NVIDIA

https://github.com/CaptainE/PPO-RND-Pommerman

MAY 2018

Non negative latent space models

Repository containing material of the research project with Senior Researcher Tommy Sonne Alstrøm and Ast. Prof. Mikkel Schmidt on applying Non negative latent space models on Raman spectroscopy for unsupervised learning of spectra's of different molecular drugs.

https://github.com/CaptainE/Non-negative-latent-space-models

Technical skills

Programming
Python, Matlab, R, SQL, C & C++, Java

Deep Learning
Pytorch

Others
Linux, Git, Docker, Conda, Latex, Jupyter Notebook, Incscape, Google Colab

Languages

Danish (Native)
English (Fluent)