Alexander Fokin

Contact Information

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Professional Experience

Yandex, Moscow, Russian Federation

Head of Search Components Department **October 2015 - present**

Senior Search Engineer **October 2014 - October 2015**

Currently responsible for the development of Yandex search runtime, managing a team of some 20 developers.

Was hired as an engineer and for the first year was working on the next generation index that would speed up the search process. Currently in the process of shipping it, expecting at least a 20% speedup.

As a side project have started a company-wide 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.

Working at Yandex has also allowed me to participate in C++ conferences around the country, and these days I'm a sought-after speaker at C++-related events in Russia.

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

Senior Software Engineer **October 2011 - July 2014**

Implemented initial version of the HD Witness client application. Streamlined the UI making it highly intuitive and utilized OpenGL to provide a fluid and visually appealing user experience. Various sources have described HD Witness as the most aesthetically pleasing and user-friendly video management system on the market, which has helped the company to gain a competitive edge.

Was subsequently responsible for development of generic C++ libraries that were used internally, including compile-time reflection for C++ types, data serialization and object-relational mapping. Other responsibilities included design of public APIs, management of the front-end development team and ensuring UI and UX consistency of our desktop and mobile clients.

Combild, Moscow, Russian Federation

Software Development Lead, Co-founder **June 2010 - December 2011**

Combild was started to create an IT service management (ITSM) system that would target small companies and IT outsourcers, an underserved market niche for which competing solutions such as 1C:ITIL and Itilium were either too expensive or excessively complex. Combild was to offer a lightweight and user-friendly ITSM system with a licensing model specifically targeted at small companies and IT oursourcers.

My role was to lay out the initial product architecture and to implement the first demonstrable version, and then to work with customers to prioritize and clarify the features and to manage a small development team.

Select LTD, 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. Detailed description of the decompiler is available at `http://decompilation.info`.

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 developed in Java using Apache Struts web framework. Did both frontend and backend development and have implemented a LaTeX 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`.

Personal Projects

I am an avid programmer and I enjoy writing code in my free time. Throughout the years I have done a lot freelance work and have finished several personal projects, including a real-time ray-tracing engine, a virtual mouse driver for Windows XP, a tool for automatic reconstruction of 3d solids from engineering drawings and a lot of OpenGL demos. For more information check out my github page (`https://github.com/retgone`).

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.

References

Available upon request.