



Damian Kula

Work Experience

- Oct 2017 – Dec 2020 **Research engineer, Institut de Physique du Globe de Strasbourg.**
- Project Monitoring of deep reservoirs with Ambient Seismic Noise in collaboration with industrial partners from Storengy SAS.
Supervisors: Jérôme Vergne (IPGS), Jean Schmittbuhl (IPGS), Alexandre Kazanstsev (Storengy)
 - Main tasks Designing and development of a custom application for processing of continuous seismic signal, data management and parameter extraction and result interpretation for ASN monitoring. Setting up Apache Airflow cluster, creating data pipelines for continuous data fetching and processing. Setting up full GitlabCI pipeline. Installation and maintenance of two broadband seismic networks using Nanometrics and Guralp equipment with GSM connection.
 - Tech stack Python (Obspy, Numpy, Matplotlib, Scipy), Apache Airflow, Flask, Dask, Pytest, PostgreSQL, Docker, Jupyter, GitlabCI, AWS, S3;
 - Project Refactoring of legacy Fortran application for pattern matching of seismic signals, modernization by designing and building Python API.
Supervisors: Sophie Lambotte (IPGS) and Olivier Lengline (IPGS)
 - Tech stack Python (Obspy, Numpy, Matplotlib, Scipy), Cython, Pytest, Jupyter, Docker, GitlabCI;
- Apr 2017 – Sep 2017 **Junior Java Developer, ACC Cyfronet AGH.**
- Main tasks Backend development of IS-EPOS online scientific platform. Developing seismological data processing scripts.
 - Tech stack Java, Spring, MongoDB, GWT, Angular, Python (Obspy, Numpy, Scipy);
- Jun 2015 – Nov 2016 **Intern, Institute of Geophysics, Polish Academy of Sciences.**
- Internship coordinator Dorota Olszewska, PhD.
 - Main tasks Seismic signal processing and HVSr method implementation (Matlab). Creating and maintaining a database of PGA parameters for LGCD region.
- Jan 2015 – Oct 2017 **Member of a scientific project, University of Silesia in Katowice.**
- Project leader: dr hab. Wojciech Dobiński, University of Silesia, Department of Earth Sciences.
 - Main tasks Preparing and conducting Electrical Resistivity Tomography surveys. Data processing and interpretation. Participation in the Scientific Expedition to Polish Polar Station Hornsund, Spitsbergen, Norway;

Programming

- Python 5 years of experience (Obspy, Scipy, Numpy, Matplotlib, Pandas, Flask, SQLAlchemy, Dask)
- Java 1 year of experience (Spring, Springboot, GWT)
- SQL 2 years of experience
- Minor experience Fortran, R, Matlab
- Utilities Docker, Docker Compose, Apache Airflow, Git, Latex, Bash
- Continuous Integration GitlabCI, TravisCI, CircleCI
- Databases SQLite, PostgreSQL, MongoDB

Languages

- Polish Native
- English Full professional fluency
- French Basic
- Russian Elementary

Education

- Oct 2015 – Jul 2017 **Master of Science in Geophysics**, *University of Silesia in Katowice*.
Thesis title Seismic noise analysis for the purpose of Active Layer of Permafrost investigation in a region of Polish Polar Station in Hornsund, Svalbard
Supervisor Dorota Olszewska, PhD. Institute of Geophysics, Polish Academy of Sciences
- Oct 2012 – Jun 2015 **Bachelor of Science in Geophysics**, *University of Silesia in Katowice*.
Thesis title Seismic network optimization in the LGCD area with use of simulated annealing algorithm
Supervisor Maciej Mendecki, PhD. University of Silesia

Extracurricular activities

- Oct 2015 – Aug 2016 **Organizing Committee Leader**.
7th International Geosciences Student Conference in Katowice, 11th -14th July 2016
Responsibilities Organization of worldwide scientific conference for 150 students and young professionals as a core member of organizing committee.
- Jan 2016 **Volunteer**, *Biebrza National Park, Poland*.
Responsibilities Data preparation, processing and preparing for publishing in form of maps using ArcGis software.
- Oct 2014 – May 2015 **Organizing Committee Leader**.
VIII Student Scientific Workshops Geosfera 2015 in Żory, 23-26th April 2015
Responsibilities Organization of scientific conference for 130 students as leader of organizing committee.

