Ivan Tarasov

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Skills

Frequent use, good expertise:

Languages: C++, Haskell, shell scripting
Operating Systems: Linux

Past use, good expertise:

Languages: Java, C, x86/ARM assembly
Operating Systems: Solaris

Occasional use:

Languages: R, Scala, Scheme, JavaScript, Python, Ruby, D
Operating Systems: Mac OS X, Windows

Tools that I use often/competently:

Vim, git, make, gdb, oprofile, perf, SystemTap, DTrace, strace, WireShark, zsh, ghci, Salt Stack, ...

Work Experience

RethinkDB November 2010 – October 2012
Systems Engineer Mountain View, CA

- Developed B-tree node snapshotting system to avoid locking in presence of range read operations.
- Reworked code to make use of zero-copy networking which let remove the CPU bottleneck when using high-bandwidth network adapters.
- Worked on profiling and performance optimization of the database engine.
- Implemented package generation scripts that generate packages for Debian, Ubuntu, RedHat, CentOS, and SUSE distributions.
- Maintained build scripts, local network and servers' configurations; used Salt Stack to unify some of the configurations across machines.

Stanford DDL/Volkswagen ERL occasional, 2009 – present
Consultant

- Designed and developed parts of a safety control and monitoring system for the autonomous car project.
- Helped the Stanford/VW team at the Pikes Peak during the first successful fully-autonomous Pikes Peak ascent.
- (ongoing) Provide occasional pro bono consulting/development support for the developed software.

Sun Microsystems/Oracle February 2006 – November 2010
Senior Member of Technical Staff Russia, SF Bay Area

- Developed several general-purpose and ARM-specific optimizations for Java VM C1 compiler.
- Designed a hard real-time guaranteed-delivery network protocol and implemented it for Solaris (kernel module in C, user-space Java Real-Time library).
- Developed various DTrace scripts to debug the bottlenecks, race conditions, and deadlocks in the network protocol implementation.
- Improved serviceability tools support for Java Real-Time System.
- Developed code for FlexPicker industrial robot control demo (JavaOne 2007 Real-Time Java Demo).

St.Petersburg State University October 2007 – June 2008
Lecturer St.Petersburg, Russia

Prepared and taught a new course on functional programming, focusing on Scheme and Haskell.

StarSoft Development Labs March 2004 – February 2006
Software Developer St.Petersburg, Russia

Worked as a software developer on various projects, ranging from server applications written in C to web applications in Java and C#.

step: GmbH September 2003 – March 2004
Software Developer St.Petersburg, Russia

- Worked on development of a workflow management system targeted at documentation translation agencies.
- Served as a configuration manager, defined version control usage policies and practices.
- Developed and maintained the build process for the entire application suite.

STAR SPb August 2002 – September 2003
Software Developer St.Petersburg, Russia

- Developed various COM plugins for a workflow management system.
- Developed Win16 ↔ Win32 data bridge to enable interoperation with legacy applications on Windows NT 4.

Education

St.Petersburg State University 2000 – 2005

Graduated: M.S. in Applied Mathematics and Computer Science, 2005.
Master's project: "Design and implementation of an algorithm for nonlinear nonstationary systems' stability analysis".

Research Interests

Functional programming languages, programming language design, compilers, garbage collection, real-time systems, theory of control, theory of stability, data mining, machine learning, algorithms and data structures.

Publications

- *"Design and Development of a Reliable Ethernet-based Real-Time Communication Protocol"* (together with Greg Bollella and Mike Duigou) in *Proceedings of the* 8 sup *th International Workshop on Real-Time Networks (RTN'09), June 30, 2009, Dublin, Ireland.*
- *"Using Real-Time Java for Industrial Robot Control"* (together with Sven Gestegård Robertz, Roger Henriksson, Klas Nilsson, and Anders Blomdell) in *Proceedings of the* 5 sup *th International Workshop on Java Technologies for Real-Time and Embedded Systems (JTRES 2007), September 26–28, 2007, Vienna, Austria.*

Interests

Bicycle racing, running, classical guitar, mathematics, tinkering and hacking.

Active Personal Projects

- Organizing the Bay Area Haskell User Group meetings.
- Bicycle racing training, bicycle racing.
- Spanish language learning.
- Reading "Analytic Combinatorics", "Concrete Mathematics", "TAOCP", and solving the exercises from these books.

References

Available upon request.