

Aliya Bannayeva

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PROFILE

Software engineer and researcher with expertise in system design, data management/engineering, distributed systems, database internals, and process optimization.

WORK EXPERIENCE

Academic Tutor - Introduction to Computer Science Oct 2024 - May 2025
Technical University of Munich *Munich, DE*

- Lead weekly tutorial sessions for 40+ students, teaching fundamental concepts in database systems, Java programming, and algorithms
- Support students in mastering SQL, relational algebra, and ER modeling through hands-on exercises
- Grade weekly homework assignments

Topics Covered: Database Systems (SQL, ER Models), Java Programming (OOP, Exception Handling, Generics), Data Structures & Algorithms (Sorting, Searching, Trees, Hashing)

Working Student - Software Engineer: Database Systems & Infrastructure Sept 2023 - Sept 2025
Infineon Technologies *Munich, DE*

- Worked on query optimization and execution strategies for enterprise database systems
- Contributed to data integration layer architecture, schema design, and multi-source query processing
- Implemented automated data pipelines with monitoring and reliability mechanisms

Technologies: Python, Advanced SQL, VQL (Denodo), MySQL, Jenkins CI/CD, Git, Database Schema Design, ETL/Data Pipelines

Data Scientist Oct 2020 - Oct 2021
The International Bank of Azerbaijan *Baku, AZ*

- Drove 15%+ growth in sales by developing and deploying recommendation systems for banking products
- Enhanced ML model performance through feature engineering and optimization techniques
- Built enterprise-grade Python libraries for automated data cleaning, standardizing data pre-processing across department and improving data quality
- Reduced customer service workload by implementing an NLP-based chatbot for automated query resolution

Technologies: Python, TensorFlow, Scikit-learn, SQL, NoSQL, Git, AWS EC2, Pandas, NumPy, NLP

Web Development Intern Jul 2019 - Aug 2019
Smart Solutions *Baku, AZ*

- Developed and maintained RESTful APIs using C# and ASP.NET Core for enterprise web applications
- Collaborated with senior developers on database design and backend architecture improvements

Technologies: C#, ASP.NET Core, SQL, Entity Framework, REST APIs, Git

EDUCATION

Master of Data Engineering & Analytics, Technical University of Munich Expected 2025
Thesis: Improving Multi-Join Sketches for Join Optimization

Bachelor of Computer Science, ADA University 2016 - 2020
Thesis: Development of the N-gram Model for Azerbaijani Language

Dagstuhl Summer School "Data Management Techniques"

June 2025

(<https://www.dagstuhl.de/25263>)

Schloss Dagstuhl – Leibniz Center for Informatics

Wadern, DE

- Intensive course on database management software techniques
- Topics included concurrency control, indexing, and storage structures

VLDB Summer School

July 2025

(<https://vlldb-sc25.cs.uni.wroc.pl/>)

University of Wrocław, Poland

Wrocław, PL

TECHNICAL SKILLS

Software Development

C++, Python, Java, SQL, Git, REST APIs,
Unit Testing, Linux/Unix, Jenkins (CI/CD)

ML & Data Engineering

PyTorch, TensorFlow, Pandas, NumPy, Scikit-learn, AWS (EC2, S3),
ETL Pipelines, Data Modeling, Statistical Analysis

Professional Skills

Agile Methodologies, Technical Leadership,
Stakeholder Communication, Problem-solving,
Technical Documentation

VOLUNTEERING

Managing Member

TUMuchData e.V - Database Systems Student Initiative (tumuchdata.club)

April 2024 - April 2025

Munich, DE

- Lead external communications and partnerships with industry professionals in data management
- Organize technical workshops and reading groups focused on database systems research
- Facilitate knowledge exchange between students and professors in the DB community
- Coordinate informal learning sessions to discuss state-of-the-art database technologies
- Support students in database-related courses through peer learning initiatives

Volunteer

Conference on Innovative Data Systems Research (CIDR 2025)

January 2025

(<https://www.cidrdb.org/cidr2025/>)

Amsterdam, NL

- Managed participant registration and moderated audience Q&A discussions during technical sessions

Volunteer

PostgreSQL Europe Conference (2024.pgconf.de)

April 2024

Munich, DE

- Managed technical sessions by introducing speakers and moderating Q&A discussions

PUBLICATIONS

Development of the N-gram Model for Azerbaijani Language

- Published in: 2020 IEEE 14th International Conference on Application of Information and Communication Technologies (AICT)
- DOI: 10.1109/AICT50176.2020.9368645

LANGUAGES

Azeri (Native), English (C2), Russian (C2), Turkish (C1), German (B1)