Aliya Bannayeva

+49 152 23755764 ⋄ Munich, Germany

aliya.bannayeva@tum.de ⋄ https://www.linkedin.com/in/aliya-bannayeva

PROFILE

Software engineer and researcher with a focus on database systems, distributed computing, query optimization, and building high-performance data infrastructures.

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 - Data Engineering Sept 2023 - Present
Infineon Technologies *Munich, DE*

- Managing complete redesign of enterprise data models to optimize data structure and access patterns
- Implementing data virtualization solutions to streamline client data delivery pipelines and improve accessibility
- Developing efficient ETL processes and automated workflows for data integration
- Managing database administration tasks while maintaining data quality and integrity standards

Technologies: Python, SQL, VQL, Jenkins (CI/CD), Git, MySQL Workbench, Denodo, Unit Testing, SAP Business Objects

Junior 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, 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

TECHNICAL SKILLS

Software Development	Python, Java, SQL, Scala, C++, R, Git, REST APIs, Microservices, Unit Testing, Code Review, Design Patterns, Linux/Unix, Jenkins (CI/CD)
ML & Data Engineering	PyTorch, TensorFlow, Pandas, NumPy, Scikit-learn, AWS (EC2, S3), ETL Pipelines, Tableau, Rasa, Data Modeling, Statistical Analysis
Professional Skills	Agile Methodologies (Scrum, Kanban), Technical Leadership, Stakeholder Communication, Problem-solving, Technical Documentation

VOLUNTEERING

Managing Member   April 2024 - April 2025
TUMuchData e.V - Database Systems Student Initiative (tumuchdata.club)   *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   January 2025
Conference on Innovative Data Systems Research (CIDR 2025)   *Amsterdam, NL*
(https://www.cidrdb.org/cidr2025/)

- Managed technical sessions by introducing speakers and moderating Q&A discussions
- Ensured smooth flow of presentations by coordinating timings and transitions between talks
- Facilitated engaging discussions between speakers and conference attendees

Volunteer   April 2024
PostgreSQL Europe Conference (2024.pgconf.de)   *Munich, DE*

- Managed technical sessions by introducing speakers and moderating Q&A discussions
- Ensured smooth flow of presentations by coordinating timings and transitions between talks
- Facilitated engaging discussions between speakers and conference attendees

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)