

Alex Luchinsky

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Professional Summary

Scientist with extensive experience in data analytics, predictive modeling, and scalable solution development. Skilled in leveraging advanced programming and analytical techniques to drive strategic decisions and process improvements. Experienced in mentoring teams and managing complex projects to deliver impactful insights.

Skills & Technologies

- **Data Science & Machine Learning:** Deep Learning, Neural Networks, Time Series Analysis, Topological Data Analysis (TDA), Data Mining, Statistical Modeling
- **Software Development:** Web Applications, AWS, React, Python Dash, R Shiny
- **Data Engineering:** SQL, pandas, NumPy, sklearn, PyTorch, Spark
- **Visualization & Reporting:** Power BI, LaTeX, Beamer, PowerPoint, Tableau, Business Intelligence, Process Improvement

Professional Experience

Data Analyst,

Bowling Green State University – Bowling Green, OH

Aug 2023 – May 2025

- Developed and deployed machine learning models in Python and R to support predictive analytics and decision-making.
- Built interactive dashboards and web applications using Python Dash and AWS, enabling dynamic data visualization and reporting.
- Performed advanced statistical analysis to improve institutional performance metrics and strategic planning.

Adjunct Instructor,

Bowling Green State University – Bowling Green, OH

Aug 2019 – May 2023

- Taught undergraduate courses in physics, statistics, discrete math, and calculus, fostering strong analytical thinking among students.
- Designed course content with a focus on practical problem-solving and quantitative reasoning applicable to real-world data challenges.
- Mentored students pursuing data-intensive projects, encouraging application of statistical and computational methods.

Software Developer

Senico Corp – Bowling Green, OH

Apr 2021 – Dec 2021

- Designed and implemented a web-based KPI analytics tool for the hotel industry, enabling real-time performance tracking and reporting.
- Developed frontend and backend components using [technologies used, if known] to ensure smooth user interaction and scalable performance.

Projects

University Women's Travelers Group website

Community Engagement Platform

- Developed a dynamic website for the UW Travelers Club using JavaScript and SQL
- Integrated interactive features including a chatroom and forum
- Designed for ease of content updates and better member communication

TD Avec

R and Python Packages for Topological Data Analysis

Aug 2024 – Aug 2025

- Created a unified interface for multiple persistent homology vectorization methods
- Simplifies the application of TDA in data science workflows
- Published and maintained on CRAN and PyPI

Game of Life Simulation	Jan 2024 – Dec 2024
<i>Educational Web App</i>	
<ul style="list-style-type: none"> Developed an interactive simulation of Conway's Game of Life using React Provides users with tools to experiment with custom patterns and explore emergent behavior 	
DFin App	May 2023 – Nov 2024
<i>Financial Record Management Tool</i>	
<ul style="list-style-type: none"> Designed and implemented a React web app for personal and business finance tracking Mongo Database for information storage 	
BG-Courses	Dec 2023 – Jul 2025
<i>Academic Requirement Tracker1</i>	
<ul style="list-style-type: none"> Built a React application to help students track course completion and graduation eligibility Simplifies degree planning through real-time academic progress checks 	
SAI Dashboard	Apr 2021 – Dec 2021
<i>KPI Monitoring System for the Hospitality Industry</i>	
<ul style="list-style-type: none"> Built a data visualization platform using React and MongoDB Enables hotel managers to track performance metrics in real time 	
<u>Education</u>	
Bowling Green State University, Bowling Green, OH.	Jan 2022 – May 2025
Ph.D., Data Science,	
4.0 GPA	
Bowling Green State University, Bowling Green, OH	Sep 2020 – Dec 2021
Masters of Science, Data Science	
3.89 GPA	

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

- Sep 2025:** Aleksei Luchinsky, Umar Islambekov, "TDAvec: Computing Vector Summaries of Persistence Diagrams for Topological Data Analysis in R and Python", accepted for publication in JOSS;
- Nov 2024:** Aleksei Luchinsky, Umar Islambekov, "TDAvec: Computing Vector Summaries of Persistence Diagrams", arXiv:2411.17340;
- Aug 2022:** Kit C Chan, Umar Islambekov, Alexey Luchinsky, Rebecca Sanders, "A Computationally Efficient Framework for Vector Representation of Persistence Diagrams", Journal of Machine Learning Research, 23(268):1–33, 2022;
- Some number of papers in theoretical physics