Curriculum Vitae

Dr. Alexandra Fedorova

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Contents

1 Background

1.1 Awards

- Alfred P. Sloan Research Fellowship, 2012
- ACM CRA-W Anita Borg Early Career award, 2011
- Three Strategic Grants (two as PI): 2008, 2009, 2012
- Two best paper awards (USENIX ATC 2002, USENIX ATC 2015)

1.2 Education

2006 **Ph.D. in Computer Science**
Harvard University, *Cambridge, MA, USA*
Thesis title: Operating System Scheduling for Chip Multithreaded Processors
Thesis advisor: Margo Seltzer

2002 **M.S. in Computer Science,**
Harvard University*, Cambridge, MA, USA*

1999 **Bachelor's in Computer Science**
Smith College, *Northampton, MA, USA*

1.3 Employment history

2015-present **Associate Professor**
Electrical and Computer Engineering, University of British Columbia

2012-2015 **Associate Professor**
School of Computing Science, Simon Fraser University

2014-present **Consultant**
MongoDB. **Tune performance of a scalable key-value store**

2013-2014 **Consultant**
WiredTiger. **Tune performance of a scalable key-value store**

2006 –2012 **Assistant Professor**
School of Computing Science, Simon Fraser University

2003-2006 **Graduate student intern**
Sun Microsystems Laboratories, Burlington, MA, USA
- Member of the Scalable Synchronization Group (PI Mark Moir)
- Member of the Iceberg Group (PI Christopher Small)

1999-2000 **Software engineer**
EMC Corporation, Westboro, MA, USA
- Developed software for remote management of storage devices

2 Research

2.1 Short summary

I work on building fast and energy-efficient systems. Modern computer systems are so complex that it is very difficult to build efficient and performant programs. I build system software that enables application developers to tap into the best that the hardware can offer without hampering their productivity. Some key results of my work are operating system thread scheduling algorithms that ensure efficient utilization of the shared memory hierarchy, memory placement algorithms that minimize the movement of data on the cross-chip interconnect and improve performance and save energy, and adaptation of database techniques into conventional programming languages with the goal of simplifying parallel programming.

2.2 Publications

Evaluating quality of publications
*To assess the quality of publications, I provide **Microsoft Academic Search (MAS)** ranks for Computer Science conferences and journals. MAS delivered the most complete and reliable ranks as compared with Thomson ISI, CORE (ARC), Arnetminer, Citeseer, and most accurately reflected prestige of publication venues as perceived by my peers. MAS ranks are based on the past ten years since publication year.*

Refereed and invited articles in journals and magazines:

[J12] Eric Matthews, Lesley Shannon and Alexandra Fedorova. Shared Memory Multicore MicroBlaze System with SMP Linux Support. *ACM Transactions on Reconfigurable Technology and Systems (TRETS)* , to appear. **MAS Rank: 876/1363**

[J11] Fabien Gaud, Baptiste Lepers, Justin Funston, Mohammad Dashti, Alexandra Fedorova, Vivien Quéma, Renaud Lachaize, and Mark Roth. Challenges of memory management on modern NUMA systems. *Commun. ACM 58, 12, pp. 59-66.*, December 2015. **MAS Rank: 1/1363 (top 1%)**

[J10] Baptiste Lepers, Vivien Quema, Alexandra Fedorova, Thread and Memory Placement on NUMA Systems: Asymmetry Matters, *USENIX ;login, Vol. 40, No. 5*, October 2015

[J9] Sergey Zhuravlev, Juan Carlos Saez, Sergey Blagodurov, Alexandra Fedorova and Manuel Prieto, Survey of Energy-Cognizant Scheduling Techniques, *Transactions on Parallel and Distributed Systems*, 24(7), pp. 1447-1464. July 2013. **MAS Rank: 71/1233 (top 6%)**

[J8] Juan Carlos Saez, Alexandra Fedorova, M. Prieto. Leveraging Core Specialization via OS Scheduling to Improve Performance on Asymmetric Multicore Systems, *ACM Transactions of Computer Systems*, vol. 30, issue 2, April 2012. **MAS Rank: 7/762 (top 1%)**

[J7] Sergey Zhuravlev, Juan Carlos Saez, Sergey Blagodurov, Alexandra Fedorova, Manuel Prieto. Survey of Scheduling Techniques for Addressing Shared Resources in Multicore Processors. *ACM Computing Surveys,* vol. 45, issue 1, March 2013
MAS Rank: 66/762 (top 9%)

[J6] Juan Carlos Saez, Daniel Shelepov, Alexandra Fedorova and Manuel Prieto. Leveraging Workload Diversity through OS Scheduling to Maximize Performance on Single-ISA

Heterogeneous Multicore Systems. *Journal of Parallel and Distributed Computing*, vol. 71, issue 1, January 2011. **MAS Rank: 182/762 (top 24%)**

[J5] Sergey Blagodurov, Sergey Zhuravlev and Alexandra Fedorova. Contention Aware Scheduling on Multicore Systems. *ACM Transactions on Computer Systems*, vol. 30, issue 4, December 2010. **MAS Rank: 7/762 (top 1%)**

[J4] Alexandra Fedorova, Sergey Blagodurov and Sergey Zhuravlev. Managing Contention for Shared Resources on Multicore Processors. *Communications of the ACM*, vol 53, issue 2, pp. 49-57, February 2010. *Invited.* **MAS Rank: 13/762 (top 2%)**

[J3] Alexandra Fedorova, Juan Carlos Saez, Daniel Shelepov and Manuel Prieto. Maximizing Performance per Watt with Asymmetric Multicore Systems. *Communications of the ACM,* vol. 52, issue 12, pp. 48-57, December 2009. *Invited.* **MAS Rank: 13/762 (top 2%)**

[J2] Viren Kumar and Alexandra Fedorova. Towards Better Performance Per Watt in Virtual Environments on Asymmetric Single-ISA Multi-core Systems. *ACM Operating Systems Review,* vol. 43, issue 3, July 2009. **MAS Rank: 35/762 (top 5%)**

[J1] Daniel Shelepov, Juan Carlos Saez, Stacey Jeffery, Alexandra Fedorova, Nestor Perez, Zhi Feng Huang, Sergey Blagodurov, Viren Kumar. HASS: A Scheduler for Heterogeneous Multicore Systems. *ACM Operating Systems Review, Special Issue on the Interaction among the OS, Compilers, and Multicore Processors*, vol. 43, issue 2, April 2009. **MAS Rank: 35/762 (top 5%)**

