Mihael Tunik

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mihael-tunik

About me

Programmer with versatile experience in IT and computer science. I do believe that modern scientific research process requires significant programming skills (and ready to provide them). Seeking a position as a developer-researcher to enhance my career growth.

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

Experience: 5 years

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

- Here, I started as an intern in the small team, where we're developing statistical instruments for geo-data analysis and seismic inversion. There we extensively used various Gaussian process based regression models and various techniques for data-processing.

  Typical tasks:
  - research for relevant scientific articles;
  - automate research pipeline;
  - integrate and test new submodule in codebase;

- Then, I continued to work as engineer-researcher on development the tool for fine-tuning advanced hydrodynamic simulations in Dumux with Bayesian optimization techniques. Among other things as a researcher I took part in implementing experimental software for solving Riemann problems.

  Typical tasks:
  - reorganize project codebase, fix architecture issues;
  - rewrite algorithmic core for optimization;

- Latest project, where I work mostly with ML-pipelines for classification/recognition timeseries data from sensors of gas-analyzer. Developed window-based method for timeseries classification based on classic and gradient boosting models.

  Typical tasks:
  - Explore the data and develop strategies for handling it;
  - Develop project research pipeline completely from scratch;
  - Propose and develop different models for solving stated ML-problems;

- Actually during my work I've created even more things: like microservices for convenient remote access to advanced simulator software or custom desktop UI for one of ours subprojects.

Technical skills

Basically, I know three programming languages: **Python** and **C/C++**. During my experience, which is long enough, I worked with Golang, R and Matlab-like languages.
Started my research career in fields of statistics and probability theory. Also I'm competent enough in numerical methods and algorithms.
In the recent projects I had a lot of practice with **statistical data analisys** and **ML** (hypothesis testing, binary/multiclass table data classification, linear models).

- General purpose skills:

  - Many years of experience with different **Linux** distributions, system configuration, terminal (bash, Unix commands);

  - Proficient with **Git**, managing repositories: pull-requests, **Github Actions** CI, reviews; **Notion** for task-tracking;

  - Familiar with **Docker** and **docker-compose**;

  - Extensive experience with **Python** toolchain and ecosystem: building up Python packages from scratch with **setuptools**, managing things with **venv** or **Anaconda**;

  - Familiar with testing (**pytest**), profiling and automated documentation tools;

- Experience as engineer-researcher:

  - Proficient with **numpy, scipy, sklearn**; familiar with **Pandas and Polars** dataframe engines; work with gaussian process based models via tools like GPflow and botorch, gradient boosting with **CatBoost/LightGBM/XGBoost**;
  - Familiar with Tensorflow and Keras;

  - Worked with model ensembles and things like **model stacking** techniques;

  - Advanced **LaTeX** for scientific texts and presentations;

- Some experience from desktop-dev:

  - UI development with **PyQt5**, Qt Creator IDE, PyInstaller for bulding binaries;

  - Experience in writing detailed documentation for code and UI;

- Some experience from web-dev:
  - Some experience from backend: HTTP protocol, Nginx, **Flask**, Django, testing APIs with **Postman**;
  - Basic experience with databases (PostgreSQL, ClickHouse, SQLite) and key-value stores;
  - Some experience from frontend: HTML, CSS/SCSS, static site generators;
- Some experience with C/C++ (OpenMP, CMake, building small .so libs), **Python C API** and **Ctypes**, worked with low-level API for XGBoost and Eigen libs;

Languages

Russian	C2, Native speaker
English	B2, Upper-Intermediate
German	A2, Beginner

Online courses

Stepik October 2022 ***Hadoop. System for big data processing.***

Learned basic things about Hadoop ecosystem, including HDFS and MapReduce.

Result: certificate with distinction, >90% score.

Stepik January 2023 ***Apache Airflow for analysts.***

Learned basic things about Apache Airflow, DAGs and ETL in general.

Result: certificate.

Personal webpage

https://mihael-tunik.github.io/

Started as toy project this site quickly became personal mini-blog. Here I write small articles about programming and computer science.