

Jesper Dramsch

Researcher in Machine Learning for Geosciences

contact

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profiles

unabridged experiences,
awards, and projects:

publications 🏛️
/in/thegeophysicist **in**
JesperDramsch 🌐
dramsch.net 🌐

language

German 🟢🟢🟢🟢
English 🟢🟢🟢🟢
Spanish 🟡🟡🟡🟡

programming

Python 🟢🟢🟢🟢
Matlab 🟡🟡🟡🟡
Javascript 🟡🟡🟡🟡
Php 🟡🟡🟡🟡
Fortran 🟡🟡🟡🟡

skill highlights

Machine Learning
Neural Networks
Geophysics
Seismics
Python
Teaching

objective

Researcher of machine learning in geosciences, incorporating signal processing and physics knowledge in blackbox machine and deep learning models. Active member in the FOSS and AI community with a strong record of teaching, publication, and international collaboration.

education

2016–2019 **Ph.D.** Candidate, Machine Learning in Geoscience Tech. University of Denmark
4 submitted journal papers (+2 in prep), 3 conference papers, 4 workshop papers, 1 open source package. 13 Presentations, 4 posters. 2x TA physics. Visiting Researcher Heriot-Watt University, Edinburgh.

Thesis: Machine Learning in 4D Seismic Data Analysis [Link]

Coursework: Advanced Topics in Machine Learning, Advanced Image Analysis, etc.

2010–2015 **Master** of Science, Geophysics University of Hamburg, Germany
Seismic subsalt Fresnelzone imaging with travel-time surface techniques.

Thesis: Pre-stack Data Enhancement for Subsalt Imaging

Coursework: Inversion Problems, Seismic Data Processing, Seismic Anisotropy, etc.

2007–2010 **Bachelor** of Science, Geophysics University of Hamburg, Germany
Systematic evaluation of seismic trace interpolation with partial CRS stack.

Thesis: Trace interpolation using Partial CRS-Stacks

Coursework: Math, Physics, Numerical Methods, Seismic Waves and Signals, etc.

experience

2019 (3m) **Danish Hydrocarbon Research and Technology Centre** Lyngby, Denmark
PostDoc Multitask learning in subsurface geophysics.

2019–now **Consulting (Agile* Scientific)** Mobile
Python & ML Educator: Teaching Python programming and Machine Learning basics. (UK OGA, Shell, Wintershall DEA, Leeds Uni, Oxford)

2016–2019 **Technical University of Denmark** Copenhagen, Denmark
Postgraduate Researcher Machine learning in 4D seismic and geoscience.
• Implemented unsupervised microscopy image segmentation
• Replaced 1D method with CNN-based 3D method for 4D seismic timeshifts
• Physics-based DNN inversion (see ETLP)

2018–2019 **Edinburgh Timelapse Project (ETLP)** Edinburgh, Scotland
Visiting Scholar Deep neural networks for 4D seismic data inversion.
• Implemented physics-based DNN for seismic inversion
• Presented course on CNNs and ML to researchers

2013–2014 **Educator at DESY (Physik begreifen)** Hamburg, Germany
Teaching Assistant Physics experiments on vacuum, radioactivity and quantum physics to enhance school curriculae.

2012 (4m) **Schlumberger** Crawley, United Kingdom
Intern – Engineering Prototyping automatic data-driven interpolation.

Excluded nine positions in geoscience, EC research and field work

Jesper Dramsch

Leadership & Projects

FOSS contrib

Keras Complex </>
Open Geoscience </>
Tensorflow 🐍
Scikit-Learn 🐍
Pandas 🐍

software skills

Matlab, Python
Tensorflow, Sklearn
Numpy, Pandas
Git(hub), Travis CI
L^AT_EX, Bash
Windows, Unix

interpersonal skills

technical writer
analytical thinking
fast learner
communication
project management
resilience, discipline

leadership and awards

- 2019 **AI Committee** EAGE SIG
Committee Member of the EAGE AI special interest group.
- 2019 **Digitalization Board Member** EAGE Digital 2020
Board Member of the EAGE Digitalization conference committee.
- 2019 **Kaggle Days Participant** San Francisco
Selected as one of 300 participants (out of 800+ applications) to attend Google Next and Kaggle Days San Francisco 2019.
- 2018–now **Community Moderator** Software Underground
Administrator of slack community of ~2000 digital geoscientists, regular contributor to organization Github, mentored sprints, CoC team.
- 2018–2019 **Python Conference Volunteer** PyCon UK, EuroScipy
Volunteer for setup of conference and audio and visual equipment.
- 2018–now **Kaggle Kernels Expert [Top 81 worldwide]** Kaggle
 - Deep Fake Introduction and EDA. [Bronze]
 - Santa's workshop combinatorial optimization. [Silver]
 - Pneumothorax: CNNs for medical x-rays. 10k+ views & 375+ ⬆️. [Gold]
 - TGS Salt detection: CNNs for Seismic data. 50k+ views & 725+ ⬆️. [Gold]
- 2016–2019 **Hackathons** [Link to Project]
 - Quick seismic models of geological sketches using GANs [Audience Prize]
 - T-SNE unsupervised ML for interactive high dimensional data viz [Winner]
 - Deep learning-based rapid seismic inversion using GANs [Winner]
 - Traptris: Subsurface models from playing Tetris [Winner]
- 2016–2018 **Team Leader / Volunteer** Copenhagen Volunteer Corps
Gold tier member and team leader of the Copenhagen volunteer corps, assisting 20+ cultural, arts and sports events.
- More leadership in networking and sci comm, and other awards [Link]**

personal projects

- 2019 **Machine Learning in Geoscience e-lecture** EAGE ▶
EAGE student e-lecture on machine learning in geoscience. (Scheduled Jan)
- 2019 **Visualization Winner, June** Data Is Beautiful
Data analysis and visualization community with 13m members.
- 2018 **Online GAN from Sketch to Seismic** quickseis.de
Quick conceptual models of geological sketches transferred to seismic in real time in the browser with a deep convolutional generative adversarial network.
- 2011–now **Science and Technology Blog** the-geophysicist.com
Technical blog about geoscience, physics, and machine learning. Weekly highlights and long-form articles. 200+ readers / week
- Focused on the most recent and most relevant projects. [More]**