Aliaksei Ivanou | C++ Software Engineer

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C++ Software Engineer (C++17/20) with 4+ years of experience in system/backend engineering and 7 years in scientific programming/image processing (MATLAB). Proven expertise in **low-latency backend optimization**, **cross-platform development (Qt, Embedded Linux)**, and **maintaining** polyglot architectures (C/C++, C#, Java, Scala).

Tech Stack & Domains

- *Languages & Frameworks*: C++ (11-20), C (C89), MATLAB, Qt (5.x/6.x), C# (.NET 8), Java (8/11), Scala, JavaScript.
- *Databases & Storage*: PostgreSQL, MySQL, SQLite, MS Access.
- *DevOps, Cloud & Infrastructure*: AWS (EC2, Storage), Azure (VMs), Jenkins (CI/CD), Yocto (Embedded Linux), Networking (SNMP, SSH, TCP/IP, WebSockets).
- *Development Tools & Libraries*: Git, GitHub, CMake, GCC, gdb, Valgrind, Visual Studio, Qt Creator, Linphone-SDK, FLTK Library, GoogleTest, DotNetZip, SharpSnmpLib, plog logger, Jira, Asana.
- *Development Practices*: Test-Driven Development (TDD), CI/CD Pipelines, Agile, Scrum, Kanban, Waterfall, Code review, Data Analysis, Software Design Patterns, Object-Oriented Programming, Debugging.
- *Domains*: Aerospace & Satellite Systems, UAV Systems, Geoinformatics, VoIP/SIP Telephony Systems, Embedded Systems Solutions, FinTech, Energy Sector ERP Solutions, Digital Library Management Systems.

Experience

C++ Software Engineer | **Innowise Group** **12/2024 - Present**

Innowise is a global software development company, specializing in Big Data, AI, RPA, IoT, AR/VR, and Blockchain.

- Developed and maintained **C++20 firmware components** for a SIP-based hardware phone ecosystem, focusing on **SIP protocol compliance** and real-time device stability.
- Engineered a Windows autoprovisioning utility, **migrating the codebase from .NET Framework 4.8 to .NET 8** to leverage modern performance and security features for automated device configuration and firmware updates.
- Managed the **Embedded Linux environment (Yocto Project)**, including **customizing BitBake recipes** and configuring daemons (Lighttpd, SNMP) to enable robust **remote device management** capabilities.
- Implemented **critical SIP failover logic** within the **Linphone-SDK (C++)** to guarantee seamless server backup connectivity and minimize service disruption.
- Functioned as a Technical Lead (4 engineers), responsible for mentoring, conducting technical assessments (on bench readiness), and **established** code and performance review standards.
- Actively participated in architectural discussions, offering key recommendations for language and toolchain migration to increase development velocity, reduce complexity, and improve system integration.

Tech Stack: C# (.NET Framework 4.8 / .NET 8), C++ (20), Qt, Qt 5.15.7, git, Qt Creator, gdb, GitLab, Asana, Yocto, Lighttpd, Dropbear, Linphone-SDK, DotNetZip, SharpSnmpLib, SNMP, Code review, SQLite.

C++ Software Engineer | **EPAM Systems** **09/2021 - 08/2024**

EPAM Systems (NYSE: EPAM) is one of the global leaders in both digital engineering and IT consulting, recognized for innovation, cloud, and AI services.

- Drove C++ contribution across two distinct enterprise platforms hosted on AWS/Azure: the **Energy ERP System (C++17/JavaScript)** and a **Digital Library Platform (C89/Java/Scala)**.
- Managed remote debugging and deployment workflows for **both C/C++ codebases (C++17 and C89)** on AWS EC2/Azure VMs, utilizing SSH and gdb for core dump analysis.
- **Library Platform:** Maintained the performance and stability of **legacy C89 modules** and resolved complex integration defects between the C core and JVM-based services (Scala/Java).
- **Energy ERP System:** Optimized PostgreSQL schema and complex SQL queries, resulting in a **measured reduction of search operation response times** (e.g., from 1.5s to 300ms).
- **Full-stack Contribution:** Contributed as a Full-stack engineer during delivery phases, maintaining **JavaScript modules to guarantee seamless data flow** between the C++ backend and Web UI.

Tech Stack: C (C89), C++ (14/17), Java (8/11), Scala, JavaScript, Amazon Web Services (AWS), Microsoft Azure, Apache, Linux, gdb, SSH, git, BitBucket, Jira, Jenkins, GCC, Valgrind, CMake, Test-driven development, CI/CD pipelines, Agile, Scrum, Kanban, Code review, PostgreSQL, MySQL, TCP/IP, WebSockets.

Independent Software Developer | C++ Engineering Projects **01/2020 - 09/2021**

- Designed and engineered a high-performance desktop **Financial Analytics System** (**C++17**) with a focus on clean architecture.
- Implemented a custom storage engine using **SQLite** and optimized Ul rendering using the **FLTK Library**.
- Established a full DevOps lifecycle: GoogleTest for unit testing, plog for structured logging, and CMake automation.

Tech Stack: C, C++ (17), git, GitHub, FLTK Library, plog logger, GoogleTest, CMake, Visual Studio, Test-driven development, SQLite.

MATLAB Software Engineer | PELENG **08/2012 - 01/2020**

PELENG is a developer and manufacturer of high-tech optical and optoelectronic systems for space, industrial, and surveillance applications. The company specializes in thermal imaging, precision optics, and advanced vision systems, emphasizing innovation and collaboration with public and private sectors.

- Engineered and optimized MATLAB image processing pipelines for 10+ Earth Remote Sensing satellites, achieving substantial improvements (e.g., **35-40% faster processing** and **>50% post-processing time reduction**) via advanced image stitching and defect removal.
- Developed specialized resolution assessment software for flight tests, which **accelerated image analysis workflow by up to 5 times** (4-5x improvement).
- Implemented a custom lossy image compression algorithm (MATLAB) for satellite transmission, achieving a **reliable 3-4x compression ratio** while carefully balancing integrity preservation and computational constraints.
- Developed software in MATLAB for image type prediction for image quantization, improving image quality metrics by ~30% and enhancing Earth observation accuracy by an estimated 15-20%.
- Developed image processing modules for UAVs in MATLAB, including debayering, stabilization, and sensor fusion.

Tech Stack: MATLAB, MS Access, git, GitHub, Proprietary Software, Test-driven development, Waterfall.

Education

- Bachelor's Degree in Radiophysics. Satellite information systems and technologies: Belarusian State University, Faculty of Radiophysics and Computer Technologies
- Programming course. C++ EPAM Systems Laboratory: EPAM Systems
- Programming course. C++ EPAM Systems Mentoring Program: EPAM Systems

Languages

- **English**: Professional Working Proficiency (B2)
- **Polish**: Conversational proficiency (B1)
- **Swedish**: Elementary proficiency (A2)
- **Russian**: Native proficiency (C2)
- **Belarusian**: Native proficiency (C2)