Mikhail Matrosov

C++ developer

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Mikhail

C++ jedi. Create software and know what teamwork is. Solve problems and optimize everything. Good at communicating with people and love to teach people. About me, in three words: C++, GIT, Visual Studio.

Skills

Programming languages

primary
C++: from 2005, image processing applications, multi-threaded applications, console utilities, GUI with Qt and MFC, 3D-graphics; making internal and public technical talks and seminars.
Matlab: from 2007 till 2014, algorithms and GUI prototyping, mex-interfaces.

secondary
Python, **C#**, **JavaScript**, **HTML**, **SQL**: small utilities, home projects, simple web-applications.

Libraries and technologies

primary
STL, **boost**, **Qt**, **OpenCV**, **Intel IPP**: multiple image processing projects, problems in areas of combinatorial theory, numerical analysis, graph theory, 2D and 3D geometry.

secondary
Microsoft ConcRT, **Intel MKL**, **CGAL**, **ASP.NET**, **jQuery**: shallow knowledge, used only in several projects.

Applications and systems

primary
Windows, **Visual Studio**, **SmartGit**, **GIT**, **SVN**, **win-batch**, **NuGet**

secondary
Unix, **LaTeX**, **Photoshop**, **bash**

Scientific and fundamental knowledge

Image processing [1], color theory [2], computer vision, computer graphics, algorithms, data structures.

Experience

from 2014/12   **Align Technology Inc**, *Senior developer.*
Developing 3D-application for designing personalized orthodontic appliances (aligners). Managing of technical perspectives of new products aimed for marked expansion. Enhancing development process: code review, GIT workflow, coding standards.

from 2013/10
till 2014/10   **OctoNus Software Ltd, Digital Microscope project**, *Developer.*
Prototyped virtual navigation system though a number of photographs of an object, system has six degrees of freedom. Developed color correction algorithm, based on a color space continuous transform through a number of pivots. Did development and support of Qt-based application for visualization and processing of video-stream from network cameras. Elaborated plugins system and SDK. Improved application components interaction.

from 2008/08
till 2013/09   **OctoNus Software Ltd**, *Developer*
Analysis of problems in a jewelry images acquisition software. Image processing algorithms development and integration. Effectively implemented in C++ using Intel IPP and Microsoft ConcRT a number of algorithms of tone mapping, extended depth of field, color correction, image-based 3D-reconstruction and 3D-models stitching. For all the algorithms collected relevant data from partners, analyzed state of the art methods, prototyped solutions in Matlab. Implemented algorithms work in real time and are used in jewelry industry for quality control tasks.

from 2009/10
till 2013/10   **Graphics and Media Lab, CMC MSU**, *Researcher*
Member as a PhD student, research activity in OctoNus projects (see above).

from 2011/02
till 2011/05   **CMC MSU**, *Lecturer*
C++ laboratory course for students.

from 2004
till 2006   **Summer Informatics School**, *Lecturer, Counselor*
Theoretical and practical courses for group C.

Personal projects and contributions

2015/02   **C++ Russia Conference**, *Speaker*
Talk «C++ without new and delete».

2014/10   **Meeting of C++ User Group, Russia**, *Speaker*
Talk «C++ без new и delete».

2012/02	**OpenCV**, *Contributor* Patch #1641. Discrete Voronoi diagram: returning closest pixel instead of connected component in distanceTransform.
from 2012/06 till 2013/07	**NativeViewer**, *Author* A Visual Studio extension for visualization of OpenCV images during debug of native C++ applications. Opposed to Microsoft Image Watch, works with Visual Studio versions starting from 2003.
from 2010/01	**StackOverflow**, *Contributor* Over 7500 reputation, over 50 accepted answers. Top 10% for tags `c++`, `algorithm` and `image-processing`. Top 20% for tags `matlab` and `opencv`.

Trainings and certificates

2014/06	**An Overview of the New C++ (C++11/14)** Intensive technical training by Scott Meyers.

Education

from 2009 till 2012	**Moscow State University** Computational Mathematics and Cybernetics department *PhD student.*
from 2004 till 2009	**Moscow State University** Computational Mathematics and Cybernetics department *Student, specialist.* Graduation work [1]. Won admission without matriculation because of I degree diploma in XVI Russian Olympiad in Informatics.
from 2001 till 2003	**Summer Informatics School** *Student of groups C and A.* Studying a variety of algorithms and data structures.

Languages

English	Advanced. Easy reading and writing about an arbitrary topic. Easy conversation about a technical topic.
Russian	Native speaker.

Publications

[1] Михаил Матросов. Методы построения изображений расширенной глубины резкости. *сборник тезисов лучших дипломных работ ВМК МГУ 2009 года*, pages 12–13, 2009.

[2] Mikhail Matrosov, Alexey Ignatenko, and Sergey Sivovolenko. Locally adapted detection and correction of unnatural purple colors in images of refractive objects taken by digital still camera. In *Transactions on Computational Science XIX*, volume 7870 of *Lecture Notes in Computer Science*, pages 117–130. Springer Berlin Heidelberg, 2013.