

Konstantin Alekseev

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Summary

Senior Software Engineer & Team Lead with 15+ years of experience designing and delivering scalable, high-performance systems across healthcare, aviation, and media domains. Collaborated with cross-functional teams to build real-time communication platforms, AI-powered services, and low-latency video streaming solutions used by thousands of end users. Expert in C/C++, Python and Scala, with deep knowledge of distributed architectures, VoIP, WebRTC, and AI-driven data processing pipelines. Strong background in system optimization, cross-platform development, and embedded/IoT integration. Known for bridging complex technical design with business objectives — from developing compression algorithms adopted in commercial codecs to leading AI-augmented telehealth platforms that improve operational efficiency by up to 30%. Passionate about building reliable, secure, and efficient systems that scale.

Education

M.C.S Saint Petersburg State University of Aerospace and Instrumentation, *Computer Science* - Signal Processing / Embedded systems / Automated control systems Sept 2001 – Sept 2007

Experience

iO Health, Team Leader

Dubai, UAE
July 2022 – present

- Led a cross-functional team of 6 engineers delivering a next-generation telehealth platform integrating secure video consultations, real-time IoT medical device data, and AI-assisted workflows for providers across the UAE and KSA.
- Designed and deployed AI-driven workflow automation (RAG-based agent system) that reduced administrative overhead for clinics by ~30%, improving patient throughput and response time.
- Built data ingestion microservices for third-party medical devices and wearables, enabling secure and scalable health data storage and analytics.
- Collaborated with product and compliance teams to align platform capabilities with local healthcare data regulations (DHA, MOH).
- Owned the VoIP and messaging platform, integrating WebRTC and RTP pipelines and ensuring compliance with UAE telecom regulations.
- Led migration to Zoom SDK to ensure UAE telecom compliance, maintaining all core features while cutting infrastructure maintenance costs by 40%.
- Stack: *Scala, Java, C, C++, Python, AI/RAG/LLMs, RTP/STUN, WebRTC, Cassandra, Postgres, AWS/OCI, Docker*

Shamsa Tech (rebranded as iO Health in 2022), Desktop Client Team Leader / Backend Developer

Dubai, UAE (Remote)
Dec 2015 – June 2022

- Design and development of a secure, B2B communication platform supporting encrypted messaging and real-time video conferencing for enterprise clients.
- Built the entire desktop client from scratch (C++/Qt), integrating advanced VoIP and video streaming features via WebRTC and Janus Media Server.
- Designed a custom binary communication protocol with end-to-end encryption, achieving less than 150 ms latency and meeting strict corporate security standards.
- Collaborated with backend team to develop and refine protocol and APIs, ensuring efficient media routing and authentication layers.
- Platform was successfully acquired in 2019 and now serves as the core desktop component of iO Health's telehealth ecosystem.
- Stack: *C, C++, Scala, Java, Qt, RTP/STUN, WebRTC, OpenSSL, Janus Media Server, Docker*

NITA LLC, Senior Software Developer

- Designed and implemented the Pseudo-Pilot Workspace, enabling simultaneous simulation of up to 500 concurrent aircraft interactions with high real-time fidelity.
- Developed and integrated the AMAN/DMAN (Arrival/Departure Management) service, improving airspace throughput efficiency by ~20% through optimized sequencing algorithms.
- Refactored legacy C++ components and introduced modern frameworks.
- Collaborated with air traffic domain experts to ensure regulatory compliance and reliability of simulation outcomes under strict latency and safety constraints.
- Stack: C, C++, Qt, TCP/IP

Saint-Petersburg, Russia
Jan 2011 – May 2022

LG Electronics, Research Engineer

- Contributed to the development and release of multiple global mobile phone models (GD880, BL40, KM900 Arena, GD510, KP500, KF300), collectively shipped to millions of users worldwide.
- Embedded experimental HDR photo enhancement pipeline.
- Stack: C, C++, Assembler, Internal company SDKs

Saint-Petersburg, Russia
Apr 2008 – Dec 2010

Prosecurity, Software Developer

- Designed and developed an automotive GPS/GSM-based security system, integrating embedded firmware, communication protocols, and monitoring interfaces.
- Programmed Microchip and ARM microcontrollers in C and Assembly for real-time tracking, event detection, and secure data transmission.
- Developed custom lightweight data-exchange protocols (over TCP/IP, I2C, SPI, RS232).
- Built a desktop monitoring interface for live vehicle tracking and alerts, supporting concurrent monitoring of hundreds of active devices.
- Stack C, C++, Assembly, Microchip, ARM, TCP/IP, I2C, SPI, RS-232

Saint-Petersburg, Russia
Jan 2007 – Apr 2008

XVD Corporation (USA), Software Developer

- Developed and integrated a novel DCT coefficient coding algorithm (based on university research) that reduced video data size by ~20% while preserving visual quality, directly decreasing bandwidth usage in production codecs.
- Enhanced bitrate control and entropy coding modules in the company's commercial video codec suite, improving adaptive streaming efficiency under varying network conditions.
- Collaborated with R&D team on codec integration and testing for H.264/H.265 pipelines used in broadcast and IP video transmission.
- Stack: C, C++, Assembler, Entropy coding, RTP, H264, H265, JPEG

Saint-Petersburg, Russia
Sept 2005 – Sept 2006

Projects

Securicam Insight IP-Cam

- Developed IP camera firmware with modern dashboard.

2014 – 2016

Nekaka Files Sharing Client

- Windows file-sync client for cloud service (<https://habr.com/en/companies/nekaka/articles/182040>).

2012 – 2013

Technologies

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

Concepts and technologies: Agile, AI/RAG, VoIP, Networks, Cryptography, Multi-threading, Distributed systems

IDE and tools: IntelliJ Idea, PyCharm, VSCode, Docker, k8s, Jenkins, Git, bash, Jira, Clickup, n8n, Wireshark

Platforms: Linux, macOS, Windows