ovcharenkoo.com

Oleg Ovcharenko

KAUST, PO box 1186, 23955-6900, Thuwal, Saudi Arabia

Contacts

+966 53 273 9032 oleg.ovcharenko@kaust.edu.sa github.com/ovcharenkoo

Interests

Geophysics & Machine Learning

Inverse problems, Numerical Modeling, High-Performance Computing, Entrepreneurship

Education

King Abdullah University of Science and Technologies, Saudi Arabia

PhD Candidate in Computational Geophysics, GPA: 3.61/4.00 2016 - 2020

Research focused on ML applications in exploration geophysics such as seismic data enhancement for full-waveform inversion, data-to-model conversion, and source mechanism inversion. Supervised by Prof. Daniel Peter

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

Master of Science in Exploration geophysics, GPA: 14.15/20.00 2014 - 2015

Developed an accurate finite difference operator for synthetic seismogram calculation in 2D transversely isotropic elastic media with regular meshing. Supervised by Prof. Nobuaki Fuji and Dr. Roland Martin

Lomonosov Moscow State University, Russia

Master of Science in Physics, GPA: 4.0/5.0 2009 - 2014

Derived analytical solutions for viscous flow in the lithosphere subject to exogenous processes and isostasy. Supervised by Dr. Yuriy L. Rebetskiy

Work Experience

Machine Learning Engineer Intern **at CGG**, Crawley, UK 2019 - Feb 2020

- Software engineering in Python using PyTorch.
- Developing task-specific solutions using DL toolbox (GANs, CNNs etc).

Co-founder **at MedSeis**, Thuwal, Saudi Arabia 2018 - 2019

- Biotech. Radiation-free dental imaging.
- Raised 30k$

Venture Capital 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 from data on focal mechanisms at multiple scales
- Published a paper based on this work

Programming, OS and Markup

Python, Matlab, C, CUDA C
PyTorch, Keras, PETSc
LaTeX, 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	**French**	Intermediate
English	Fluent	**Arabic**	Elementary

Honors and Awards

ExxonMobil Upstream Research Company Scholarship 2019
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 Scholarship, annual funding of 70k$, Saudi Arabia 2016 - 2020
GPX Master Scholarship from IPGP and MINES ParisTech, France 2014 - 2015

Certificates

Cornell Graduate School of Management
Certificate in Entrepreneurship 2018

Leadership

President of SEG Student Chapter at KAUST 2017

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.

Memberships and Service

Member of **SEG, EAGE**
Reviewer for journals **Geophysics**, **Geophysical Journal International**

Journal Articles

1. **Deep learning for low-frequency extrapolation from multi-offset seismic data**
   O Ovcharenko, V Kazei, M Kalita, D Peter, T Alkhalifah
   GEOPHYSICS 2019
2. **Mapping seismic data cubes to vertical velocity profiles by deep learning: New full-waveform inversion paradigm?**
   V Kazei, O Ovcharenko, P Plotnitskii, D Peter, X Zhang, T Alkhalifah
   submitted to GEOPHYSICS 2019
3. **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
4. **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

Conference Papers

1. Style transfer for generation of realistically textures subsurface models 2019
   O Ovcharenko, V Kazei, D Peter, T Alkhalifah
   SEG Technical Program Expanded Abstracts, 2019
2. 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
3. Realistically textured random velocity models for deep learning applications 2019
   V Kazei, O Ovcharenko, D Peter, T Alkhalifah
   81th EAGE Conference and Exhibition

4. Low-frequency data extrapolation using feed-forward ANN 2018
   O Ovcharenko, V Kazei, D Peter, T Alkhalifah
   80th EAGE Conference and Exhibition

5. Feasibility of moment tensor inversion for a single-well microseismic data using neural network 2018
   O Ovcharenko, J Akram, D Peter
   GEO Conference and Exhibition

6. Neural Network Based Low-Frequency Data Extrapolation 2017
   O Ovcharenko, V Kazei, D Peter, T Alkhalifah
   SEG FWI Workshop, Manama, Bahrain, 2017

7. A robust neural network-based approach for microseismic event detection 2017
   J Akram, O Ovcharenko, D Peter
   SEG Technical Program Expanded Abstracts

8. Variance-based Salt Body Reconstruction 2016
   O Ovcharenko, VV Kazei, D Peter, T Alkhalifah
   79th EAGE Conference and Exhibition 2017

9. 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