Kakhar Kashimov

Personal Data

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Summary

Languages: Go, Python, Rust, Java, C
Databases: Clickhouse, Postgres, Cassandra, DynamoDB, MemoryDB, Elasticsearch
Other: Software optimization, software resilience, distributed system design

Work Experience

Jun 2023-Now | Senior AI Engineer at MessageBird, Amsterdam, Netherlands

Incorporated Large Language Models into Bird's existing product line. LLM cost optimization. Developed and integrated anti-spam model for Bird's Inbox product, utilized text vectorization and Clickhouse's approximate nearest neighbors index for classification.

Sep 2022-Jun 2023 | Senior Software Engineer at MessageBird, Amsterdam, Netherlands

Cloud based billing and charging system

Optimized latency and transactions-per-second of the charging subsystem. Increased TPS from 700 to 10k, while decreasing the latency by few orders of magnitude by introducing algorithmic improvements, concurrency, and dramatically reducing memory allocations. The technology stack: Golang, gRPC, DynamoDB, Amazon MemoryDB, SQS, Datadog, which together underpin the system's robust and scalable architecture.

Feb 2020-August 2022 | Distinguished Engineer at 7Generation (subs. of Kazdream), Astana, Kazakhstan

High load distributed systems

Developed a telecom-grade deep packet inspection system from the ground up, leading a team of 20 engineers. The platform currently processes billions of packets and millions of events per second, and stores data in a 35+ PB distributed ClickHouse database spread across multiple data centers—maintaining 99.95% uptime. Responsibilities included extensive low-level optimizations, such as kernel tuning, memory allocation reduction, kernel bypass, and CPU core isolation. Technology stack: Go, Rust, Clickhouse, DPDK, Kafka, Redis, Cassandra, Aerospike, Nomad, Consul, VictoriaMetrics, EFK.

Sep 2019-Feb 2020 | Principal Engineer at Kazdream, Astana, Kazakhstan

high scale telecom location based services

Location based systems for Mobile Telecoms, integrating with telecom's hardware over 3GPP protocols, processing over 100k events per second, and storing data in 1 PB database. Technology stack: RabbitMQ, Java, Golang, Cassandra, Aerospike, Prometheus, EFK.

Unified Call detail Record aggregation and storage system for 4 telecom companies, processing, storing, and maintaining over 1.5 PB of data, technology stack: Java, Golang, Postgres, Aerospike, RabbitMQ, Kafka, Consul, Docker, Portainer.

Feb 2018-Sep 2019 | Principal Engineer at KazDream Technologies, Astana, Kazakhstan
Designing and developing a high load system

A high load (in terms of billions of events per day) analysis and aggregation system. Technology stack: Java/Go microservices; Cassandra and GreenPlum for storage, storing over 1.25 PB of data; Aerospike for distributed caching; RabbitMQ for event publishing; Kafka for data distribution; Docker for deploy; Consul for service discovery and distributed locks; ELK for logging; Prometheus and Grafana for monitoring.

Aug 2017-Feb 2018 | Staff Engineer at KazDream, Astana, Kazakhstan
Designing and developing Distributed Systems

Developing and designing distributed big data analysis and aggregation system. Technology stack: Go/Python microservices; PostreSQL, Elasticsearch for storage, Neo4J Enterprise for data relations, Redis for caching; RabbitMQ for event publishing; K8s for microservice orchestration; ELK for logging.

Jan-Aug 2017 | Staff Engineer at KazDream, Astana, Kazakhstan
Designing and Developing Distributed Systems

Developing and designing petabyte scale data warehouse system. Used following technology stack: Java Spring Boot/Python microservices; PostreSQL, Elasticsearch for storage, Redis for hot data; Kafka for data distribution and deffered writing, RabbitMQ for event publishing; K8s for microservice orchestration; ELK for logging.

