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, departament of applied mathematics and mechanics.

2017 — 2019 **Master degree**, *Saint-Petersburg*, Peter the Great St.Petersburg Polytechnic University, departament 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 2 months

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

- Work in team on develomment 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. Participation in development of original algorithm and implementation. Also work with experimental dashboards like Tensorboard and building custom UI for developed ML-system with PyQt5.

Skills

For scientific computation: Python (numpy, scipy, matplotlib, 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 analisys, 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;
- Running code on servers remotely via ssh, building **Docker** containers, work with everything via **venv**;
- Experience with GPFlow, GPy for work with Gaussian Processes, gradient boosting with **CatBoost**; work skills with **Pandas** and sklearn;
- Advanced work with **LaTeX** for scientific texts and presentations;
- Experience with building up python package from scratch with **setuptools**;
- Experience with **PyQt5**, and also with PyInstaller for bulding 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++).

Languages

Russian Native speaker

English Upper-Intermediate