Refereed Conference Proceedings:

[C30] Sergey Blagodurov, Alexandra Fedorova, Evgeny Vinnik, Tyler Dwyer and Fabien Hermenier, Multi-Objective Job Placement in Clusters, *Supercomputing Conference (SC),* 2015. Acceptance rate 22%. **MAS rank: 47/2429 (top 2%)**

[C29] Baptiste Lepers, Vivien Quéma and Alexandra Fedorova, Thread and Memory Placement on NUMA Systems: Asymmetry Matters, *USENIX Annual Technical Conference (USENIX ATC)*, July 2015. Acceptance rate 16%. **MAS rank: 51/2429 (top 2%) – *Best Paper Award***

[C28] Anoop Sarkar, Fred Popowich, Alexandra Fedorova, A Professional Big Data Master's Program to Train Computational Specialists**,** *Big Data and Analytics EdCon 2014.* – Short paper

[C27] Fabien Gaud, Baptiste Lepers, Justin Funston, Jeremie Decouchant, Justin Funston, Alexandra Fedorova and Vivien Quéma, Large Pages May be Harmful on NUMA Systems, *USENIX Annual Technical Conference (USENIX ATC)*, June 2014. Acceptance rate 15%. **MAS rank: 54/2709 (top 2%)**

[C26] Sergey Blagodurov, Martin Arlitt, Yuan Chen, Chris Hyser, Alexandra Fedorova, Maximizing Server Utilization while Meeting Critical SLAs through Weight-Based Collocation Management, *IFIP/IEEE Integrated Nework Management Symposium (IM 2013).* Acceptance rate 27%. **MAS rank: 376/2872 (top 13%)**

[C25] Mohammad Dashti, Alexandra Fedorova, Justin Funston, Fabien Gaud, Renaud Lachaize,

Baptiste Lepers, Vivien Quema and Mark Roth, Traffic Management: A Holistic Approach to Memory Placement on NUMA Systems, *Eightieenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2013. Acceptance rate 23%. **MAS rank: 111/2872 (top 4%)**

[C24] Mark Roth, Micah J Best, Craig Mustard and Alexandra Fedorova, Deconstructing the Overhead in Parallel Applications, *IEEE International Symposium on Workload Characterization* (IISWC), 2012. Acceptance rate 38%. **MAS rank: 419/2872 (top 15%)**

[C23] Tyler Dwyer, Alexandra Fedorova, Sergey Blagodurov, Mark Roth, Fabien Gaud and Jian Pei, A Practical Method for Estimating Performance Degradation on Multicore Processors and its Application to HPC Workloads, *Supercomputing Conference (SC),* 2012. Acceptance rate 21%. **MAS rank: 51/2872 (top 2%)**

[C22] Mohammad Hosseini, Alexandra Fedorova, Shervin Shirmohammadi, Joseph Peters, Energy-Aware Adaptations in Mobile 3D Graphics, *ACM Multimedia,* 2012. Acceptance rate . **MAS rank: 32/2872 (top 1%)**

[C21] Eric Matthews, Lesley Shannon and Alexandra Fedorova, From One to Many, Bringing MicroBlaze into the Multicore Era with Linux SMP Support, *22nd International Conference on Field Programmable Logic and Applications (FPL),* 2012. Acceptance rate 28%. **MAS rank: 132/2872 (top 5%)**

[C20] Justin Funston, Kaoutar El Maghraoui, Joefon Jann, Pratap Pattnaik and Alexandra Fedorova, An SMT-Selection Metric to Improve Multithreaded Applications' Performance, *IEEE International Parallel & Distributed Processing Symposium (IPDPS)*, 2012. Acceptance rate 21%. **MAS rank: 118/2248 (top 5%)**

[C19] Sergey Blagodurov, Sergey Zhuravlev, Mohammad Dashti and Alexandra Fedorova. A Case for NUMA-Aware Contention Management on Multicore Systems. *USENIX Annual Technical Conference (USENIX ATC),* 2011. Acceptance rate 18%. **MAS rank: 31/1645 (top 2%)**

[C18] Micah J Best, Shane Mottishaw, Craig Mustard, Mark Roth, Alexandra Fedorova, Andrew Brownsword. Synchronization via Scheduling: Techniques For Efficiently Managing Shared State. *32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, 2011. Acceptance rate 23%. **MAS rank: 11/1645 (top 1%)**

[C17] Kishore Kumar, David Vengerov, Alexandra Fedorova and Vana Kalogeraki. FACT: a Framework for Adaptive Contention-Aware Thread Migrations. *ACM International Conference on Computing Frontiers (CF),* 2011. Acceptance rate 22%. **MAS rank: 196/1645 (top 12%)**

[C16] Ananth Narayan S, Somshubra Sharangi, Alexandra Fedorova. Global Cost-Diversity Aware Dispatch Algorithm for Heterogeneous Data Centers. *2nd ACM/SPEC Conference on Performance Engineering (ICPE)*, 2011. Acceptance rate 30%. **MAS rank: 473/1645 (top 29%)**

[C15] Eric Matthews, L. Shannon, A. Fedorova. A Configurable Framework for Investigating Workload Execution. *International Conference on Field-Programmable Technology (FPT)*, 2010. Acceptance rate unknown. **MAS rank: 700/1645 (top 43%)**

[C14] Sergey Zhuravlev, Sergey Blagodurov and Alexandra Fedorova. AKULA: A Toolset for Experimenting and Developing Thread Placement Algorithms on Multicore Systems. *International Conference on Parallel Architectures and Compilation Techniques (PACT)*, 2010. Acceptance rate 17%. **MAS rank: 113/1645 (top 7%)**

[C13] Juan Carlos Saez, Alexandra Fedorova, Manuel Prieto and Hugo Vegas. Operating System Support for Mitigating Software Scalability Bottlenecks on Asymmetric Multicore Processors. *ACM International Conference on Computing Frontiers (CF),* 2010. Acceptance rate 27%. **MAS rank: 196/1645 (top 12%)**

[C12] Vahid Kazempour, Ali Kamali and Alexandra Fedorova. AASH: An Asymmetry-Aware Scheduler for Hypervisors. *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE),* 2010. Acceptance rate 27%. **MAS rank: 204/1645 (top 12%)**

[C11] Juan Carlos Saez, Manuel Prieto, Alexandra Fedorova and Sergey Blagodurov. A Comprehensive Scheduler for Asymmetric Multicore Processors. *5th ACM European Conference on Computer Systems (EuroSys),* 2010. Acceptance rate 19%. **MAS rank: 51/1645 (top 3%)**

