

# Alibek Kaliyev

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Google Scholar: [Alibek T. Kaliyev](https://scholar.google.com/citations?user=alibek)

## EDUCATION

- University of Texas at Austin** Austin, TX, USA  
*Master of Science, Computer Science* Aug. 2024 - Dec. 2027 (Expected)
  - Specialization:** Machine Learning
- Lehigh University** Bethlehem, PA, USA  
*Bachelor of Science, Computer Science and Business (Minor: Cognitive Science)* Aug. 2020 - May 2024
  - GPA:** 3.78/4.00
  - Activities:** Vice President (2022-2023) & Technical Dev. Chair (2021-2022) at *Computer Science and Business Association*, Secretary at *Lehigh Central Asian Students Association* (2023 - Present), Grader/Course Assistant for *Computer Vision Database Systems & Applications*, *Data Structures and Algorithms* and *Introduction to Programming* (2021-Present)
  - Honors & Awards:** Beta Gamma Sigma International Business Honors Society Member, Trustees Scholarship (top 1 % of applicant pool), The Most Novel Research Award at Drexel AI Conference, Dean's List (F20, S21, F21, F22, S23), Facebook ABCS Fellow, NHI Fellow, Data For Impact Fellow, STEM-SI Fellow

## EXPERIENCE

- Amazon Web Services** New York City, NY, USA  
*Software Development Engineer* June 2024 - Present
- Amazon Web Services (Edge ML Services Team)** New York City, NY, USA  
*Software Development Engineer Intern* May 2023 - Aug. 2023
  - TypeScript AWS CDK AWS Lambda AWS Step Functions AWS CloudFormation CI/CD
  - Designed and implemented an automated CloudFormation stacks updater in the CI/CD production pipeline, which resulted in the team's deployment 15 times faster.
  - Shipped a production-level and ready code 3 times faster than expected, saving the team's time to deliver customer updates. Utilized AWS CDK, Step Functions, Lambda, VPC and Custom Resources.
  - Communicated effectively with senior engineers across 3 teams to discuss and implement the service into their AWS back-end. Worked on unblocking pipelines and handling failure behaviors.
- GrainBound, LLC** Bethlehem, PA, USA  
*Machine Learning Technical Associate* Feb. 2022 - May 2023
  - Python TensorFlow Scikit-learn Pandas
  - Implemented machine learning solutions for an international chemicals manufacturer.
  - Enhanced manufacturing efficiency by 40% through data analysis of a 50,000-row dataset using Pandas and predictive modeling with TensorFlow and Scikit-learn.

## PROJECTS

- Capstone Project for Merck & Co.: Machine-Assisted Contextualization** Bethlehem, PA, USA  
Jan 2023 - Dec 2023
  - Python PyTorch Pandas Scikit-learn FastAPI AWS
  - Expedited development of a machine learning pipeline for label classification using Scikit-learn and Pandas, saving \$500k annually.
  - Boosted prediction accuracy from 47% to 92% via feature engineering, enhancing Merck's labeling process efficiency by 10x.
  - Advanced research and development of a semi-supervised GAN-BERT model, achieving 96% accuracy on the test set.
  - Implemented a human-in-the-loop system by deploying the model on AWS with FastAPI and Nginx for retraining capabilities.

## PUBLICATIONS

- A.T. Kaliyev**, R. Forelli, P. Sales, S. Qin, Y. Guo, S.O. Memik, M.W. Mahoney, A. Gholami, R.K. Vasudevan, S. Jesse, N. Tran, P. Harris, M. Takáč, J.C. Agar. Rapid Fitting of Band-Excitation Piezoresponse Force Microscopy Using Physics Constrained Unsupervised Neural Networks. *NeurIPS 2023 AI4Mat Workshop*.
- S. Qin, Y. Guo, **A.T. Kaliyev**, J.C. Agar, 2022. Why it is Unfortunate that Linear Machine Learning Models “Work” so well in Electromechanical Switching of Ferroelectric Thin Films. *Advanced Materials*. 2202814.

## SKILLS

- Programming Languages:** Python, TypeScript, C++, Java, HTML/CSS, JavaScript, SQL
- DS/ML Tools:** TensorFlow, Keras, PyTorch, Matplotlib, Pandas, NumPy, Scikit-learn, Seaborn
- SWE Tools:** AWS, JDBC, React, Heroku, Google Cloud, Git, Linux