Liana Lotarets

Mathematician

CONTACTS

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SUMMARY

A mathematician with knowledge of Python and Data Science. My strength lies in my diverse expertise across various fields of mathematics. I aim to further develop my mathematical skills by collaborating with experienced professionals and contributing to the company's success.

HARD SKILLS

- Mathematics
- Python
- OOP
- Analytic Geometry
- Differential Geometry
- Differential Equations
- Linear Algebra
- Mathematical Analysis
- Functional Analysis
- Complex Analysis
- Numerical Analysis
- Mathematical Statistics
- Probability Theory
- Combinatorics
- Discrete Mathematics

SOFT SKILLS

- Lifelong Learning
- Task prioritising
- Desire to learn
- Information seeking
- Helpfulness

LANGUAGES

English – intermediate

Ukrainian – native

Japanese – elementary

PUBLICATIONS

- *LOTARETS, LIANA (2022) "Geodesics of fiberwise cigar soliton deformation of the Sasaki metric," Turkish Journal of Mathematics: Vol. 46: No. 1, Article 10. DOI*
- *LOTARETS, LIANA (2024) "Twisted Sasaki metric on the unit tangent bundle and harmonicity," Turkish Journal of Mathematics: Vol. 48: No. 2, Article 4. DOI*
- *Lotarets, L. (2024). A characteristic property of Sasakian manifolds. Proceedings of the International Geometry Center, 17(3), 218-231. DOI*

WORK EXPERIENCE

Freelance, Math Tutor
2018 – Present

- Successfully assisted an entrant in preparing for master's studies by providing foundational knowledge in numerical methods, optimization methods, probability theory and statistics.
- Successfully assisted entrants in preparing for the bachelor's degree entrance exam in mathematics.

National Research Foundation of Ukraine (NRFU), Grantees
2021 – 2022

- Published a scientific article with the results of research supported by the National Research Foundation of Ukraine funded by the Ukrainian State budget in frames of project 2020.02/0096 “Operators in infinite-dimensional spaces: the interplay between geometry, algebra and topology”.

Akhiezer Foundation, Grantees
2023 – 2024

- Published a scientific article with the results of research supported by the Akhiezer Foundation.

PROJECTS

MNIST classification + OOP, GitHub

Tools/Technologies: Python, OOP, Keras, Matplotlib, Scikit-learn, Deep Learning, CNN

Description: MNIST classification using OOP three models: Random Forest, Feed-Forward Neural Network, Convolutional Neural Network.

Achievements: All models performed excellently. *Random Forest* (accuracy 97%, size 137.51 MB) is not the best choice, as it is less accurate and significantly larger than the other models. The *Convolutional Neural Network* (accuracy 99%, size 10.4 MB) is a much better option compared to Random Forest. However, if model size is a critical factor, the *Feed-Forward Neural Network* (accuracy 98%, size 5.39 MB) is also a good alternative.

Binary Prediction of Poisonous Mushrooms, kaggle

Tools/Technologies: Python, Pandas, Scikit-learn

Description: A Pet-project based on a Kaggle dataset from the competition *Binary Prediction of Poisonous Mushrooms*. The goal of this competition is to predict whether a mushroom is edible or poisonous based on its physical characteristics.

Achievements: The most challenging part of the task was data preprocessing, as the data was not pre-cleaned. The model demonstrates high accuracy: *Private Score is 0.98012, which means 98% accuracy*.

Ukraine’s birth rate (1950–2019), GitHub

Tools/Technologies: Python, Pandas, Matplotlib

Description: Analysis of the table *Birth Rate in Regions of Ukraine (1950–2019)* from the website Population of Ukraine.

Achievements: Local birth rates in the late 1990s and early 2000s were found to be the lowest during the period from 1950 to 2019. Additionally, it can be concluded that right-bank regions generally have higher birth rates than left-bank regions.

EDUCATION

V. N. Karazin Kharkiv National University

2015–2019, Bachelor’s degree, Mathematics

2019–2021, Master’s degree, Mathematics

IT School GoIT
June 2024 – January 2025, Data Scientist