[C10] Sergey Zhuravlev, Sergey Blagodurov, and Alexandra Fedorova. Addressing Cache Contention in Multicore Processors via Scheduling. *Fifteenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2010. Acceptance rate 17%. **MAS rank: 18/1645 (top 1%)**

[C9] Walter Maldonado, Patrick Marlier, Pascal Felber, Adi Suissa, Danny Hendler, Alexandra Fedorova, Julia Lawall, Gilles Muller. Scheduling Support for Transactional Memory Contention Management. *15th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP),* 2010. Acceptance rate 17%. **MAS rank: 76/1645 (top 5%)**

[C8] James Charles, Preet Jassi, Ananth Narayan S., Abbas Sadat and Alexandra Fedorova. Evaluation of the Intel Core i7 Turbo Boost Feature. *IEEE International Symposium on Workload Characterization*, *(IISWC),* 2009. Acceptance rate unknown. **MAS rank: 263/1645 (top 16%)**

[C7] Micah J Best, Alexandra Fedorova, Ryan Dickie, Andrea Tagliasacchi, Alex Couture-Beil, Craig Mustard, Shane Mottishaw Aron Brown, Zhi Feng Huang, Xiaoyuan Xu, Nasser Ghazali and Andrew Brownsword. Searching for Concurrent Design Patterns in Video Games: Practical Lessons in Achieving Parallelism in a Video Game Engine. *15th European Conference on Parallel and Distributed Computing (EUROPAR)*, 2009. Acceptance rate 33%. **MAS rank: 380/1645 (top 23%)**

[C6] Vahid Kazempour, Alexandra Fedorova, and Pouya Alagheband. Performance Implications of Cache Affinity on Multicore Processors. *14th European Conference on Parallel and Distributed Computing (EUROPAR)*, 2008. Acceptance rate 33%. **MAS rank: 380/1645 (top 23%)**

[C5] Alexandra Fedorova, Margo Seltzer and Michael D. Smith. Improving Performance Isolation on Chip Multiprocessors via an Operating System Scheduler. *Sixteenth*

International Conference on Parallel Architectures and Compilation Techniques (PACT), 2007. Acceptance rate 19%. **MAS rank: 113/1645 (top 7%)**

[C4] Peter Damron, Alexandra Fedorova, Yosef Lev, Victor Luchangco, Mark Moir and Daniel Nussbaum. Hybid Transactional Memory. *Twelfth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2006. Acceptance rate 22%. **MAS rank: 18/1645 (top 1%)**

[C3] Alexandra Fedorova, Margo Seltzer, Christopher Small and Daniel Nussbaum. Performance Of Multithreaded Chip Multiprocessors And Implications For Operating System Design. *USENIX Annual Technical Conference (USENIX ATC),* 2005. Acceptance rate unknown. **MAS rank: 31/1645 (top 2%)**

[C2] Kostas Magoutis, Salimah Addetia, Alexandra Fedorova, Margo I. Seltzer. Making the Most out of Direct Access Network-Attached Storage. *Second USENIX Conference on File and Storage Technologies (FAST)*, 2003. Acceptance rate unknown. **MAS rank: 137/1645 (top 8%)**

[C1] Kostas Magoutis, Salimah Addetia, Alexandra Fedorova, Margo I. Seltzer, Jeffrey S. Chase, Andrew J. Gallatin, Richard Kisley, Rajiv G. Wickremesinghe, Eran Gabber. Structure and Performance of the Direct Access File System. *USENIX Annual Technical Conference (USENIX ATC)*, 2002. **Best paper award.** Acceptance rate unknown.
MAS rank: 31/1645 (top 2%)

Refereed Workshop Proceedings

[W18] Lesley Shannon, Eric Matthews, Nicholas Doyle, and Alexandra Fedorova, Performance Monitoring for Heterogeneous Multicore Embedded Computing Systems on FPGAs, *FPGAs for Software Programmers* (FSP 2015).

[W17] Tyler Dwyer and Alexandra Fedorova, On Instruction Organization, *15th USENIX Workshop on Hot Topics in Operating Systems (HotOS XV)*, 2015.

[W16] Micah J Best, Nicholas Vining, Daniel Jacobsen and Alexandra Fedorova, Collection-focused Parallelism, *Fifth USENIX Workshop on Hot Topics on Parallelism (HotPar 13)*.

[W15] Micah J Best, Shane Mottishaw, Craig Mustard, Mark Roth, Parsiad Azimzadeh, Alexandra Fedorova and Andrew Brownsword. Schedule Data not Code. *Third USENIX Workshop on Hot Topics on Parallelism (HotPar),* 2011.

[W14] Micah J Best, Shane Mottishaw, Craig Mustard, Mark Roth, Alexandra Fedorova and Andrew Brownsword. Synchronization via Scheduling: Managing Shared State in Video Games. *Second USENIX Workshop on Hot Topics on Parallelism (HotPar),* 2010.

[W13] Jon Hourd, Chaofei Fan, Jiasi Zeng, Qiang Zhang, Micah J Best, Alexandra Fedorova and Craig Mustard. Exploring Practical Benefits of Asymmetric Multicore Processors. *Workshop on Parallel Execution of Sequential Programs on Multi-core Architectures (PESPMA)*, 2009.

[W12] Kishore Kumar Pusukuri, David Vengerov, and Alexandra Fedorova. A Methodology for Developing Simple and Robust Power Models Using Performance Monitoring Events. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA),* 2009

[W11] Bo Chen, William Pak Tun Ma, Yan Tan, Alexandra Fedorova and Greg Mori. GreenRT: A Framework for the Design of Power-Aware Soft Real-Time Applications. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2008

[W10] Daniel Shelepov and Alexandra Fedorova. Scheduling on Heterogeneous Multicore Processors Using Architectural Signatures. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2008

[W9] Andrea Tagliasacchi, Ryan Dickie, Alex Couture-Beil, Micah J Best, Alexandra Fedorova, and Andrew Brownsword. Cascade: A Parallel Programming Framework for Video Game Engines. *Workshop on Parallel Execution of Sequential Programs on Multi-core Architectures (PESPMA)*, 2008

[W8] Alexandra Fedorova, Viren Kumar, Vahid Kazempour, Suprio Ray, and Pouya Alagheband. Cypress: A Scheduling Infrastructure for a Many-Core Hypervisor. *Workshop on Managed Multi-Core Systems (MMCS),* 2008

