Aliaksei Ivanou

SOFTWARE ENGINEER

With **7.5 years of experience** in developing optical sensors for satellites and unmanned aerial vehicles, I possess a strong background in both hardware and software development. My expertise includes **3 years of experience** in C/C++ software development, where I appreciate the complexity and versatility of the language, and I am eager to work on projects that prioritize performance and innovative features.

I have a diverse skill set with experience in multiple programming languages, including:

- **MATLAB** for desktop applications
- **Java**, **Ruby**, and **Scala** for web applications
- **LabVIEW** for desktop applications

Additionally, I have gained practical experience in C++ through lab projects at **EPAM LAB**, enhancing my ability to contribute effectively to development teams.

Languages:

- English (B1+)
- Swedish (A2)
- Polish (B1)

Nationality: Belarusian

I am enthusiastic about collaborating on challenging projects that allow me to leverage the full capabilities of C/C++ and contribute to cutting-edge solutions.

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SKILLS

C	CMake	Ruby on Rails
C++	Visual Studio	LaTeX
Object-Oriented Programming	Java	LabVIEW
Git	Digital Image Processing	
SQL	MATLAB	

EXPERIENCE

Software Engineer

EPAM Systems Poland, Inc *Aug 2022 - Aug 2024*
C, C++11/14/17, STL, JavaScript, HTML, jQuery, Microsoft SQL Server, Nginx, ReSharper C++, gdb, SSH.

- **Engaged** extensively with legacy code, participating in bug fixes and enhancements to improve system performance and reliability while ensuring adherence to coding standards through thorough code reviews.
- **Executed** changes and debugged C++ and C code using gdb, compiling on remote Linux servers via SSH to significantly improve system stability.
- **Debugged** and compiled Java and Scala code using IntelliJ IDEA, facilitating timely delivery of software updates and feature enhancements.
- **Implemented** modifications to JavaScript, HTML, and CSS code, enhancing user interface functionality and overall aesthetics.
- **Collaborated** with teammates to troubleshoot and resolve technical challenges, fostering a cooperative work environment that contributed to project success.

Software Engineer

EPAM Systems Belarus, Inc *May 2022 - Aug 2022*
C, C++11/14/17, STL, JavaScript, HTML, jQuery, Microsoft SQL Server, Nginx, ReSharper C++, gdb, SSH.

- **Engaged** in back-end development focused on legacy code maintenance and enhancements, significantly improving system functionality and performance while collaborating on bug fixes and troubleshooting to ensure high-quality software delivery and enhance user satisfaction.
- **Conducted** comprehensive code reviews to uphold coding standards and best practices, enhancing overall code quality within the development team.
- **Modified** and debugged C++ and C code using gdb, compiling on remote Linux servers via SSH to enhance application performance and reliability.
- **Debugged** and compiled Java and Scala code using IntelliJ IDEA, facilitating timely software updates and feature enhancements while improving JavaScript, HTML, and CSS code to optimize the user interface and

enhance overall user experience.
- **Supported** teammates by assisting in problem-solving and sharing technical knowledge, fostering a collaborative work environment.

Junior Software Engineer

EPAM Systems Belarus, Inc *Sep 2021 - May 2022*
C, C++11/14/17, STL, JavaScript, HTML, jQuery, Microsoft SQL Server, Nginx, ReSharper C++.

- **Collaborated** on back-end development, focusing on legacy code maintenance and enhancements to significantly improve system functionality while participating in bug fixing and troubleshooting to ensure timely resolution of issues and high-quality software delivery.
- **Conducted** thorough code reviews to enforce coding standards and best practices within the development team, elevating overall code quality.
- **Modified** and debugged C++ and C code using gdb, compiling and deploying on remote Linux servers via SSH to enhance application reliability.
- **Debugged** and compiled Java and Scala code with IntelliJ IDEA, contributing to effective software updates and feature enhancements while adjusting JavaScript, HTML, and CSS code to improve user interface functionality and overall user experience.
- **Assisted** teammates in resolving technical challenges and providing guidance, fostering a collaborative and supportive work environment.

Software Engineer

RIFTEK, LLC *Mar 2020 - May 2020*
C++, Point Cloud Library (PCL), Open3D, Visual Studio.

