Dan Saattrup Nielsen

Mathematician and Data Scientist

Info

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Links

Portfolio and blog

LinkedIn

Github

Skills

Python ●●●●●

NumPy ●●●●●

SciPy ●●●●●

Pandas ●●●●●

Jupyter ●●●●●

Virtual Environments ●●●●●

Git ●●●●●

spaCy ●●●●●

Scikit-Learn ●●●●●

PyTorch ●●●●●

TensorFlow ●●●●○

SQL ●●●●○

Languages

Danish ●●●●●

English ●●●●○

German ●●○○○

Profile

I am about to finish my PhD in Mathematics at the University of Bristol, UK, and am looking forward to return to Denmark in June 2020 and seek new challenges within NLP, machine learning and data science. I am incredibly ambitious and love what I am doing, and I tend to take a lot of initiative to new projects and to look at things from new angles.

Education

University of Bristol, PhD in Mathematics

Sep 2016 — Jun 2020 Bristol, UK

Thesis topic: Set Theory, Mathematical Logic

Relevant courses:

- Statistical Methods 1: Bayesian methods, regression, linear classification and support vector machines
- Statistical Methods 2: Principal component analysis, multidimensional scaling, independent component analysis, cluster methods, lasso- and ridge regression

Rutgers University, Visiting researcher

Feb 2019 — Mar 2019 New Brunswick, NJ, USA

Invited research visit for five weeks to work with Professor Grigor Sargsyan on a paper in Mathematical Logic.

University of Copenhagen, MSc in Mathematics

Sep 2014 — Aug 2016 Copenhagen, Denmark

GPA: 11.7/12.0 (A)

University of Copenhagen, BSc in Mathematics

Sep 2011 — Aug 2014 Copenhagen, Denmark

GPA: 10.8/12.0 (B+)

Relevant courses:

- Object oriented programming: Java and Python
- Functional programming: SML
- Relational databases: SQL

University of Leeds, Erasmus Exchange

Jan 2013 — Jun 2013 Leeds, UK

Erasmus exchange as part of my BSc in Mathematics.

Work experience

Teaching Assistant at University of Bristol

Sep 2016 — Jun 2020 Bristol, UK

- Responsible for weekly exercise classes for Mathematics undergraduate students
- Taught both LaTeX and Python

Teaching Assistant at University of Copenhagen

Sep 2013 — Jul 2016 Copenhagen, Denmark

Responsible for weekly exercise classes for Mathematics undergraduate students

Software Developer at GE Revision & Rådgivning

Sep 2009 — Jan 2014 Hvidovre, Denmark

- Automated the company's accounting process, reducing processing time from multiple hours to a single minute
- Developed cash register software to allow for automatic transfer of transaction data from the company's clients

Reference: Benjamin Jensen, 70 220 880

Internship

AI Researcher at Barbal Ltd

Sep 2019 — Jan 2020 Bristol, UK

Barbal delivers a word processing platform designed for large scale collaboration on technical documents.

- Developed a machine learning model that identifies technical terms in construction standards with a 90% accuracy
- Implemented an *active learning pipeline*, that allows the model to learn faster

Reference: Tom Bartley, tom@barbal.co

Volunteer work

NLP lead, Alan Turing Institute

Dec 2019 — Dec 2019 London, UK

- Led a data science team consisting of 14 PhD students
- Worked with WWF to classify news articles that mention threats to protected sites
- We implemented an NLP machine learning model that utilises sentiment, topic modelling and geoparsing
- The model correctly detects 96% of the relevant articles, with only 18% false positives
- This project will be published in a future white paper from the Alan Turing Institute

Data Science lead, Data & Community Hackathon

Nov 2019 — Nov 2019 Bristol, UK

- Led a data science team of 5 full-time professionals
- We implemented a random forest model for a local homeless organisation, which will help them predict how many people they would need to prepare food for
- We are now working with the organisation to get the model implemented in their daily work

Personal projects

Scholarly

May 2019 — Jan 2020

- NLP model that classifies scientific papers within the 148 categories used on arXiv, solely based on titles and abstracts
- For a given paper, the model detects on average 65% of the categories to which the paper belongs, compared to classical methods that detects ~40% of the categories
- The model is trained on all ~1.3 million articles from arXiv, scraped with Python using arXiv's API and stored in a SQLite database
- Featured on University of Bristol's website
- Try out the demo, read more in my blog post, and see the source code in my Github repository

NaturalSelection

Aug 2019 — Sep 2019

- Python package that implements a genetic optimsation algorithm, which can for instance be used to evolve neural network architectures
- Read more in blog post, and see the source code in my Github repository

AutoPoet

Sep 2019 — Nov 2019

- Construct Haiku poems from tweets
- The majority of the work was to train an NLP model that could split English words into syllables, with a 97% accuracy
- Read more in more blog post, and see the source code in my Github repository

Certifications

Natural Language Processing Nanodegree

Sep 2019 — Oct 2019

Link to certificate

This Udacity Nanodegree covered multiple aspects of natural language processing:

- Use of hidden Markov models to add part-of-speech tags
- Conversion of text to Word2Vec- and GloVe word embeddings
- Construction of seq2seq models such as recurrent neural networks and transformers

Deep Learning Specialisation

Jun 2019 — Sep 2019

Link to certificate

This Coursera specialisation covered the theory of neural networks from scratch, starting with the mathematical theory and up to concrete implementations of modern architectures in TensorFlow and Keras.

Stanford Machine Learning

May 2019 — Jun 2019

Link to certificate

This Coursera course covered the application and implementation of classical machine learning methods such as linear models, support vector machines, decision trees and random forests.

IBM Data Science Specialisation

Apr 2019 — May 2019

Link to certificate

This Coursera specialisation covered basic data analysis in Python using Numpy, Pandas and Matplotlib, and introduced several clustering methods.

Personal interests

In my spare time I am doing yoga multiple times each week, I climb once in a while and I am currently practicing Persian calligraphy.