[W7] Alexandra Fedorova, David Vengerov and Daniel Doucette. Operating System Scheduling on Heterogeneous Core Systems. *First Workshop on Operating System Support for Heterogeneous Multicore Architectures*, 2007

[W6] Daniel Doucette and Alexandra Fedorova. Base Vectors: A Potential Technique for Microarchitectural Classification of Applications. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2007

[W5] Sven Bachthaler, Fernando Belli and Alexandra Fedorova. Desktop Workload Characterization for CMP/SMT and Implications for Operating System Design. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2007

[W4] Alexandra Fedorova, Margo Seltzer, and Michael D. Smith. A Non-Work-Conserving Operating System Scheduler for SMT Processors. *Workshop on the Interaction between the Operating Systems and Computer Architecture (WIOSCA)*, 2006

[W3] Aaron B. Brown, Anupam Chanda, Rik Farrow, Alexandra Fedorova, Petros Maniatis, and Michael L. Scott. The Many Faces of Systems Research - and How to Evaluate Them. *Tenth Workshop on Hot Topics in Operating Systems (HotOS),* 2005. *Invited.*

[W2] Alexandra Fedorova, Christopher Small, Daniel Nussbaum and Margo Seltzer. Chip Multithreading Systems Need a New Operating System Scheduler. *11th ACM SIGOPS European Workshop*, 2004

[W1] Alexandra Fedorova, Margo Seltzer, Kostas Magoutis, and Salimah Addetia. Application Performance on the Direct Access File System. *Workshop on Software and Performance 2004 (WOSP'04)*, 2004

Thesis:

[TH1] Alexandra Fedorova. Operating System Scheduling for Chip Multithreaded Processors. *Harvard University,* 2006

Patents:

[P9] Lesley Shannon and Alexandra Fedorova, Modular Re-configurable Profiling Core for Multiprocessor Systems-On-Chip. *US Patent No. 8,818,760,* August 26, 2014.

[P8] Alexandra Fedorova, David Vengerov, Kishore Kumar Pusukuri, Cache-Aware Thread Scheduling in Multithreaded Systems. *US Patent No. 8,533,719,* September 10, 2013.

[P7] Alexandra Fedorova, Method and apparatus for achieving fair cache sharing on multi-threaded chip multiprocessors. *US Patent No. 8,069,444,* November 29, 2011.

[P6] Alexandra Fedorova, Methods and apparatus for scheduling threads on multicore processors under fair distribution of cache and other shared resources of the processors. *US Patent No. 8,028,286,* September 27, 2011.

[P5] Alexandra Fedorova and Christopher Small, Cache-aware scheduling for a chip multithreading processor. *US Patent No. 7,818,747*, October 19, 2010 (same as P3)

[P4] Alexandra Fedorova, Methods and apparatus for estimating fair cache miss rates on a chip multiprocessor. *US Patent No. 7,689,773,* March 30, 2010

[P3] Alexandra Fedorova and Christopher Small, Cache-aware scheduling for a chip multithreading processor. *US Patent No. 7,487,317*, February 3, 2009

[P2] Alexandra Fedorova. Method and apparatus for estimating multithreaded processor throughput based on processor cache performance. *US Patent No. 7,363,450*, April 25, 2008

[P1] Alexandra Fedorova, Method and apparatus for estimating the effect of processor cache memory bus delays on multithreaded processor throughput. *US Patent No. 7,457,931*, November 25, 2008

2.3 Recognition in media

- Research on mobile computing highlighted in *Peak,* SFU Student Newspaper.
- *MIT Technology Review* featured our research on data center request distribution based on electricity prices in different regions.
- Appeared on Intel Parallel Programming Talk webcast series: Managing Contention for the Shared Resources on Multicore Processors, August 10, 2010.
- Interviewed by Sun Microsystems in connection with the launch of OpenSolaris 2009.06, May 2009.

2.4 Invited talks and appearances

[T29] **My data or yours? Orchestrating the movement and placement of data on large multicore systems**, Keynote talk. *Diversity Workshop,* collocated with SOSP 2015

[T28] **My data or yours? Orchestrating the movement and placement of data on large multicore systems**, IBM TJ Watson Lab, February 2015

[T27] **My data or yours? Orchestrating the movement and placement of data on large multicore systems**, ACM Applicative Conference, February 2015

[T26] **Computer Systems and Energy**, SFU President's Faculty Lecture Series, November 2012.

[T25] **Traffic Management: A Holistic Approach to Memory Placement on NUMA Systems**, Workshop on Multicore Architectures and Language Virtual Machines, Paris, France, September 2012.

[T24] **P2012 as a Research Vehicle in Future Systems and Computer Architecture,** CMC Webinar, May 2012.

[T23] **Software Managed Memory on P2012**, P2012 Developer Conference, STM Grenoble, December 2011.

[T22] **Making Systems Ready for an Energy-Efficient Future**, VMWare, May 2011

[T21] **The Joys of Scheduling on Large Multicore Systems**, Columbia U., March 2011

[T20] **Multicore Software Systems Research Challenges**, CRA-W workshop on Multicore Systems for Women and Minorities, co-located with ASPLOS 2011

[T19] **A Case for NUMA-Aware Contention Management on Multicore Systems**, Oracle, December 2010

[T18] **The Joys of Scheduling on Large Multicore Systems**, Google, Fall 2010

[T18] **Managing All Kinds of Contention on Multicore Systems**, Vancouver Systems Colloquium, October 20, 2010

[T17] **The Joys of Scheduling on Large Multicore Systems**, IEEE Victoria Chapter, September 2010

[T16] **Managing Contention for the Shared Resources on Multicore Processors,** Intel Parallel Programming Talk, August 10, 2010

[T15] **The Joys of Scheduling on Large Multicore Systems**, VMWare, Fall 2009

[T14] **The Joys of Scheduling on Large Multicore Systems**, Sun Microsystems, Fall 2009

[T13] **Interviewed by Sun Microsystems' Eric Saxe** on the launch of OpenSolaris 2009.06, May 2009

[T12] **Unleashing the Potential of Asymmetric Multicore Processors Through Operating System Support**, Séminaire REGAL, Laboratoire d'Informatic de Paris 6, May 2009

[T11] **Unleashing the Potential of Asymmetric Multicore Processors Through Operating System Support**, AMD Computer Engineering Lecture Series, Cornell University, April 2009

[T10] **How I Got into the Operating Systems and Why I Decided to Stay**, PLOSA Workshop

for Women and Minorities, co-located with ASPLOS 2009, Washington, DC

[T9] **How to Succeed in Grad School**, Diversity Workshop co-located with OSDI, 2008, San Diego, CA

[T8] **How to Succeed in Grad School**, Srivastava Graduate Workshop, University of British Columbia, May 2008

[T8] **What Every Developer Should Know About Software Performance on Multicore Processors**, IEEE Vancouver Section, UBC, October 4, 2007

[T7] **Software Hardware Interaction on Multicore and Multithreaded Processors**, PMC Sierra, Burnaby, May 5, 2007

[T6] **Operating System Scheduling for Multicore Processors**, Intel, Santa Clara, May 2006.

