VIOLETTA KULAKOVA

Zurich, Switzerland; Dublin, Ireland

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Violetta, Software Engineer - Site Reliability Engineer in Google Voice Assistant & Gemini, Google Ireland.

At Google I'm driving the launch and ongoing enhancements of Google Voice Assistant with Bard integration (Gemini app), and in parallel leading traffic management initiatives for Assistant & Gemini which help with observability, routing, prioritization and resource optimisation.

Before Google, I worked extensively on large-scale data systems, having built a Data Lake and robust data pipelines for Sberbank; and a Data Warehouse for a large marketplace: Yandex.Market, capable of efficiently processing terabytes of data daily.

Driven by my passion for knowledge and teaching, I was a temporary lecturer at the Moscow Institute of Physics and Technology, where I got a Master's in CS in 2020. I taught a Java course to Bachelor's students and a System Design course to Master's students.

I'm seeking challenging Swiss - based opportunities (ideally in Zurich) to leverage my expertise and grow within new projects. (Swiss work permit holder).

EXPERIENCE [6+ years]

GOOGLE   Dublin, Ireland
Google Voice Assistant & Gemini, Software Engineer - Site Reliability Engineer   February 2022 - current
- Driving the launch of Google Assistant with Bard integration (Gemini app on the IOS and Android) from the SRE side.
- Integrate proven design principles and reliability strategies directly within the Gemini architecture.
- Lead the Assistant & Gemini traffic management initiatives: optimized traffic routing, balancing, and automation to address capacity issues and enhance reliability.
- Analyzed the existing Assistant traffic tagging system, identified several key shortcomings and fundamental issues which render the current approach to be not useful. Designed and implemented a new system to address those issues, collaborated with the Search teams to expand the scope of the project. This enables critical traffic monitoring and visibility through the whole Assistant & Gemini stack, faster outage responses and ensures traffic transparency during the Gemini application launch in February 2024.
- Identified a crucial gap in existing client-side and server-side metrics. Implemented new computations for critical Assistant surfaces, significantly speeding up issue investigation and resolution during the outages.
- *C++, Kotlin, Google infrastructure stack.*

YANDEX   Moscow, Russia
Yandex Market, Software Engineer   September 2020 – February 2022
- Developed a Data Warehouse system for Yandex.Market.
- Focused on reducing the time and complexity of aggregation and joining big tables: TB of data per day.
- Led the development of a subpart of the DWH with aggregated data about promotions, running in the Yandex.Market. Worked closely with analysts.
- *Python, Java, MapReduce, Spark, Greenplum, ClickHouse, Vertica, Yandex infrastructure stack.*

SBERBANK   Moscow, Russia
SberData, Software Engineer   July 2017 – September 2020
- Optimized cluster resources and time of our data load system using dynamic determination of the spark jobs order. Decreased overall job execution time x2.
- Built a data replication system with Hadoop and Spark jobs: developed utilities for finding, computing and storing metrics for spark jobs.
- Built a module for generation of workflow.xml in run-time and created all necessary environments for launching jobs on Yarn (> 8k LOC on Java).
- Built Rest API client for integration with a system which runs jobs on Yarn.
- Participated in the creation system for logging and data storage for indexing search used: HDFS as long term storage and Solr as RAM storage, Kafka as entry point and Flume as a link: developed custom Grafana datasource for Hive that is being used more

than 100 times per day by several Sberbank services.
- *Java, Hadoop stack.*

EDUCATION

MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY   Moscow, Russia
Master of Science: Applied Mathematics and Computer Science   *September 2018 – August 2020*
- Master Thesis: "Optimization of the overall execution time of Spark and MapReduce tasks running on Yarn".
- During my research work, a comprehensive analysis was conducted on the processing of large-scale data in a Hadoop cluster, with a specific focus on the execution of Apache Spark and MapReduce tasks. The goal was to optimize the overall performance by addressing task scheduling and resource allocation challenges. To accomplish this, classical scheduling theory problems were examined, and a novel algorithm was developed based on the insights gained.
- The developed algorithm was not confined to theoretical exploration but was also applied to practical data processing tasks. A substantial part of the developed solution has been successfully integrated into the real data processing and storage system employed by the biggest bank in Russia, showcasing its practical applicability and effectiveness in handling large-scale data processing tasks.
- *GPA 4.9/5*

LOBACHEVSKY STATE UNIVERSITY   Nizhny Novgorod, Russia
Bachelor of Science: Applied Computer Science   *September 2014 – August 2018*
- Bachelor Thesis: "Finding the Minimum / Maximum Flow in Transportation Network with nonlinear cost functions."
- *GPA 4.5/5*

EXTRA EXPERIENCE

MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY   Moscow, Russia
System Design lecturer   *September 2023 – February 2024; September 2023 - February 2024*
- System Design main lecturer for second year M.S. students. Lead lectures, grade homework, lead the final exam.

MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY   Moscow, Russia
Bachelor of Science: Applied Computer Science   *September 2019 – January 2021*
- Java teacher assistant for third year B.S. students. Graded homework and explained advanced class material to students.

MICROSOFT HACKATHON   Moscow, Russia
Winner   *September 2017*
- [Emoji Helper](#) plugin for Chrome. The idea was to find the most suitable emoji describing the mood of a written phrase.
- I was responsible for creating the plugin on js and for the bundle with ML and configuration.

ADDITIONAL

- Languages: Fluent in Russian; Proficient in English; Learning German.
- Figure Skating, Skiing, Swimming, Hiking, Traveling.
- Running: [Zurich Half Marathon](#) 2024 TBD, [Zurich Half Marathon](#) 2023 (2:05h), [Paris-Versailles](#) 2023.
- Proficiently playing Piano, learning Guitar.
- Board Games lover.