



DGMK/DGG Short Course

Machine Learning for Exploration Geophysics

Exploration and Production Division

10. - 12. March 2020 in Hamburg



ABOUT THE LECTURER

Ivan Abakumov received his Bachelor's (2009) and Master's (2012) degrees in Physics from St. Petersburg State University. While studying, Ivan was working as a teacher of computer science in high school and conducted advanced mathematics courses for high school graduates. After receiving his Master's degree, Ivan completed internships in Microseismik s.r.o. (Czech Republic) and Shell (The Netherlands). From 2012 till 2015, Ivan participated with Shell in a research project aimed at characterizing of velocity anomalies in time-lapse seismic. From late 2013, Ivan worked on a PhD thesis related to multidimensional stacking and CRS in the University of Hamburg, Germany. Ivan has worked for short-term research projects in Trofimuk Institute of Petroleum Geology and Geophysics (Novosibirsk, Russia) and in the Norwegian University of Science and Technology (Trondheim, Norway). After receiving his PhD, Ivan has worked as a research scientist at Freie Universität Berlin since September 2017. He is currently working on microseismic data inversion. Ivan is also interested in development and collection of open-source seismic software.

ABOUT THIS COURSE

Machine learning has become the main driver of numerous innovative applications: from automated driving and medical devices to industrial automation and electronics. The course offers a comprehensive introduction to machine learning techniques and illustrates the application of machine learning to modern geophysical problems. The goal of the course is to provide trainees with a fundamental understanding of machine learning algorithms sufficient to apply them to solve problems.

Topics cover supervised learning (linear regression, logistic regression, support vector machine), neural networks (DNN, CNN, RNN, GAN) and unsupervised learning (clustering, principal component analysis, anomaly detection). The course will also draw from numerous case studies and applications so that trainees will also learn how to apply machine learning algorithms. Although machine learning typically requires HPC

resources and advanced programming skills, the course is designed in such a way that trainees only need the basic programming skills in MATLAB or Python.

VENUE

SiH Seminarraum in Hamburg
Mexikoring 15, 22297 Hamburg
Computers will be provided on-site.

COURSE FEES

MEMBERS*	
University	238 €
Industry	668 €
NON-MEMBERS	
University	338 €
Industry	968 €

*Member fees are valid for personal members of DGMK and DGG.

Coffee, tea, pastries and lunch are included in the course fee for all course days.

HOW TO REGISTER

Visit www.dgmk.de