

Aleksey Shipilëv



Summary

JVM developer and performance engineer.

Locations: Experienced in and open for remote work. Relocation within Europe might be acceptable. Relocation to Russia is not acceptable.

Language skills: native Russian, fluent English, atrocious German

Legal status: Russian citizenship, German permanent residence

Address: 14467, Germany, Potsdam [available on request, contact via email]

Mobile: [available on request, contact via email]

E-Mail: aleksey@shipilev.net

Website: <https://shipilev.net/>

Specialities

Java Virtual Machines, hardware and software concurrency, system and application performance tuning, performance testing methodologies and tools

Education

2003-2009: MSc in Computer Science,
Saint-Petersburg State University of Information Technologies, Mechanics and Optics.
Graduated with Honors.

Experience

2023-now: Principal Engineer, Languages and Runtimes, Amazon Web Services

OpenJDK:

- Functional, performance, stability, testability improvements all over HotSpot JVM and OpenJDK class libraries. Performance consulting to development teams and community at large.
- ...

2016-2023: Principal Software Engineer, Red Hat

OpenJDK:

- Functional, performance, stability, testability improvements all over HotSpot JVM and OpenJDK class libraries. Performance consulting to development teams and community at large.
- Leading the development and maintenance of Zero VM, nearly-pure C++ interpreter JVM
- Leading the development and maintenance of Java Microbenchmark Harness (jmh), Java Concurrency Stress tests (jcstress), and Java Object Layout (jol)
- Actively participating in tracking, planning and backporting work in stable long-term-support JDK releases (17u, 11u, 8u)
- Actively participating in x86_32, ARM32 development and maintenance
- Notable projects: Shenandoah GC (JEP 189), Epsilon GC (JEP 318)
- Maintaining builds and tests on multiple architectures and release trains, including the debug binaries and non-conventional test profiles: <https://builds.shipilev.net/>

2012-2016: Principal Software Engineer, Java Performance Engineer, Oracle

OpenJDK:

- Performance improvements all over HotSpot JVM and class libraries. Active contributions to concurrency testing and optimizations. Performance consulting to development teams.
- Leading the development and maintenance of Java Microbenchmark Harness (jmh), Java Concurrency Stress tests (jcstress), and Java Object Layout (jol)
- Other notable projects: @Contended (JEP 142), Compact Strings (JEP 254), Indify String Concat (JEP 280), Variable Handles (JEP 193)

2009-2012: Senior Software Engineer, Java Performance Engineer, Sun Microsystems/Oracle

OpenJDK:

- Working on Java platform performance tuning and performance testing, focusing on benchmarking, performance testing automation and performance testing methodologies.
- Lead the development and maintenance of advanced performance testing and tracking system
- **2010:** Sun Microsystems SPB Development Center Achievement Award «In recognition of execution of work over and above the expectations and requirements of the project and position».

2010-2013: Oracle Representative in OSG Java, SPEC

SPECjbb.Next:

- Technical representative in working group targeted for developing and maintaining industry standard Java benchmarks that allow fair and consistent reporting of system performance and to promote active competition that drives performance improvements into the Java platform.
- Leading the design and development for SPECjbb2013
- **2012:** SPECTacular Award for SPECjbb2013 Development.
- **2013:** SPECTacular Contributor for SPECjbb2013 Development.

2008-2009: Software Engineer, Corporate Technology Group, Intel Corporation

Design and development of SW tools for Reconfigurable Accelerators and SoC designs.

- Support and development of low-level ELF-based toolchain including architecture-specific linker, assembler, disassembler, and librarian.

- Development of Virtual Platforms for SoC design estimation, synthesis, and simulation.
- Coarse-grained algorithm decomposition schemes and mapping techniques research.

2005-2008: Performance Engineer (intern), Software and Solutions Group, Intel Corporation

Working on development and performance optimization of Intel Dynamic Runtime Layer VM, main VM of Apache Harmony project, for Intel platforms.

- Performance testing methodologies research and development. Performance testing-oriented, lightweight, multi-site, robust and secure batch system developed and integrated in the project workflow. Setting up and maintenance of performance labs, including installation and maintenance of complex batch systems and SPECjAppServer2004 configurations.
- Performance optimizations across VM, JIT, GC and class libraries for various key workloads. Most of optimizations brought DRLVM to performance level of competitors and frequently overcome the competitors' results.
- **2006:** Intel DRL Recognition Award for outstanding contribution in performance tuning of Dynamic Runtime Layer VM.

2006-2009: Contributor, Apache Software Foundation

Participating in the development of Apache Harmony, open-source implementation of Java SE 5.0 under APLv2.

- Performance research and development of VM, JIT, GC, and class libraries.
- Metaoptimization and fuzzy testing of DRLVM/Jitrino JIT-compiler on SPECjvm2008, DaCapo, SciMark2 with evolutionary algorithms.
- Regular performance tracking and ad-hoc performance evaluations of 3rd side workloads and benchmarks.
- Pack200 packer/unpacker development and performance optimizations.

2008-2009: Contributor, JikesRVM

Participating in the development of JikesRVM, open-source Java-in-Java implementation under CPL.

- Apache Harmony class libraries integration and performance testing.
- Metaoptimization and fuzzy testing of JikesRVM/OPT compiler on SPECjvm2008, DaCapo, SciMark2 with evolutionary algorithms.

Other Experience

2012-2016: Staff, School for Molecular and Theoretical Biology

2012-2016: Staff, Puschino Winter School

Computing and networking infrastructure deployment and maintenance.

2003-2010: Lecturer, Krasnoyarsk Summer School

Working with gifted students in alternative education system.

- Lead several Computer Science courses, including but not limited to “Graph Theory”, “Abstract Machines”, “Evolutionary Algorithms”, “Future of Computing Environments”
- Rapid computing center deployment and maintenance.

Public Engagements

Delivered over 30+ talks on different aspects of Java performance on multitude of developer conferences around the world. Wrote numerous articles on JVM and performance tuning. The list of

materials, including videos, slides, blog posts, is maintained at <https://shipilev.net/>