[T5] **Cache-fair Thread Scheduling for Multicore Processors**, Sun Microsystems Laboratories Seminar Series, February 3, 2006

[T4] **Operating System Methods For Improved Resource Sharing On Chip Multiprocessors**, Harvard Industrial Partnership Symposium, October 21, 2005

[T3] **A High-Performance Cache Model**. Cider Seminar, University of Toronto, Canada, June 21, 2005

[T2] **Operating System Scheduling for Chip Multithreaded Processors**. Sun Microsystems, Burlington, MA, June 6, 2005

[T1] **Throughput-Oriented Scheduling on Chip Multithreading Systems**, Performance Strategic Working Group, Sun Microsystems, Burlington, MA, September 2, 2004

2.5 Research funding

	Type	Source	Awarded	Total grant	Role in grant	My portion
G30	Operating	NSERC Engage Plus / Global Fleet Management	2015	$25,000	PI	$25,000
G29	Operating	NSERC Engage	2014	$25,000	PI	$25,000
G28	Operating	MITACS ST Microelectronics	2013	$30,000	PI	$30,000
G27	Operating	**NSERC Strategic**	2012	$462,728	PI	$145,504
G26	Operating	ST Microelectronics	2012	$30,000	PI	$15,000
G25	Operating	NSERC CRD	2012	$47,550	PI	$23,775
G24	Operating	NSERC Discovery Grant	2012	$110,000	PI	$110,000
G23	Operating	**Sloan Foundation**	2012	$50,000	PI	$50,000
G22	Operating	MITACS Gaslamp Games	2012-2015	$90,000	PI	$90,000
G21	Operating	SFU VPA	2012	$15,000	PI	$15,000
G20	Operating	Oracle	2011-2013	$188,350	PI	$188,350
G19	Operating	SFU VPR	2011	$5,000	PI	$5,000
G18	Operating	RIM	2011	$52,200	PI	$33,800
G17	Operating	NSERC Engage	2010	$25,000	PI	$25,000
G16	Operating	BCIC NRAS	2010	$291,544	PI	$182,644
G15	Operating	**NSERC GRAND NCE**	2009-2014	$23.2 million	Network investigator	$166,000
G14	Operating	MITACS	2009	$15,000	PI	$15,000
G13	Operating	**NSERC Strategic**	2009	$248,964	Co-PI	$97,096
G12	Operating	Google	2009	$40,000	PI	$40,000
G11	Equipment	Intel	2009	$5,000	PI	$5,000
G10	Operating	Sun Microsystems	2009	$7,000	PI	$7,000
G9	Operating	Sun Microsystems	2009	$90,000	PI	$90,000
G8	Operating	Sun Microsystems	2008	$100,000	PI	$100,000
G7	Operating	**NSERC Strategic**	2008	$142,675	PI	$142,675
G6	Operating	NSERC Discovery	2007	$99,500	PI	$99,500
G5	Operating	SFU Endowed RF	2007	$5,000	PI	$5,000
G4	Operating	SFU PRG	2007	$9,995	PI	$9,995
G3	Operating	SFU Startup	2006	$60,000	PI	$60,000
G2	Operating	Sun Microsystems	2006	$68,500	PI	$68,500
G1	Equipment	Sun Microsystems	2007	$37,000	PI	$37,000
Total operating (my portion only in group grants)						**$1,911,839**

[G30] NSERC Engage with Global Fleet Management. Big Data Storage and Retrieval Technology for High-Impact Location-Derivative Data, $25,000 (NSERC + GFM). July 2015 – PI (100%)

[G29] NSERC Engage with Global Fleet Management. Big Data Storage and Retrieval Technology for High-Impact Location-Derivative Data, $25,000. December 2014 – PI (100%)

[G28] MITACS Internship with ST Microelectronics. Programming Multicore Systems with Explicitly Managed Memory. $30,000 (PI 100%).

[G27] **NSERC Strategic Grant**: GreenPhones: Energy-smart Software for Ubiquitous Mobility. $462,728 (PI 31%)

[G26] ST Microelectronics (CRD Contribution). GREEN-SOFT: Adaptive software runtime for energy-efficient multi-core computing. $30,000 (PI 50%)

[G25] NSERC CRD. GREEN-SOFT: Adaptive software runtime for energy-efficient multi-core computing. $47,550 (PI 50%)

[G24] NSERC Discovery Grant (2012-2016). $110,000 ($22,000/year), (PI, 100%)

[G23] **Alfred P. Sloan Foundation Fellowship**

[G22] MITACS Internship with Gaslamp Games. Managing Shared State for Video Games in a Networked Multi-core Environment. $90,000 over 6 terms, (PI 100%)

[G21] SFU VPR Award. A supplement to SFU researchers participating in the GRAND NCE. $20,000 (PI 100%)

[G20] Oracle. Reducing the Cost of Accessing Memory on NUMA Systems (2011). $188,350 (PI 100%)

[G19] SFU SME Initiative. Funding to support a graduate student working with Energy Czar, an SFU-incubated start-up developing power management solutions for data centers (2011). $5,000 (PI 100%)

[G18] Research In Motion. Efficient Scheduling on Multicore Mobile Platforms (2011). $52,200 (PI, 100%).

[G17] NSERC Engage with STMicroelectronics. Cost-effective mapping of video games to a multi-processor system-on-a-chip platform (2010). $25,000 (PI 100%).

[G16] BCIC NRAS Research Team. Tools and Techniques for Parallelization of Video Game Engines (2010). With Richard Zhang and Torsten Moeller. $291,544 (PI, 63%).

[G15] NSERC Network of Centers of Excellence GRAND: Graphics, Animation and New Media. Individual funding as a Network Investigator and Project Leader (2009). Projected term: 5 years. Total GRAND funding: $23.2 million. My portion: $56,000 for 2010, $37,000 for 2011.

