Pavel Repnikov

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TECHNICAL SKILLS

Languages	:	C++, Python, SQL
Frameworks	:	Unreal Engine, Unity, Pytorch
Libraries	:	numpy, pandas, PySpark, XGBoost, LightGBM, CatBoost, numba, sklearn, geopandas, SciPy, PySR, PyClustering

WORK EXPERIENCE

Data Scientist Intern   Oct 2023 – Present
Sberbank, Risk Modelling Research   *Moscow, Russia*

- Geolocation data. Geolocation data in fraud prevention.
- Behavior modeling. Probabilities of events as a new way of explaining incidents.

EDUCATION

Lomonosov Moscow State University   2022-2024
MSc in Physics,Chair of Mathematical Modeling and Computer Science   *Moscow, Russia*

Lomonosov Moscow State University   2018-2022
BSc in Physics,Chair of Mathematical Modeling and Computer Science   *Moscow, Russia*

PROJECTS IN DEVELOPMENT

Adaptive metabolic model

- Monte Carlo simulation

- Time series clustering

Adaptive control system with fuzzy logic based on Bayesian inference

- Cross-entropy method for reinforcement learning

- Creating a greedy optimization algorithm for physical simulation

- Creating an analogue of the gradient descent algorithm in the function space

COMPLETED PROJECTS

Forecasting global population dynamics   *Python, numba, geopandas*   source code

- Partial differential equations as a way to predict the population on the globe
- Modification of the classical formulation of the problem taking into account spatial components
- A solution on a set of arbitrary shape

Credit Scoring on a synthetic dataset   *Python, XGBoost, LightGBM, CatBoost, PyClustering, SciPy*   source code

* The divide and conquer principle. Building models independently for different years
* Automatic feature generation
* Testing statistical hypotheses
* Clustering of tabular data

Furniture object detection   *SQL,C#, Unity, Python, Pytorch*   source code

- · Creating a synthetic dataset using Unity
- · Object detection finetuning using Pytorch

Bayesian Decision Making as a Theoretical Basis for a New Look at Fuzzy Logic Control *Python, Pytorch* source code

- · Creating a new machine learning white-box model from scratch
- · Creating a fuzzy inference system based on statistical inference
- · Solving a system of integral equations using Pytorch

Machine learning of noise filtering of vibroacoustic linearly distributed sensor data *Python, TensorFlow* source code

- · Creating an optimal signal filter for recognizing different types of activity

Furniture object detection

- · Creating a synthetic dataset using Unity
- · Object detection finetuning using Pytorch

Bayesian Decision Making as a Theoretical Basis for a New Look at Fuzzy Logic Control