Konstantin Alekseev

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Summary

I'm software engineer with strong experience in computer science. I was participating in many projects as developer and as team leader in such domains as aviation, healthcare, video surveillance, media processing, security systems. I have experience with different programming languages, instruments and services, always learn new technologies in this rapidly growing area. My technical background spans a wide range of languages and frameworks — from low-level and ultra-low-latency C/C++, to JVM-based languages like Java and Scala, as well as Python for rapid prototyping and AI-powered services. Video processing and streaming is one of my favorite areas of expertise. I have contributed to several projects involving advanced media processing solutions, including the development and optimization of custom video codecs with enhanced performance characteristics. Main interest and expertise: *distributed client server systems, VoIP and media processing, media streaming solutions, IoT and embedded systems, cross-platform development*. My priority for future is backend development as I like to take care about business logic, invent API structure and optimize performance in highly loaded systems.

Education

M.C.S **Saint Petersburg State University of Aerospace and Instrumentation**, *Computer Science* — Sept 2001 – Sept 2007

- **Graduation project:** Effective encoding of DCT transformation coefficients in the video compression tasks.
- **Coursework:** Automated control systems, Embedded systems, Signal Processing, System level software, Network technologies, Computer graphics, Real-time systems, AI systems, Software Foundations, Computer Architecture.

Experience

iO Health, *Team Leader* — Dubai, UAE — July 2022 – present

- Development of platform for telehealth services with integrated video calls and IoT medical devices. Scalable backend written on Scala and native frontend clients for mobiles and desktop devices.
- Analyzing business requirements and search for optimal technical solutions for implementation.
- AI-powered services to optimize healthcare providers workflow.
- Development lead of the VoIP and messaging platform team.
- Implementation of microservice for data store, processing and analyzing of third-party medical smart devices and wearables.
- Transition from internal media server to Zoom Video SDK as it was requirements from local regulator to use VoIP calls in UAE.
- Stack: *Scala, Java, C++, Python, AI, RTMP, WebRTC, Cassandra, Postgres, AWS, Oracle, Docker*

Shamsa Tech, *Desktop Client Team Leader / Backend Developer* — Dubai, UAE (Remote) — Dec 2015 – June 2022

- Developed a cross-platform desktop client for B2B messaging and video calls platform.
- Implemented custom binary protocol with strong security and worked hard on complex modern UI that was developed in thought cooperation with design team.
- I led the desktop client team and coordinated tasks using agile methodology.
- Participated in backend development and API design.
- Product was created from scratch and successfully finished. Later it was acquired and now used as core in telehealth project.
- Stack: *C++, Scala, Qt, WebRTC, gtest, OpenSSL, Janus Media Server* \\ \\

NITA LLC, *Senior Software Developer*

Saint-Petersburg, Russia
Jan 2011 – May 2022

- Implemented a new pseudo-pilot workspace for air traffic controllers simulator that is widely used all over the CIS region, Turkey and Lithuania.
- Took part in AMAN/DMAN service implementation for arrival and departure planes management. Service was successfully integrated in several ATC centers and helped to increase throughput of air traffic flows.
- Integrated new technologies to the legacy code base that helped to improve stability of software and development process.
- Stack: *C++, Qt, QML, STL, boost, WinAPI, MFC, XML*

LG Electonics, *Research Engineer*

Saint-Petersburg, Russia
Apr 2008 – Dec 2010

- Took part in development and release of mobile phones GD880, GD510, BL40, KM900 Arena, KP500 Cookie, LG KF300.
- Embedded the experimental image processing algorithm for HDR photos.
- Stack: *C++, Assembler, Rational ClearCase, Internal company SDKs*

Prosecurity, *Software Developer*

Saint-Petersburg, Russia
Jan 2007 – Apr 2008

- Design and development of GPS/GSM based security system for automotive.
- Low-level programming for Microchip and ARM controllers.
- Developed internal protocols for data exchange (over TCP/IP, I2C, SPI, RS232).
- Developed frontend system for vehicle position monitoring.
- Stack *C, Assembler, C++, Microchip, ARM*

XVD Corporation (USA), Software Developer

Saint-Petersburg, Russia
Sept 2005 – Sept 2006

- Developed new algorithm for DCT coefficients coding and made integration in company products. Algorithm helped to reduce video data size and as result company products used less bandwidth. This task was related to my university graduation project.
- Integrated the improved bitrate control algorithm to company products.
- Stack: *C++, C, Assembler, Entropy coding, H264, H265, JPEG*

Projects

Securicam Insight IP-Cam

2014 – 2016

- Developed a firmware for security IP camera. Main benefits of company cameras in that time were simple user interface, stability, good image quality and a lot of features.
- Communication with R&D team in China during development for clarification of technical questions due to lack of good documentation.
- Stack: *C++, ARM, TI DaVinci, REST*

Nekaka Files Sharing Client

2012 – 2013

- Developed a Windows desktop client integrated on system level for file sharing cloud service.
- Developed a file synchronization algorithm similar to well known Dropbox service.
- (https://habr.com/en/companies/nekaka/articles/182040)
- Stack: *C++, WinAPI, COM, ATL, SQLite, REST*

Technologies

Languages: C++, C, Scala, Java, Python, Objective-C, SQL

Concepts: Agile development, OOP, Functional Programming, Refactoring, Multi-threading, RPC, IPC, Distributed systems

IDE and tools: IntelliJ Idea, PyCharm, Qt Creator, Visual Studio, bash, gcc, clang, CMake, qmake, sbt

Source and tasks control: Jira, Git, Jenkins, Clickup, Sourcesafe, Rational ClearCase, Redmine

Platforms: Linux, macOS, Windows