[G14] MITACS ACCELERATE Internship (2009). Design, Implementation and Evaluation of the Prototype for Power Management in Data Centers. $15,000 (PI 100%).

[G13] **NSERC Strategic Grant**. A Configurable Profiling Core for Multicore Processors (2009-2012). With Lesley Shannon (PI). $248,964 (co-PI, 39%).

[G12] Google Research Award. Virtual Machine Scheduling on Multicore Processors in Data Centers (2009). $40,000 (PI 100%).

[G11] Intel equipment grant (2009). $5,000 (PI 100%).

[G10] Sun Microsystem. Performance Efficiency and Power Management (2009). $7,000 (PI 100%)

[G9] Sun Microsystems. Design, Implementation and Evaluation of the Universal Scheduler on Large Multicore Systems (2009). $90,000 (PI 100%).

[G8] Sun Microsystems. Developing Novel Scheduling Algorithms on Chip Multi-Threaded Processors (2008). $100,000 (PI, 100%).

[G7] **NSERC Strategic Grant**. Operating System Scheduling for Heterogeneous Multicore Systems (2008-2010). $142,675 (PI 100%)

[G6] NSERC Discovery Grant (2007-2011). $99,500 ($19,500/year), (PI, 100%)

[G5] SFU Endowed Research Fellowship (2007). $5,000 (PI, 100%).

[G4] SFU President's Research Grant (2007). $9,995 (PI, 100%).

[G3] SFU Startup Grant (2006). $60,000 (PI, 100%).

[G2] Sun Microsystems. Scheduling on Multicore systems (2006). $68,500 (PI, 100%).

[G1] Sun Microsystems. Equipment donation (2006). $37,000 (PI, 100%).

3 Service

3.1 Board of Directors and Editor

- Associate Editor, ACM TOPC, 2012-2016
- USENIX Board of Directors, 2012-2014.

3.2 Technical Program committees

[PC27] SOSP 2015 – International Symposium on Operating System Principles
[PC26] Technical program committee member, SYSTOR 2015 (ACM International Systems and Storage Conference)
[PC25] PLDI 2015 – International Symposium on Programming Language Design and Implementation
[PC24] EuroSys Roger Needham PhD Award Committee – 2013
[PC23] HotOS 2013 – USENIX Workshop on Hot Topics in Operating Systems
[PC22] HotPar 2012 – USENIX Workshop on Hot Topics in Parallelism
[PC21] USENIX 2012 – USENIX Annual Technical Conference
[PC20] VEE 2012 – ACM/SIGPLAN International Conference on Virtual Execution Environments
[PC19] ASPLOS 2012 – International Conference on Architectural Support for Programming Languages and Operating Systems
[PC18] USENIX 2011 – USENIX Annual Technical Conference
[PC17] HotPar 2011 – USENIX Workshop on Hot Topics in Parallelism
[PC16] EuroSys 2011 – ACM/SIGOPS European Systems conference
[PC15] HiPEAC 2011 – International Conference on High Performance and Embedded Architectures and Compilers
[PC14] PPoPP 2011 – ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming
[PC13] PACT 2010 – International Conference on Parallel Architectures and Compilation Techniques
[PC12] EuroSys 2010 – ACM/SIGOPS European Systems conference
[PC11] HotPar 2010 – USENIX Workshop on Hot Topics in Parallelism
[PC10] PESPMA 2009 – Workshop on Parallel Execution of Sequential Programs on Multicore Processors
[PC9] WIOSCA 2009 – Annual Workshop on the Interaction between Operating Systems and Computer Architecture
[PC8] ACM SIGOPS Operating Systems Review, Special Issue on the Interaction Among OS, Compilers and Multicore Processors, 2009.
[PC7] ASPLOS 2009 – International Conference on Architectural Support for Programming Languages and Operating Systems
[PC6] MMCS 2009 – Workshop on Managed Many-Core Systems
[PC5] WIOSCA 2008 – Annual Workshop on the Interaction between Operating Systems and Computer Architecture
[PC4] MMCS 2008 – Workshop on Managed Many-Core Systems
[PC3] HotPar 2009 – USENIX Workshop on Hot Topics in Parallelism
[PC2] SPAA 2008 – ACM Symposium on Parallelism in Algorithms and Architectures

[PC1] WIOSCA 2007 – Annual Workshop on the Interaction between Operating Systems and Computer Architecture

3.3 Conference organization and chairing

- Chair, Provocative Ideas Session, ASPLOS 2012
- Local arrangements chair, High Performance Graphics 2011 (hosted at SFU)
- PC Co-chair, HotPar 2009
- Steering Committee, HotPar 2009-present

3.4 Minority outreach activities

- Keynote talk at Diversity 2015, collocated with SOSP 2015
- Invited speaker at the CRA-W workshop on Multicore Systems, co-located with ASPLOS 2011
- Invited speaker at the PLOSA workshop, co-located with ASPLOS 2009
- ScienceAlive: Introduced research on multicore systems to 4-7th graders (2010)
- ScienceAlive: Introduced research on multicore systems to 4-7th graders (2009)
- Mentor in the Canadian Distributed Mentorship Program. Hosted an undergraduate student from University of Waterloo, Stacey Jefferey, in my research lab. (2008)
- Seminar Leader at the Srivatsava Graduate Workshop for Women and Minorities (2008)
- Invited speaker at the 2008 Diversity Workshop, co-located with OSDI 2008

4 Student Supervision and Teaching

4.1 Graduate student supervision

Current students

Name	Degree	Thesis/Project	Pubs.	Began[1]
Micah Best (UBC, with A. Gupta at CS)	Ph.D.	Collection-focused parallelsim	[S4, C7, C18, W14, W15]	2008-1
Mohammad Dashti	Ph.D.	Not yet determined	[C19, C25]	2013-1
Tyler Dwyer	Ph.D	Big Data processing on Quantum Computers	[C23]	2013-3
Justin Funston	Ph.D.	Memory Management on NUMA Systems	[S2, C25, C20]	2010-2
Svetozar Miucin	Ph.D.	Not yet determined		2012-3
Craig Mustard	Ph.D.	Not yet determined	[S4, C18, C7, W14, W15]	2011-3
Yunduz Rakhmangulova	M.Sc.	Not yet determined		2014-3

Post-doctoral fellows and visiting students:

[1] For graduate students' start and end dates I indicate a year and a trimester: 1 (Winter), 2 (Summer), or 3 (Fall).

Name	Provenance	Project	Term
Jean-Pierre Lozi	Post-doctoral fellow (PhD Université Pierre et Marie Curie, Paris)	Holistic approach to scheduler design on modern multicore systems	June 2014 – June 2015
Baptiste Lepers	Centre national de la recherche scientifique, Grenoble, France	Interconnect-aware Thread Placement on NUMA systems	March 2014 — August 2015
Nikita Zaborovsky	Post-doctoral fellow (PhD Moscow Institute of Physics and Technology)	Locality-aware data structures	January 2014 – present
Fabien Gaud	Post-doctoral fellow (PhD Grenoble University)	Scheduling of applications on mobile platforms and data-placement optimizations on NUMA systems	October 1, 2011 – May 2014
Carlos Luque	Visiting PhD student (from UPC/Barcelona Supercomputing Centre)	New hardware support for fair and accurate CPU accounting	August-December 2011
Juan Carlos Saez	Visiting PhD student (from Complutense University, Madrid)	Operating system support for heterogeneous multicore processors	Fall 2008, Fall 2010

Graduated students

Name	Degree	Thesis	Pubs.	Tenure	First position
Jessica Jiang	M.Sc. NSERC	A Visual Approach to Investigating System Behaviour on NUMA Systems and Job Scheduling Processes in HPC Clusters.		2012-1 to 2014-1	
Sergey Blagodurov	Ph.D.	Contention management in high-performance clusters	[J1, J4, J5, J7, J9, C10, C11, C14, C19, C23, C26]	2008-3 to 2013-2	AMD
Tyler Dwyer	M.Sc.	Modeling contention on multicore processors using machine learning	[C23]	2010-2 to 2013-1	My PhD student
Mohammad Dashti	M.Sc.	Implementation of Resource Contention Management in the Linux Kernel for Multicore NUMA systems	[C19, C25]	2010-1 to 2012-3	My PhD student

Mark Roth	M.Sc.	Performance Factors in Parallel Programs	[S4, C18, C23, W14, W15]	2010-3 to 2012-2	Microsoft
Vahid Kazempour	M.Sc.	AASH: Asymmetry-Aware Scheduler for Hypervisors	[C6, C12, W8]	2007-3 to 2009-3	QuIC Financial
Viren Kumar	M.Sc.	Virentrack: A Heuristic for Reducing Cache Contention	[J1, K2, W8]	2008-1 to 2009-3	SAP
Ali Kamali	M.Sc.	Sharing Aware Scheduling on Multicore Systems	[C12]	2008-3 to 2010-2	Aviglion
Juan Carlos Saez (co-sup., Complutense U.)	Ph.D.	Scheduling for Asymmetric Multicore Processors	[C11, C13, J1, J3, J6, J7]	2008-1 to 2011-1	Complutense University, Madrid
Sergey Zhuravlev	M.Sc. NSERC	Designing Scheduling Algorithms for Mitigating Shared Resource Contention in Chip Multicore Processors	[C10, C14, C19, J4, J5, J7]	2009-3 to 2011-1	Teradici
Nasser Ghazali	M.Sc. Project	PMMP: A Power Model For Multicore Processor Systems	[C7]	2008-3 to 2011-1	InfoMine
Shane Mottishaw	M.Sc. NSERC	Synchronization via Scheduling: techniques for efficiently managing shared state in task graph programs	[S4, C7, C18, W14, W15]	2009-3 To 2011-2	Corensic
Ananth Narayan Sankaranarayanan	M.Sc.	Power management in data centers	[C8, C16]	2008-3	Intel

4.2 Undergraduate student supervision

I actively supervise undergraduate students via NSERC USRA projects, directed studies courses and research assistantships. A number of these students have gone on to pursue graduate studies. Others have obtained employment in the industry. The majority of undergraduate students who worked with me contributed to publications.

Undergraduate students supervised in research, past and present

Name	Program	Year(s)	Status after	Publications*
Pouya Alagheband	CMPT 415	2007	M.Sc. U. Toronto	[C6, W8]
Daryl Hawkins	CMPT 415	2007	Microsoft	
James Lang	CMPT 415	2007	Not known	

Mark Roth	volunteer	2007	M.Sc. SFU	[C18, W14, W15]
Shane Mottishaw	CMPT 415, NSERC USRA	2007-2009	M.Sc. SFU	[C7, C18, W14, W15]
Heng Du	CMPT 415	2008	Not known	
Zhi Feng Huang	CMPT 415, CMPT 416	2008	M.Sc. SFU	[J1, C7]
Nestor Perez	CMPT 415	2008	Not known	[J1]
Stacey Jefferey	NSERC USRA	2008	M.Sc. U Waterloo	[J1]
Daniel Shelepov	NSERC USRA	2008	Microsoft	[J1, J6, W10]
Sergey Zhuravlev	NSERC USRA	2009	M.Sc. SFU	[C10, C14, C19, J4, J5, J7]
Aron Brown	volunteer	2009	Electronic Arts	[C7]
Jonathan Derrick	CMPT 415	2010	Not known	
Benjamin Reilly	CMPT 415, NSERC USRA	2010	M.Sc. U. Toronto	
Craig Mustard	CMPT 416, NSERC USRA, RA	2009-2011	M.Sc. SFU (to begin Fall 2011)	[C7, C18, W14, W15]
Parsiad Azimzadeh	NSERC USRA	2011	M.Sc. UBC	[W15]
Yunduz Rakhmangulova	NSERC USRA	2011	Undergraduate at SFU	
Pascal Schoenhardt	RA	2011	Amazon	
Elliot Rushton	RA	2011	Avigilon	
Yunduz Rakhmangulova	CMPT 415	2011	SFU graduate	
Karol Swietlicki	VPR USRA	2012	SFU undergraduate	
Holly Becker	NSERC USRA	2012	industry	
Lyuyu Ye	RA	2015		
Conor Brady	NSERC USRA	2015		

*For undergraduate students who later became my Master's students I list all their publications, including those produced during their Master's studies.

4.3 Co-supervision

- Zia Jalali (senior supervisor Lesley Shannon) – 2015
- Arun Bharadwaj (senior supervisor Arrvindh Shriraman) – 2014
- Snehasish Kumar (senior supervisor Arrvindh Shriraman) – 2014
- Alierza Ghane (senior supervisor Torsten Moeller) -- 2013
- Ahmed Bu-Khamsin (senior supervisor Mohamed Hefeeda) -- 2012
- Eric Matthews, MSc (senior supervisor Lesley Shannon) – 2012
- Aws Ismail, MSc (senior supervisor Lesley Shannon) – 2011
- Cameron Harvey, MSc (senior supervisor Mohamed Hefeeda) – 2011
- Ali Khalili, MSc (senior supervisor Uwe Glaesser) – 2011
- Hamed Sadeghi Neshat, MSc (senior supervisor Mohamed Hefeeda) – 2011
- Pante Taleghani, MSc (senior supervisor Richard Vaughan) – 2011

- Jens Wawerla, PhD (senior supervisor Richard Vaughan) – 2010
- Yaroslav Litus, PhD (senior supervisor Richard Vaughan) – 2010
- Abbas Sadat, MSc (senior supervisor Richard Vaughan) – 2010
- Adam Lein, MSc (senior supervisor Richard Vaughan) – 2009
- Bernhard Finkbeiner (senior supervisor Torsten Moeller) – 2008

4.4 Course instruction at UBC

Spring 2016 – CPEN 331. Operating Systems (110 students)
Fall 2015 – EECE 571B. Big Data Systems (28 students). Mean instructor rating: 4.2/5

4.5 Course instruction at SFU

Courses taught:

CMPT401 – Advanced Operating Systems (undergraduate)
CMPT431 – Distributed Systems (undergraduate)
CMPT886 – Special Topics in Operating Systems (graduate)
CMPT886 – Special Topics in Big Data systems (graduate)

Course and instructor ratings (the highest rating is 4)

Course	Term	Enrollment	Course rating	Instructor rating
CMPT886	Spring 2015	35	3.28	3.24
CMPT431	Fall 2014	63	3.10	3.37
CMPT431	Summer 2012	39	3.48	3.76
CMPT886	Spring 2012	33	3.44	3.85
CMPT431	Summer 2011	55	3.62	3.56
CMPT886	Spring 2011	24	3.90	3.9
CMPT431	Summer 2010	48	3.52	3.48
CMPT886	Spring 2010	29	3.72	3.76
CMPT431	Summer 2009	38	3.38	3.71
CMPT886	Spring 2009	21	3.95	3.88
CMPT431	Spring 2009	25	3.87	4.0
CMPT401	Summer 2008	22	3.57	3.86
CMPT886	Spring 2008	25	3.53	3.73
CMPT401	Spring 2008	24	3.53	3.73
CMPT401	Summer 2007	10	3.38	3.75
CMPT886	Spring 2007	7	2.8	3.4

Innovation in teaching
I am passionate about teaching and research, and in my graduate course Special Topics in Operating Systems (CMPT 886) I aim to teach students the art of research. I use a a combination of lectures, labs and research paper discussions to quickly introduce students to a well-defined area of research in sufficient depth that they can produce original work in that area. Early on in the course the students pick a topic for a research project, and then complete it under my

guidance. As a result, my course produced a number of research publications, as shown in the list below (in most cases, the students took an additional few months after the course to polish the work).

[C22] Mohammad Hosseini, Alexandra Fedorova, Joseph Peters, Shervin Shirmohammadi, Energy-Aware Adaptations in Mobile 3D Graphics, *ACM Multimedia,* 2012.

[C9] Sergey Zhuravlev, Sergey Blagodurov, and Alexandra Fedorova. Addressing Cache Contention in Multicore Processors via Scheduling. *Fifteenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2010.

[C8] J. Charles, P. Jassi, A. Narayan S, A. Sadat and A. Fedorova. Evaluation of the Intel Core i7 Turbo Boost Feature. *IEEE International Symposium on Workload Characterization*, *(IISWC),* 2009.

[C7] M. Best, A. Fedorova, R. Dickie, A. Tagliasacchi, A. Couture-Beil, C. Mustard, S. Mottishaw, A. Brown, Z. Huang, X. Xu, N. Ghazali and A. Brownsword. Searching for Concurrent Design Patterns in Video Games: Practical Lessons in Achieving Parallelism in a Video Game Engine. *EUROPAR*, 2009.

[W13] J. Hourd, C. Fan, J. Zeng, Q. Zhang, M. Best, A. Fedorova and C. Mustard. Exploring Practical Benefits of Asymmetric Multicore Processors. *Workshop on Parallel Execution of Sequential Programs on Multi-core Architectures (PESPMA),* 2009.

[W11] B. Chen, W. Pak Tun Ma, Y. Tan, A. Fedorova and G. Mori. GreenRT: A Framework for the Design of Power-Aware Soft Real-Time Applications. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2008

[W10] D. Shelepov and A. Fedorova, Scheduling on Heterogeneous Multicore Processors Using Architectural Signatures. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2008

[W9] A. Tagliasacchi, R. Dickie, A. Couture-Beil, M. Best, A. Fedorova, and A. Brownsword. Cascade: A Parallel Programming Framework for Video Game Engines. *Workshop on Parallel Execution of Sequential Programs on Multi-core Architectures (PESPMA)*, 2008

[W8] A. Fedorova, V. Kumar, V. Kazempour, S. Ray, and P. Alagheband. Cypress: A Scheduling Infrastructure for a Many-Core Hypervisor. *Workshop on Managed Multi-Core Systems (MMCS),* 2008

[W6] D. Doucette and A. Fedorova. Base Vectors: A Potential Technique for Microarchitectural Classification of Applications. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2007

[W5] S. Bachthaler, F. Belli and A. Fedorova. Desktop Workload Characterization for CMP/SMT and Implications for Operating System Design. *Workshop on the Interaction between Operating Systems and Computer Architecture (WIOSCA)*, 2007

Teaching style and student experience
People learn most effectively when they are *engaged* and *interactive.* My teaching style aims to engage students in interactive exercises and discussions. I make group problem-solving, discussions, and Q&A sessions an integral part of the lecture. In the future I plan to introduce an online learning component into my courses, so that students can uptake static content online on their own time, while class time would be spent interactively, addressing the students' individual needs.

Selected quotes from student evaluations:

CMPT 431:
"*Sasha is very knowledgeable and she makes the topic very interesting. The assignments are really greatly designed. I have learn a lot from them*."

"This is the best course which I learned the most at SFU. The best I've ever had."

"Very organized. Highly interested and involved in course content."

"One of the best professors that I have encountered. She is very informative with her lecture and encourage in class discussion."

"Best course I have ever taken in SFU!"

CMPT 886:
"Fantastic, engaging teacher, and a very interesting course."
"Dr. Fedorova is a terrific lecturer & is really good at explaining concepts."

"She is very knowledgeable in the field and also co-ordinates and communicates very well."

"It was probably the best course I've taken here in SFU."

"*This was the most influential course in my career at SFU."*