- **Developed** software for generating 3D models from data collected by multiple 2D laser sensors, significantly enhancing accuracy in 3D reconstruction.
- **Utilized** the Point Cloud Library (PCL) for efficient processing and manipulation of point cloud data, optimizing data handling and performance.
- **Integrated** Open3D to facilitate advanced visualization and analysis of 3D models, improving user interaction and understanding of spatial data.
- **Employed** Visual Studio for coding, debugging, and optimizing performance, ensuring a robust and efficient software solution.

Research & Development Engineer

PELENG, JSC *Aug 2012 - Dec 2019*
MATLAB, Ruby on Rails, System Tool Kit, MS Access, PostgreSQL.

- **Contributed** to the development of optical sensors for satellites and UAVs, actively participating in flight tests and operational control to ensure system reliability and performance.
- **Developed** advanced photo and video processing algorithms, including an image compression algorithm for optimizing data storage and transmission efficiency, and a debayer algorithm for color image reconstruction from raw sensor data, enhancing image fidelity.
- **Created** image format conversion tools to ensure compatibility across diverse systems and applications, and designed a stabilization algorithm to reduce motion-induced artifacts in video footage, improving visual quality.
- **Engineered** an image fusion algorithm to combine data from multiple sources, enhancing detail and clarity for analysis, and utilized techniques for analyzing linear resolution and predicting quantization ranges to improve overall image quality.
- **Designed and implemented** a comprehensive database of Earth remote sensing satellites, capturing extensive details to support research initiatives and operational needs.

Satellite Monitoring Systems Engineer

Information center land cadastre data and monitoring of land, RUE *Jun 2010 - May 2012*

- **Managed** the installation and configuration of satellite monitoring systems for transport, ensuring seamless operation and reliability.
- **Conducted** regular maintenance and troubleshooting of the monitoring system to minimize downtime and enhance performance.

PROJECTS

Home Accounting Software (Personal)

Software Engineer *Jul 2020 - Jul 2021*

- **Developed** a home accounting application to manage personal financial transactions using C++, FLTK, SQLite, Git, Visual Studio, Google Test, PLOG, and CMake (link).
- **Utilized** the FLTK C++ library to create a user-friendly graphical interface for simplifying transaction entry and financial analysis.
- **Integrated** SQLite for efficient database management of transaction records, ensuring quick access and reliable data storage.
- **Implemented** robust testing practices using Google Test to ensure application reliability and accuracy, resolving potential issues before deployment.
- **Employed** PLOG for effective error logging and debugging, enhancing application reliability, and managed build automation with CMake for streamlined development.

C++ Stroustrup Programming (Personal)

Software Engineer *Jan 2020 - Mar 2021*

- **Completed** hands-on solutions for programming exercises from Bjarne Stroustrup's Programming: Principles and Practice Using C++ (2nd Edition), solidifying foundational knowledge in C++ through practical application with C++, FLTK, Git, and Visual Studio (link).
- **Gained** proficiency in C++ fundamentals, object-oriented programming, and advanced features like templates and standard library usage, contributing to robust application development.
- **Developed** graphical applications using the FLTK library, enhancing understanding of GUI design principles and event-driven programming for interactive user experiences.
- **Utilized** Git for version control, ensuring efficient project tracking and code management, facilitating collaboration and effective versioning throughout development.
- **Leveraged** Visual Studio for coding, debugging, and project organization, significantly improving workflow and overall productivity across various project stages.

Software modules for UAV (PELENG, JSC)

Research & Development Engineer, Software Engineer *Aug 2018 - Aug 2019*

- **Developed** software modules for digital image processing systems used in Unmanned Aerial Vehicles (UAV) using MATLAB.
- **Implemented** a debayer algorithm to convert raw sensor data into full-color images, significantly improving image quality and accuracy for better visual data interpretation.
- **Created** image format conversion tools to support multiple formats, enhancing compatibility and integration across different systems and platforms.
- **Developed** an image stabilization algorithm to reduce motion-induced distortions, improving video clarity in real-time UAV operations for clearer footage capture.
- **Designed** an image fusion algorithm to combine data from multiple sensors, increasing detail and contrast for improved target recognition and analysis.

Linear resolution analysis of images of the Earth surface (PELENG, JSC)

Research & Development Engineer, Software Engineer *Aug 2014 - Mar 2016*

- **Developed software** to analyze the linear resolution of satellite images using the sharp edge method, enhancing accuracy in evaluating imaging performance with MATLAB.
- **Implemented algorithms** to assess image sharpness and edge clarity, ensuring precise measurement of resolution for remote sensing applications.
- **Improved image quality assessment** through rigorous analysis, contributing to more reliable data interpretation in satellite imaging.
- **Enhanced operational effectiveness** by optimizing resolution evaluation methods, facilitating better insights into remote sensing applications.

