

# AKNUR KALILAYEVA

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## Education

### University of Illinois at Urbana-Champaign

*Master of Science in Statistics (Analytics), cGPA: 3.7/4.0*

Coursework: Statistical Modeling, Statistical Learning, Regression Analysis

Aug 2025 - May 2027

*Urbana, IL, USA*

### Nazarbayev University

*Bachelor of Science in Mathematics (Magna Cum Laude Honors), cGPA: 3.80/4.00, Top 2/93*

Coursework: Statistical Programming, Image Processing, Machine Learning, Linear Programming, Mathematical Statistics, Optimization, Probability, Actuarial Science 1&2 (Exam P, Exam FM), Microeconomics, Macroeconomics, Stochastics

Jun 2024

*Astana, Kazakhstan*

## Work & Research Experience

### Lead Technology Assistant

*ATLAS UIUC*

- Provided technical support to faculty members and students, resolving 5-10 tickets per day via verbal and written communication

Aug 2025 - present

*IL, USA*

### Research Assistant

*Department of Mathematics*

- Designed and validated a **three-parameter generalized logistic forecasting model** for mortality data, reducing mean squared error by **15%** versus standard logistic models and improving long-run population projections for planning
- Developed hypergeometric-equation and Taylor-series based model for population data, turning raw demographic data into interpretable actuarial/demographic forecasts to support data-driven policy and risk analysis

Aug 2022 — May 2025

*Astana, Kazakhstan*

### Data Analyst

*Yessenov Data Lab*

- Built a quarterly regression forecasting framework linking portfolio default rates to macroeconomic factors; unified heterogeneous time series, treated outliers, and achieved **RMSE of 0.020–0.023**
- Developed classification models with stratified splits and class-imbalance handling to segment risk profiles and enable more targeted business actions
- Improved model discrimination vs. baseline (**ROC AUC 0.714 to 0.744, PR-AUC 0.141 to 0.195** on test) and optimized thresholds to boost minority-class recall to **0.24** at acceptable precision, quantifying trade-offs for data-driven decision-making

Jun 2023 — Jul 2023

*remote*

### Head of PR Department, Marketing Manager

*Society for Industrial and Applied Mathematics (SIAM)*

- Led marketing and PR for the student chapter, **organizing and promoting 50+ mathematics-related events** across social media channels; crafted content calendars, visuals, and copy that increased event visibility and strengthened brand awareness
- Created 35 consulting-style presentation materials in **PowerPoint** and **Canva**, using charts, infographics, and clear visual narratives for event promotion, partner outreach, and internal reporting
- Monitored social media engagement and increased event sign-ups by 65%, using analytics to guide content decisions

Jan 2020 – May 2022

*Astana, Kazakhstan*

## Publications

1. **Kalilayeva, A.**, Zhumashev, D., Wei, D., Perveen, A., & Talamona, D. (2024). Investigation of Stereolithography Additively Manufactured Components for Deviations in Dimensional and Geometrical Features. *Polymers*, 16(23), 3311
2. **Kalilayeva, A.** Nonlinear Implicit Regression Fit of the Mortality Data by the Three Parameter Generalized Logistic Model. (2024). Capstone project. Nazarbayev University. Supervisors: Prof. Dongming Wei, Prof. Kerem Ugurlu

## Skills

**Programming Languages:** Python (Pytorch, Matplotlib, Numpy, Scipy, Seaborn), R, SQL, Matlab

**Python/R Libraries:** NumPy, Pandas, Matplotlib, Seaborn, PyTorch, TensorFlow, Scikit-learn

**Data Science Technologies:** Data Cleaning, Data Mining, Forecasting, Regression, Classification, Experimental Design, A/B tests

**Data Processing:** ETL, Snowflake, MS Excel, Power BI, Tableau

**Development Tools:** Git, Jupyter Notebooks, Anaconda

## Leadership Experience

### Teaching Assistant for Calculus & Probability

*Led weekly office hours and facilitated monthly group study sessions, providing academic support to over 300 students*

Jan - Jun 2023

### SUSI Global Leadership Workshop

*Explored strategies to amplify women's voices in STEM and education*

Jan 2025

*Prague, Czechia*

### Study of the U.S. Institutes, Green River College

*Researched Women Leadership in STEM and Economic Empowerment*

Jun – Jul 2022

*Washington, USA*

**Merit-based Awards:** Presidential Scholarship (top 1%), Skywalk of Fame (top 1%), Konrad Adenauer Foundation

Sur-Place Scholarship (top 5%), Yessenov Scholarship (top 10%); Alumni Relief, Mereke Scholarships