

Oleg Ovcharenko

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Geophysics & Machine Learning

INTERESTS

**Inverse Problems, Numerical Modeling, Data Analysis,
Entrepreneurship**

EDUCATION**King Abdullah University of Science and Technologies**, Saudi Arabia

PhD Candidate in Computational Geophysics, GPA: 3.61/4.00

2016 - 2020

Research is focused on Machine Learning applications in exploration geophysics such as frequency bandwidth extrapolation for FWI, data-to-model conversion, and source mechanism inversion. (Advisor: Prof. Daniel Peter)

Paris VII Diderot, Institut de Physique du Globe de Paris, France

M.Sc., Exploration geophysics, GPA: 14.15/20.00

2014 - 2015

Thesis: An accurate finite difference operator for synthetic seismogram calculation for 2D transversely isotropic elastic media with regular meshing. (Advisors: Prof. Nobuaki Fuji and Dr. Roland Martin)

Lomonosov Moscow State University, Russia

M.Sc., Physics, GPA: 4.0/5.0

2009 - 2014

Thesis: Analytical solutions for viscous flow in the lithosphere subject to exogenous processes and isostasy. (Advisor: Dr. Yuriy L. Rebetskiy)

**WORK
EXPERIENCE****Co-founder at MedSeis**

2018 - now

- Biotech. New way of doing ultrasonic medical imaging.
- Awarded 10k\$ proof-of-concept funding from the PostUp university program

Intern at KAUST Innovation Fund, Thuwal, Saudi Arabia

2017

- Assisted investment managers to evaluate university-based startups
- Participated in planning of the Arabian Venture Forum

Engineer at department of Tectonophysics, IPE RAS, Moscow, Russia

2013 - 2014

- Reconstructed stress state in the crust of Western Europe using method of Cataclastic Analysis of Discontinuous Displacements
 - Published a paper based on this work
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**PROGRAMMING,
OS AND MARKUP**Python, Matlab, C
TensorFlow, Keras, PETScLaTeX, HTML, CSS, Git
Mac OS, Unix, Windows**SELECTED
COURSEWORK**

Computational Geophysics (ErSE390C, Prof. Daniel Peter), **Introduction to HPC** (AMCS312, Prof. David Keyes), **Inverse Problems** (ErSE213, Prof. Ibrahim Hoteit), **Machine Learning** (CS229, Prof. Xiangliang Zhang), **Technology Innovation and Entrepreneurship** (EID210, Prof. Gordon McConnell)

LANGUAGES**Russian** Native
English Fluent**French** Intermediate
Arabic Elementary

HONORS AND AWARDS

NVIDIA-KAUST GPU Hackathon , won 1st award out of 7 teams	2018
EAGE GeoQuiz , won 3rd award out of 37 teams worldwide	2017
KAUST PhD Fellowship , annual funding of 70k\$, Saudi Arabia	2016 - 2020
GPX Fellowship from IPGP and MINES ParisTech, France	2014 - 2015

CERTIFICATES

Cornell Graduate School of Management Certificate in Entrepreneurship	2018
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VOLOUNTEERING

Charity fund "Podari Zhizn" activities	2017 - now
Enrichment Programs at KAUST	2016 - now

LEADERSHIP

President of SEG Student Chapter at KAUST	2017
Head of public transport cards department of Student Union at MSU	2011 - 2014

PERSONAL PROJECTS

WaveProp in MATLAB - a kit of 6 single-file codes in MATLAB for 2D and 3D acoustic and elastic wave propagation in time domain. Solves problem of simple start for beginners in wave propagation.

JOURNAL ARTICLES

1. Shot-to-shot low-frequency data extrapolation for FWI by a deep CNN.
O Ovcharenko, V Kazei, M Kalita, D Peter, T Alkhalifah
Submitted to GEOPHYSICS 2019
2. Variance-based model interpolation for improved full-waveform inversion in the presence of salt bodies
O Ovcharenko, V Kazei, D Peter, T Alkhalifah
GEOPHYSICS 2018
3. Present stress field of the crust in South-West Europe and Mediterranean Sea
Rebetskiy, Yu., Ovcharenko, O., Savvichev, P.
Bulletin of Kamchatka Regional Association "Educational-Scientific Center". Earth Sciences, No. 2(24) 2014.

SELECTED CONFERENCE PAPERS

1. Transfer learning for low frequency extrapolation from shot gathers for FWI applications 2019
O Ovcharenko, V Kazei, D Peter, T Alkhalifah
81th EAGE Conference and Exhibition 2019
2. Low-frequency data extrapolation using feed-forward ANN 2018
O Ovcharenko, V Kazei, D Peter, T Alkhalifah
80th EAGE Conference and Exhibition 2018
3. Feasibility of moment tensor inversion for a single-well microseismic data using neural network 2018
O Ovcharenko, J Akram, D Peter
GEO 2018 Conference and Exhibition
4. A robust neural network-based approach for microseismic event detection 2017
J Akram, O Ovcharenko, D Peter
SEG Technical Program Expanded Abstracts 2017, 2929-2933
5. Simple and accurate operators based on Taylor expansion for 2D elastic seismogram calculation under geological discontinuities with regular Cartesian grids 2016
N Fuji, O Ovcharenko, R Martin, C Cuvilliez
78th EAGE Conference and Exhibition 2016-Workshops

REFERENCES

Available upon request