Remote sensing satellites DB (PELENG, JSC)

Research & Development Engineer, Software Engineer *Feb 2015 - Feb 2016*

- **Developed** a comprehensive database system for cataloging and managing extensive data on Earth remote sensing satellites, ensuring efficient data organization and accessibility.
- **Built** a web-based interface using Ruby on Rails, enabling easy access and manipulation of satellite data for users of varying technical expertise.
- **Designed** and optimized a PostgreSQL database to handle large datasets with detailed satellite specifications, improving data retrieval speed and enhancing user experience.
- **Integrated** MS Access for legacy data support, ensuring smooth data migration and compatibility with existing systems to facilitate seamless transitions.

Improving image quality from remote sensing satellite (PELENG, JSC)

Research & Development Engineer, Software Engineer *Feb 2014 - Aug 2014*

- **Developed** software to predict quantization ranges for the Earth remote sensing satellite Belarusian Spacecraft using MATLAB.
- **Utilized** data from other Earth observation satellites to estimate the range of Earth's surface albedo, enhancing sensor calibration accuracy for reliable data collection.
- **Designed** algorithms to analyze satellite data and generate precise quantization ranges, optimizing image quality and significantly reducing data loss during transmission.
- **Automated** the prediction process, enhancing operational efficiency and minimizing manual input requirements, streamlining workflows and improving productivity.

Image compression algorithm (PELENG, JSC)

Research & Development Engineer, Software Engineer *Aug 2013 - Feb 2014*

- **Developed** a custom image compression algorithm using Adaptive Differential Pulse Code Modulation (ADPCM) in MATLAB for efficient image compression.
- **Implemented** multiple quantizers to achieve varying compression ratios, optimizing the algorithm for different data sizes and enhancing flexibility in image processing.
- **Evaluated** the performance of the techniques on low and high contrast images, achieving significant compression while maintaining image quality for effective remote sensing use.
- **Improved** data storage efficiency by 25% through optimized compression techniques, enhancing image transmission and storage for remote sensing applications.

Stitching frames from the Earth remote sensing satellite (PELENG, JSC)

Research & Development Engineer, Software Engineer *Aug 2012 - Aug 2013*

- **Developed** software for stitching image frames from the Belarusian Spacecraft and Kanopus-V satellite series using MATLAB.
- **Implemented** algorithms to remove optical defects, enhancing the visual quality of the stitched frames.
- **Designed** brightness alignment functions to standardize brightness levels across multiple frames.
- **Improved** satellite imagery processing accuracy, facilitating better analysis for remote sensing applications.

EDUCATION

Polish. Level A1 - B1

Accent School of Polish *Sep 2022 - Jul 2024*

Swedish. Level A1 - B2

The Centre for Swedish Studies *Jan 2022 - Jun 2023*

EPAM Laboratory

EPAM Systems Belarus, Inc *Mar 2021 - Aug 2021*
C++, Mentor: Alexander Stepaniuk.

C++ EPAM Mentoring Program

EPAM Systems Belarus, Inc *May 2020 - Aug 2021*
C++, Mentor: Alexander Stepaniuk.

C++ Programming

IT-Academy.by *Mar 2018 - May 2018*

English. Level A1 - B2

Streamline.by *Sep 2015 - May 2017*

Building web applications with Ruby on Rails

Course.by *Feb 2015 - Jun 2015*
Michael Rumiantsau.

Programming in Java

IT-Academy.by *Oct 2013 - Dec 2013*

LabVIEW – Data Acquisition

Belarusian State University of Informatics and Radioelectronics *Jan 2011 - Jan 2011*

LabVIEW – Basics I

Belarusian State University of Informatics and Radioelectronics *Dec 2010 - Dec 2010*

Radiophysics. Satellite information systems and technologies

Belarusian State University *Sep 2007 - Jul 2012*

CONSENT TO DATA PROCESSING

I agree to the processing of personal data provided in this document for realising the recruitment process pursuant to the Personal Data Protection Act of 10 May 2018 (Journal of Laws 2018, item 1000) and in agreement with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation.