

Anton Burtsev

School of Computing
University of Utah
50 S. Central Campus Dr., Rm 3190
Salt Lake City, UT 84112

Office: (801) 585-3741
Mobile: (801) 448-6264
Fax: (801) 585-3743
Email: aburtsev@flux.utah.edu
Homepage: <http://www.cs.utah.edu/~aburtsev/>

Research Interests

Operating systems: new abstractions for structuring operating systems, virtualization, microkernels, distribution models, persistence, threading models, IPC mechanisms, lock-free synchronisation, scalability, multi-cores.

System analysis: replay debugging, performance analysis.

Distributed operating systems: networking and datacenter operating systems, replication.

Security: distributed and decentralized access control models, access control in operating systems.

Languages: language abstractions for operating systems, domain specific languages.

Education

Ph.D. Computer Science, University of Utah, 2005–2011 (expected).

Thesis Title: Replay-based Analysis of Complex Software Systems.

Thesis Advisor: John Regehr.

M.Sc. Applied Mathematics with honors, National Technical University of Ukraine (“Kyiv Polytechnic Institute”), GPA 4.0, 2000–2002.

Thesis Title: Distributed operating system architecture based on distributed shared objects.

Thesis Advisor: Yuriy Timoshenko.

B.Sc. Applied Mathematics with honors, National Technical University of Ukraine (“Kyiv Polytechnic Institute”), GPA 3.95, 1996–2000.

Thesis Title: Intelligent software agents.

Thesis Advisor: Alexander Selin.

Publications

Texts are available at <http://www.cs.utah.edu/~aburtsev/publications.html>

Refereed Conference Publications

Fido: Fast Inter-Virtual-Machine Communication for Enterprise Appliances, Anton Burtsev, Kiran Srinivasan, Prashanth Radhakrishnan, Lakshmi N. Bairavasundaram, Kaladhar Voruganti, and Garth R. Goodson. USENIX Annual Technical Conference, June 2009.

Transparent Checkpoints of Closed Distributed Systems in Emulab, Anton Burtsev, Prashanth Radhakrishnan, Mike Hibler, and Jay Lepreau. Eurosys, April 2009.

Posters

A Replay-based Approach to Performance Analysis, Anton Burtsev, Eric Eide, and John Regehr. OSDI, October 2010.

Benchmarks Can Make Sense, Anton Burtsev, Eric Eide, Mike Hibler, and John Regehr. School of Computing Research Day, University of Utah, March 2010.

Transparent Checkpoints of Closed Distributed Systems in Emulab, Anton Burtsev, Prashanth Radhakrishnan, Mike Hibler, and Jay Lepreau. Eurosys, April 2009.

Operating Systems as Parallel Pipelines, Anton Burtsev and John Regehr. School of Computing Research Day, University of Utah, March 2009.

Aggressive Server Consolidation through Pageable Virtual Machines, Anton Burtsev, Mike Hibler, and Jay Lepreau. OSDI, December 2008.

True Time-Sharing in Emulab through Preemption and Stateful Swapout, Anton Burtsev, Prashanth Radhakrishnan, Mike Hibler, and Jay Lepreau. NSDI, May 2007.

Time Travel for Closed Distributed Systems, Anton Burtsev, Prashanth Radhakrishnan, Mike Hibler, and Jay Lepreau. NSDI, May 2006.

Informal Reports

Time-Travel for Closed Distributed Systems, Anton Burtsev and Prashanth Radhakrishnan. Informal report, Flux Research Group, University of Utah, May 2006.

Implementation of μ ITRON Embedded Operating System Specification on top of L4 Microkernel, Anton Burtsev. Informal report, DiSy: Operating Systems, Embedded and Distributed Systems Research Group, University of New South Wales, Sydney, Australia, December 2004.

Presentations

Manycores: Challenges for OS. Given at the Multi-Core Discussion Colloquium, School of Computing, University of Utah, October 2007.

Earlier work published in Ukraine (2000-2004)

Automatic object serialization mechanism for a distributed component model, Anton Burtsev, Leonid Ryzhyk, and Yuriy Timoshenko. 4th International Conference of Students, Postgraduate Students and Young Scientists on System Analysis and Information Technologies, Kyiv, Ukraine, 2004.

Architectural design of E1 distributed operating system, Leonid Ryzhyk and Anton Burtsev. System Research and Information Technologies International Scientific and Technical Journal, Kiev, Ukraine, October 2004.

Operating system for parallel distributed computing, Anton Burtsev, Leonid Ryzhyk, and Yuriy Timoshenko. 1st International Radio-Electronics Forum "Applied Radio-Electronics. State and Future Trends", Kharkiv, Ukraine, 2002.

