

Mihael Tunik

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<https://github.com/mihael-tunik/>



Education

2013 — 2017 **Bachelor degree**, *Saint-Petersburg*, Peter the Great St.Petersburg Polytechnic University, department of applied mathematics and mechanics.

2017 — 2019 **Master degree**, *Saint-Petersburg*, Peter the Great St.Petersburg Polytechnic University, department of applied mathematics and mechanics.

Master thesis

2019 **Special kernel density estimator for finite sample size conditions.**

Work is dedicated to research of theoretical accuracy of statistical kernel density estimator of special type for finite sample size conditions.

Experience: 3 years 4 months

august 2019 — now **Saint-Petersburg State University, Chebyshev Laboratory**, *engineer-researcher*.

- Work in team on development of special statistical instrument for geo-data analysis based on Gaussian Processes (multi-output GP, sparse GP) written mostly on Python language. Adding new features, refactoring of existing codebase. Research for relevant scientific articles in given subject area.
- Project work on software for solving inverse problems for seismic data. Developing specific approach based on previously developed software. Using Tensorflow/Torch frameworks. Participation in development and testing on real data.
- Development of software for solving Riemann problems, which appear in porous media hydrodynamics. Search for literature and articles, algorithm development and implementation. Created library on C++ for using in Python project via Ctypes.
- Fine-tuning advanced hydrodynamic simulations in Dumux with Bayesian Optimization technics, using botorch. In this project I took part in development of original algorithm and implementation. Also here I worked with experimental dashboards like Tensorboard and building custom UI for developed ML-system with PyQt5.

Skills

For scientific computation: Python (numpy, scipy, matplotlib, Jupyter, torch, keras, autograd), R, Matlab, Mathematica

Mathematical background: statistics and probability theory (random functions and fields), linear algebra, calculus.

- Computer science background: Standard course of algorithms and numerical methods, various optimization methods, statistical data analysis, ML: regression of all types, table data classification.
- More information and keywords:
- Decent 5-year experience with **Linux** [Ubuntu, Mint], system configuration, work via bash;
 - **Git** version control system, managing repositories in **Bitbucket** and **GitHub** (pull-requests, code review and so on), **Notion** for task-tracking, **pytest** for testing;
 - Work on project sketches in **Jupyter Notebooks**;
 - Running code on servers remotely via ssh, building **Docker** containers;
 - Work skills with **Pandas** and **sklearn**, experience with **GPFlow**, **GPy** for work with Gaussian Processes, gradient boosting with **CatBoost**;
 - Advanced work with **LaTeX** for scientific texts and presentations;
 - Experience with building up python package from scratch with **setuptools**, managing packages and project installations with **venv** or **Anaconda**;
 - Experience with **PyQt5**, and also with **PyInstaller** for building binaries;
 - Some experience with C/C++ (parallel computations with **OpenMP**, make-files and **CMake**, building small .so libs);
 - Basic knowledge of PostgreSQL (including **pgAdmin** and **libpq++**);
 - Basic knowledge of HTTP protocol, **Django** and **FastAPI**.

Languages

Russian Native speaker
English Upper-Intermediate

Online courses

Stepik October 2022

Hadoop. System for big data processing.

Learned basic things about Hadoop ecosystem, including HDFS, MapReduce, HBase and also Apache Spark. Practicing in writing code on Scala as a bonus.

Result: certificate with distinction, >90% score.