

Georgy Kossov

Moscow, Russia
kossov.ga@phystech.edu

Education

Moscow Institute of Physics and Technology

Sep 2021 – Jul 2023

Master of Applied Mathematics and Physics (with honors)

Moscow, Russia

Speciality: Fundamental and Applied Geophysics

Average Grade: 9.26/10; ranking top-5% of the department

Moscow Institute of Physics and Technology

Sep 2017 – Jul 2021

Bachelor of Applied Mathematics and Physics

Moscow, Russia

Professional education:

- MIPT Diploma in Data Science and Analytics, 2023
- Ichnology in Sedimentology (E. Baraboshkin), 20-22 Nov, 27-29 Nov, Geomodel
- Fracturing is a fundamental feature of carbonates (I. Khromova), 19 Nov 2023, GeoEurasia
- Neural Networks and Deep Learning, Coursera, 2022

Research Experience

Student Intern

Apr 2022 – till now

Schlumberger Moscow research center

Moscow, Russia

- The task of automatic lithotype description via whole core images using ML techniques (CNN and FFNN).
- The noise suppression task using RNN techniques.
- The microimager data analysis using CNN and computer vision techniques.
- Learned the principles of Techlog/Eclipse software.
- The task of resolution increase of conventional logs.

Student Intern

Oct 2021 – Apr 2023

Rosneft Moscow research center

Moscow, Russia

- Developing new models for fracture cleanup (Master's thesis).
- TNavigator modeling.

Student Intern

Jul 2020 – Aug 2021

Laboratory of Fluid Mechanics, Joint Institute for High Temperatures RAS

Moscow, Russia

- Developed a workflow in MATLAB for flame edge detection.
- Learned the principles of methane-air flame stability.
- Gained experience with laboratory equipment: Hot-wire anemometer Dantec miniCTA, Particle Image Velocimetry (PIV) system LaVision (+DaVis), flow meter Bronkhorst, signal generator Rigol DG4062, oscilloscope Rigol DS1054Z, high speed camera Photron FASTCAM SA4

Student Intern

Sep 2019 – Aug 2021

Central Research Institute for Machine Building

Korolev, Moscow region, Russia

- Studied the properties of heat-conducting materials.
- Learned the principles of solving inverse problem of heat conduction.
- Bachelor's Thesis: "Solving the inverse problem of thermal conductivity to determine the coefficient of thermal conductivity"

Other Experience

Worked on my own projects

- Participated in DatsEdenSpace, 2024 (ML competition) 5-6 Apr, 68/109 place
- Participated in Rosneft Challenge, 2022 (ML competition)
- Participated in the KAGGLE competition, 2022 (ML competition)
- Studied acoustic levitation and standing waves. Built a setup. Presented at the MIPT open day in 2018, 2019 and at the 2019 All-Russian Science Festival
- Built a setup for observing sonoluminescence in liquid (standing waves in liquid), 2020
- Built a Rubens tube (for demonstrating acoustic standing waves in a tube), 2020

Papers

- Kossov, G. A., Seleznev, I. A. (2023). Influence of neural network parameters for the quality of prediction for the tasks of automatic lithotype description. Problems of Informatics
- (Published) Krikunova, A. I., Arefyev, K. Y., Saveliev, A. S., Kossov, G. A. and Cheshko, A. D. (2021). Inverted conical methane/air flame shape transformation under acoustic excitation. Physics of Fluids, 33(5), 053610
- (Accepted for publication) Krikunova, A. I., Kossov, G. A. (2021). Flame chemiluminescence image processing using operator Canny. Journal of Physics: Conference Series

Conferences

- 66 All-Russian Scientific Conference of MIPT 2024, Usage of CNN and FFNN to automated whole core image preprocessing
- GeoEurasia 2024 , Automated workflow for depth-shifting GWL curves to the drill core images
- TNNC 2023 forum, Usage of CNN and FFNN to detect defects in drill-core photos
- ROEK 2023 conference, Usage of ML algorithms to identify thin-bed reservoirs from whole core images and GWL data
- 65 All-Russian Scientific Conference of MIPT 2023, Using methods of automatic core images analysis to solve the problem of GWL depth matching (Diploma for the best report)
- International Conference Marchuk Scientific Readings 2022, Influence of neural network parameters for the quality of prediction for the tasks of automatic lithotype description
- XI All-Russian conference Fuel combustion: theory, experiment, applications 2021, Image Processing for Estimating Flame Dynamics
- VI All-Russian Scientific Conference THERMOPHYSICS and PHYSICAL HYDRODYNAMICS 2021, CONDITIONS OF M-V-M TRANSITIONS AND DEGENERATION OF HYSTERESIS DURING ACOUSTIC EXCITATION OF A REVERSE CONICAL FLAME
- XXXVI International Conference on Interaction of Intense Energy Fluxes with Matter 2021, Image processing for analysis methane-air flame front dynamics

- XXXVI International Conference on Interaction of Intense Energy Fluxes with Matter 2021, M-flame under external acoustic field
- 63 All-Russian Scientific Conference of MIPT 2020, Image Processing Technique for Premixed Mixtures Flames

Awards & Honors

Best Report Award

65 All-Russian Scientific Conference of Moscow Institute of Physics and Technology 2023

Conference Award

65 All-Russian Scientific Conference of Moscow Institute of Physics and Technology 2023

Government Scholarship

Moscow Institute of Physics and Technology 2022

Conference Award

63 All-Russian Scientific Conference of Moscow Institute of Physics and Technology 2020

Winner of the university competition of scientific works among the 1st year

Moscow Institute of Physics and Technology 2017

Winner of the MIPT Olympiad in Physics

Moscow Institute of Physics and Technology 2017

Specialized Skills

Programming Languages: Python(PyTorch, TensorFlow, OpenCV, Pandas and etc.), Matlab(Image Processing Toolbox), L^AT_EX, C/C++, VBA

Communication: Russian (native), English (B2), German (A1), Spanish (A1)

Lab equipment: Hot-wire anemometer Dantec miniCTA, PIV system LaVision (+DaVis), flow meter Bronkhorst, signal generator Rigol DG4062, oscilloscope Rigol DS1054Z, high speed camera Photron FASTCAM SA4

Other: Soldering, Linux (Ubuntu)

Other Interests

ML and data scientist: I've passed the courses on Coursera, Stepic

Oil industry: Member of SPE(Russia), Read a magazines: "Journal of Petroleum Technology", "Oil Industry"

Mineralogy: Read a magazine "New Data on Minerals", Fersman mineralogical museum RAS

Athletics: 3rd Class in Swimming, 2nd Class in Rock climbing, Skiing

Volunteering: Member of a local charitable foundation