Operating system architecture based on distributed objects, Anton Burtsev, Leonid Ryzhyk, and Yuriy Timoshenko. Scientific Bulletin of NTUU "KPI", #4, pp.5-12, Kiev, Ukraine, 2002.

Operating system architecture with process migration support, Anton Burtsev, Leonid Ryzhyk. 3rd International Conference on Programming "UkrProg2002", Kyiv, Ukraine, pp.516-521, 2002.

Agent-oriented approach to software development, Anton Burtsev and Leonid Ryzhyk. 2nd National Conference of Students, Postgraduate Students and Young Scientists on System Analysis and Information Technologies, Kyiv, Ukraine, pp.130-134, 2000.

Thesis

Distributed operating system architecture based on distributed shared objects, Anton Burtsev and Leonid Ryzhyk. M.Sc. Thesis, National Technical University of Ukraine "Kyiv Polytechnic Institute", 2002.

Intelligent software agents, Anton Burtsev and Leonid Ryzhyk. B.Sc. Thesis, National Technical University of Ukraine “Kyiv Polytechnic Institute”, 2000.

Teaching Experience

Organizer, Computer Systems Lunch Seminar, University of Utah, 2007-2008.

Organization of a seminar, where students and faculty can discuss the most recent work in the area of systems research.

Teaching assistant, National Technical University of Ukraine, 2002-2004.

“Introduction to Digital Circuits”, “Computer Systems”.

Work Experience

Research assistant, Flux Research Group, School of Computing, University of Utah, 2005–present.

Research in the areas of distributed systems debugging, transparent checkpointing, and time-sharing of computer networks. Work on implementing time-travel system for the Emulab Network Testbed, and extending Xen virtual machine monitor with deterministic replay capabilities.

Research intern, Advanced Technology Group, NetApp, Inc., 2008–2009.

Microkernelization of the network attached storage stack, design and implementation of the fast virtual machine communication primitives for the Xen virtualization platform.

Research intern, Embedded, Real-Time and Operating Systems Research Group, University of New South Wales, Sydney, Australia, August–November 2004.

Advisors: Gernot Heiser and Ihor Kuz.

Implementation of the μ ITRON real-time embedded operating system on top of the L4 microkernel.

Software developer (part-time), WestGate Software Security Ltd. (www.westgate-usa.com), 1999–2005.

Design and development of software solutions in a field of hardware-based software protection and security.

Service

SOSP'09 shadow committee.

Software Artifacts

Deterministic replay debugging for the Xen virtualization platform, part of the Emulab software.

Transparent distributed checkpointing system for a network of virtual machines, part of the Emulab software, 2008.

E1 distributed operating system, research prototype, 2005.

μ ITRON embedded operating system specification on top of the L4 microkernel, 2004.

Areas of Expertise

System and kernel programming, operating systems programming.

Web-based distributed applications (server side programming, XML, database programming).

Hardware-based and cryptographic data and software protection.

Public key infrastructure (PKI) cryptography.

Skills

Programming languages: C/C++, Haskell, Scala, Java, SQL, PHP, Python, IA-32 assembler, Oz, UNIX Shell, Java Script.

Operating systems: Xen virtualization platform (microkernel, dom0/domU kernel, and Xend python control layer programming), L4 microkernel (operating system and microkernel programming), FreeBSD and Linux (application, system, and kernel programming, CGI, XML, Java Servlets, database programming (PostgreSQL, Interbase), system administration), Windows (application programming, COM/DCOM, Microsoft Media Technologies, Microsoft XML technologies, basic GUI programming, system administration).

Honors, Awards, & Scholarships

ACM Student Grant to attend the SOSP'09 conference, October 2009.

USENIX Student Grant to attend the OSDI'08 conference, December 2008.

USENIX Student Grant to attend the NSDI'08 conference, March 2008.

ACM Student Grant to attend the SOSP'07 conference, October 2007.

USENIX Student Grant to attend the HotOS'07 workshop, April 2007.

USENIX Student Grant to attend the OSDI'06 conference, November 2006.

NICTA International Internship Scholarship, University of New South Wales, August 2004.

M.Sc. Diploma with Honors in Applied Mathematics, National Technical University of Ukraine ("Kyiv Polytechnic Institute"), 2002.

B.Sc. Diploma with Honors in Applied Mathematics, National Technical University of Ukraine ("Kyiv Polytechnic Institute"), 2000.

Personal

Born February 8, 1979. Ukrainian citizen. Speak Russian (native language), Ukrainian (native language), English (fluent), German (basic proficiency). Married Anna Shestakova in June 2005. Children: Sophia Valerie Burtseva, born May 2008.

Other interests

Taekwondo, tennis, skiing, mountain biking, jazz music, reading, painting, traveling, digital photography.