

Aleksei Luchinskii

Resume

Personal Info

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Professional Summary

Data Scientist with a strong background in machine learning, topological data analysis, and software development. Experienced in data-driven decision-making, predictive modeling, and web application development. Adept at handling complex datasets, developing scalable analytical solutions, and delivering impactful insights.

Skills & Technologies

- **Programming:** Python, R, C++, JavaScript, Wolfram Mathematica
- **Data Science & Machine Learning:** Deep Learning, Neural Networks, Time Series Analysis, Topological Data Analysis (TDA), Data Mining
- **Software Development:** Web Applications (AWS, React, Python Dash, R Shiny)
- **Data Engineering:** SQL, pandas, NumPy, sklearn, PyTorch
- **Visualization & Reporting:** Power BI, LaTeX, Beamer, PowerPoint
- **Languages:** English (Fluent), Russian (Native), German (Basic)

Professional Experience

- **Data Analyst | Bowling Green State University (2023 – 2025)**
 - Designed and implemented machine learning models for predictive analytics.
 - Developed dashboards and web applications for data visualization and reporting.
 - Conducted statistical analysis to optimize university performance metrics.
 - Designed and implemented machine learning models for predictive analytics.
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- **Adjunct Instructor | Bowling Green State University (2019 — 2023)**

- Teaching physic, statistics, discrete math, calculus, business calculus courses
- **Software Development | Senico Corp (Bowling Green, OH) (2021)**
 - Creating web application for hotel business KPI analysis

Projects & Software Development

- **TDavec (R & Python):** Package for topological data analysis, available on CRAN.
- **SAI Dashboard:** Framework for KPI tracking in the hotel industry.
- **DFin App:** Web-based financial record management system.
- **BG-Courses:** Application for tracking academic coursework.
- **Game of Life Simulation:** Interactive web-based simulation of Conway's Game of Life.

Education

Ph.D. in Data Science (2025)

Bowling Green State University, Bowling Green, OH

Dissertation: "Advanced Vectorization Methods in Topological Data Analysis"

M.S. in Data Science (2021)

Bowling Green State University, Bowling Green, OH

Project: "Function Data Analysis of Stock Market Prices Since the Pandemic"

Ph.D. in Physics (2007)

Institute of High Energy Physics, Russia

M.S. in Physics (2001)

Moscow Institute of Physics and Technology, Russia

Certifications & Awards

- Multiple National and Institutional Research Grants
- Publications in Machine Learning & Data Science Journals
- Invited Speaker at Various Conferences on Data Science & Computational Physics

Additional Experience

- Organized Science Olympiads and academic competitions.
- Supervised Ph.D. students in computational research.
- Served as a peer reviewer for scientific journals.

Publications & Research

- "TDavec: Computing Vector Summaries of Persistence Diagrams" (arXiv:2411.17340)

- “A Computationally Efficient Framework for Vector Representation of Persistence Diagrams” (Journal of Machine Learning Research)
- Over 50 publications in physics and computational research.

Professional Interests

- Machine Learning & AI
- Data Science & Analytics
- Software Development
- Computational Modeling
- Predictive Analytics