

# Alex Luchinsky

## Resume

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### Personal Info

Alex Luchinsky 1133 Cambridge Blvd, Bowling Green, OH 43402

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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.
  - Developed dashboards and web applications for data visualization and reporting.
  - Conducted statistical analysis to optimize university performance metrics
- **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