Feb-Dec 2016 | Staff Engineer at KazDream, Astana, Kazakhstan
Designing Distributed Systems

Developing and designing social media monitoring and analysis system. Used following technology stack: Java Spring Framework for backend JSONpure service, PostreSQL, Cassandra for storage, Neo4J for connections (backed with CassandraDB), Elastic for full text search, Redis for caching, Python microservices for data analysis (Pandas, Keras) and PhantomJS for crawling, Torch for image tagging, RabbitMQ for competing consumer microservices, Kafka for event publishing and log aggregation, Ebot for crawling, Django REST framework for REST microservices, GeoServer for GIS.

Jan-June 2016 | Senior Engineer at KazDream, Almaty, Kazakhstan
Designing Distributed Systems

Designed and developed a social media monitoring and visualisation system. Spring Framework for backend REST service, PostgreSQL and MongoDB for storage, Elastic for full text search, Django and Memcached as an intermediate proxy for the frontend, AngularJS on frontend, VisJS and Gephi for network visualisation.

Oct-Dec 2015 | Senior Engineer at KazDream, Almaty, Kazakhstan
Developing a Data Analysis System

Developed a mobile call record analysis system for a law enforcement agency. Analysis of hundreds of millions of records. Java Spring MVC for backend, Java topology suite for geo analysis, a data loader and aggregator which is capable of importing data from wide range of different sources (REST, SOAP, excel files with arbitrary structures, importing based on statistical methods, etc.) PostgreSQL and MongoDB for storage, Elastic for full text search, Apache Math3 for clustering and statistical machine learning for predictions and pattern recognition, GeoServer for geo visualisation, D3JS and Gephi for network visualisation.

2011-2016 | Lecturer at Pavlodar State Institute, Pavlodar, Kazakhstan

Lectures on Programming 101, OOP, functional programming, Java, Python, Calculus I, Probability Theory

Feb-Jun 2016 | Team Lead, (Mobile App Startup), Astana, Kazakhstan

An aggregator for Instagram shop accounts. Discovery of new shops, aggregation, status tracking and categorisation by using tags and image tagging.

Sep-Nov 2015 | Team Lead, (Mobile App Startup), Astana, Kazakhstan

Mobile app for receipt scanning, spending categorisation and report.

Jan-Dec 2013	Co-author of Foundations of Ethical Finance Textbook, Astana, Kazakhstan Chapter 1 "Introduction" and Chapter 5 "Risk Management".
2004-2012	Freelancer, Pavlodar, Kazakhstan Computer Vision (OpenCV), real-time video stream processing, video stream compression, object tracking, trajectory analysis. Low level code optimization, memory management and general code audit.
2002-2004	Software Developer at Info-T, Pavlodar, Kazakhstan Real-time video stream analysis, compression, object recognition and tracking. Code optimization for P4 processors. 2 year experience with BT878 chipsets. Development of high-frequency motion detector.
1999-2002	Freelance, Pavlodar, Kazakhstan Developed standalone database applications for local business and factories. Visual Basic, Delphi.

Education

Sept 2014	Master of Science in Visual Information Processing, **Imperial College London** Major: Machine Learning Thesis: "Statistical Modeling of Aorta Movement" | Advisor: Dr. Su-Lin Lee
July 2012	BSc in Informatics, **Pavlodar State Institute** Major: Computer Science Thesis: "First Publicly Available Text-to-Speech System for Kazakh Language"

Selected Publications

Mathematics:	Prediction in fuzzy sequences, 2004
Physics:	Analysis of pressure-time curve profiles in non-destructive testing, 2012
	Machine learning classification for non-destructive testing, 2014
Economics:	Game theory: Illegal activity regulation, 2012
	Foundations of Ethical Finance, 2014

Scholarships and Certificates

Dec 2012	Government Scholarship for students with an outstanding curriculum (€50,000)
Sept 2012	IELTS©: 7.5 (8.5, 8.5, 6.5, 6.5)