

# Alexander Fokin

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## CONTACT INFORMATION

Current Location: Moscow, Russian Federation  
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## PROFESSIONAL EXPERIENCE

### **ISO C++ Standards Committee**

*C++ Expert*

**May 2016 - present**

Currently serving as a chairman of the C++ standards working group of the Russian National Body.

### **Yandex, Moscow, Russian Federation**

*Head of Search Components*

**October 2015 - present**

*Senior Search Engineer*

**October 2014 - October 2015**

Currently responsible for most of Yandex search runtime, from L7 load balancer all the way down to the services running on top of search database shards, managing a team of some 80 engineers.

Was hired as an engineer to work on the next generation index that would speed up the search process. The scope of the project was subsequently expanded to what effectively amounted to rewriting most of the search runtime. Wrote most of the index i/o and runtime code, and successfully deployed it in several search verticals, bringing significant performance and quality gains. This subsequently made it possible to considerably increase the number of document in our search database while staying on the same hardware.

As a side project have started an effort to revitalize our code base, replacing dated code and generally bringing order to where chaos has previously reigned. Ported clang's libcxx to MSVC as part of this effort, thus being instrumental in our switch to C++11 STL.

Also currently leading a project to improve the way programming interviews are performed at Yandex. Started with a number of presentations on best interviewing practices for different branches of the company, then worked on developing new rules for our interviewing process. Was subsequently charged with implementing these rules on the company scale. Did a lot of research into what constituted a good interview, gathered a team of skilled interviewers, organized interviewing training for employees, and optimized the interviewing process in a manner that was both transparent for all parties involved and was meeting our KPIs.

### **Network Optix, Moscow, Russian Federation, then Los Angeles, USA**

*Senior Software Engineer*

**October 2011 - July 2014**

Designed and implemented initial version of the HD Witness client application, making sure that its high-level architecture is sound and extensible. As of 2016, five years down the road, most of the foundational code is still unchanged, with a bunch of features added on top.

As the person solely responsible for the client-facing part of the system, I made no compromises when it came to delivering the best experience for our users. After 1.0 release various sources have described HD Witness as the most user-friendly and aesthetically pleasing video management system on the market, which has helped the company to gain a competitive edge.

Was subsequently charged with management of the front-end development team. Other responsibilities included design of public APIs and development of generic C++ libraries that were used internally.

**SmartDec**, Moscow, Russian Federation

*Software Engineer*

**July 2009 - September 2011**

Was mainly working on SmartDec, a native code decompiler. Laid out the architecture of the decompiler and implemented several frontend and backend plugins, including support for different x86 and PIC assembly input formats. Was responsible for devising novel algorithms that would improve the quality of the decompiled code and would allow for reconstruction of C++-specific constructs. This effort has led to several publications on international conferences on reverse engineering.

Have also implemented a form recognition toolkit that was subsequently used in some of the Moscow schools for test checking.

Was additionally working on <http://mathege.ru>, a national mathematics exam portal. Did both frontend and backend development and have implemented a L<sup>A</sup>T<sub>E</sub>X to html converter that was used for importing problems into the system.

**Institute for System Programming of the Russian Academy of Sciences**, Moscow, Russian Federation

*Software Engineer*

**September 2007 - September 2008**

Was working in a team developing a framework for dynamic analysis of binary code. Using C++ metaprogramming techniques implemented a disassembler for MIPS64 architecture that significantly outperformed all other disassemblers for this architecture.

**Intel**, Moscow, Russian Federation

*Software Engineering Intern*

**February 2007 - April 2008**

Was researching computer vision algorithms and have implemented a panorama stitching application. Description is available at <https://github.com/retgone/prec>.

Was also charged with the development of Ruby bindings for Intel's Integrated Performance Primitives library. Description is available at <https://github.com/retgone/ipp4r>.

## EDUCATION

**Department of Computational Mathematics and Cybernetics**, Moscow State University, Moscow, Russian Federation

*Specialist degree in Applied Mathematics and Computer Science* **September 2004 - July 2009**

Advisor: Professor Alexander Chernov

Thesis: Reconstruction of Class Hierarchies for Decompilation of C++ Programs

Graduated with high honors. Diploma GPA is 5.0 out of 5.0.

**Graduate School of Science and Engineering**, Chuo University, Tokyo, Japan

*Full-time non-degree student*

**September 2008 - March 2009**

Advisor: Professor Mitsunori Makino

Was studying Japanese, working on algorithms for real-time ray tracing and implemented a real-time ray tracer for use with CAVE automatic virtual environment.

## PUBLICATIONS

A. Fokin, E. Derevenetc, A. Chernov and K. Troshina. "SmartDec: Approaching C++ Decompilation", in proceedings of the *18th Working Conference on Reverse Engineering*, pp. 347-356, 2011.

A. Fokin, K. Troshina and A. Chernov. "Reconstruction of Class Hierarchies for Decompilation of C++ Programs", in proceedings of the *14th European Conference on Software Maintenance and Reengineering*, pp. 249-252, 2010.

K. Troshina, A. Chernov and A. Fokin. "Profile-Based Type Reconstruction for Decompilation", in proceedings of the *17th International Conference on Program Comprehension*, pp. 263-267, 2009.

HONOURS,  
AWARDS AND  
TEST SCORES

TOEFL iBT, 111/120, Moscow, 2010.  
M.V. Lomonosov Scholarship for Academic Excellence, Moscow, 2006-2009.  
ABBYY Collegiate Mathematics Competition, 1st place, Moscow, 2006.  
8th Moscow Collegiate Programming Contest, 9th place, Moscow, 2006.  
7th Moscow Collegiate Programming Contest, 11th place, Moscow, 2005.  
Unified State Exam in Mathematics, 100/100 (nationwide top), Izhevsk, 2004.

LANGUAGES

Russian: native.  
English: fluent.  
Japanese: intermediate.