Grants and Awards

- 2016 — Best Student Poster Award of Session 18 during 35th General Meeting of European Seismological Commission, Trieste 2016.
— Travel grant to participate in the Advanced School on Seismology Beyond Textbooks & 35th General Meeting of European Seismological Commission, Trieste, 2016.
- 2015 — Travel Grant to participate in the Society of Exploration Geophysicists & Chevron Student Leadership Symposium, New Orleans, 2015.
- 2012 — Winner of the XVI Contest of Technical Knowledge 2012, organized by University of Silesia in Katowice (XVI Konkurs Wiedzy Technicznej).

Personal interests

- o Mountain biking, hiking, running, swimming, polar regions
- o Technology, programming

Published materials

Publications

- 2018 — Kula, D., Olszewska, D., Dobiński, W., Glazer, M.; Horizontal-to-vertical spectral ratio variability in the presence of permafrost, *Geophysical Journal International*, Volume 214, Issue 1, 1 July 2018, Pages 219–231, DOI 10.1093/gji/ggy118
- 2014 — Glazer, M., Kula, D., Saternus, R., Lewicki, P.; Geophysical Exploration of Castle Remains in Barwałd Górny (Near Kalwaria Zebrzydowska, Poland) Using Electrical Resistivity Tomography (ERT) with Assistance of Depth of Investigation Index (DOI) Method; *Contemporary Trends in Geoscience*, 3(1), 24-31., DOI 10.2478/ctg-2014-0019

Posters

- 2018 — Kula D., Lehujeur M., Vergne J., Schmittbuhl J., Zigone D.; Steps toward monitoring a deep geothermal reservoir in northern Alsace with ambient seismic noise interferometry; 80th EAGE Conference & Exhibition 2018; Copenhagen 2018;
- Kula D., Vergne J., Schmittbuhl J., Zigone D.; Monitoring a deep geothermal reservoir in northern Alsace with ambient seismic noise interferometry; 9th European Geothermal PhD Days; Zurich 2018;
- Kula D., Vergne J., Schmittbuhl J., Zigone D.; Towards monitoring deep geothermal reservoirs in Alsace with ambient seismic noise; 6th European Geothermal Workshop; Strasbourg 2018;
- 2017 — Kula D., Olszewska D.; Seasonal variability of Horizontal to Vertical Spectral Ratio in polar regions; European Geosciences Union General Assembly 2017; Vienna 2017;
- 2016 — Kula D., Olszewska D., Dobiński W., Glazer M.; Comparative analysis of ERT and seismic noise changes in time for purpose of active layer investigations; 35th General Assembly of European Seismological Commission, Trieste 2016; **Awarded with Best Student Poster Award**
- Olszewska D., Kula D.; Preliminary site-effects characterization by inversion of HVSR data in mining area; 35th General Assembly of European Seismological Commission, Trieste 2016
- Kula D., Olszewska D., Dobiński W., Glazer M.; Using HVSR Method for Estimating Thickness of Active Layer of Permafrost; 7th International Geosciences Student Conference, Katowice 2016
- Kula D., Olszewska D., Dobiński W., Glazer M.; Comparative analysis of ERT and seismic noise changes in time for purpose of active layer investigations; 36th Polar Symposium, Lublin 2016
- 2015 — Kula D., Glazer M., Bieta B.; ERT Surveys over anthropogenic void of known dimensions, 6th International Geosciences Student Conference, Prague 2015
- 2014 — Glazer M., Kula D., Saternus R.; Geophysical explorations of castle remains in Barwałd Górny, VII GeoSymposium of Young Researchers Silesia 2014, Ustroń 2014