Lukasz Ziarek

CONTACT INFORMATION

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RESEARCH INTERESTS

Programming Languages, Compilers, Software Engineering, Real-Time Systems, Parallel/Concurrent Systems, Language Runtimes, Message Passing

EDUCATION

Purdue University, West Lafayette, Indiana USA

Ph.D. Computer Science, May 2011.

- Thesis: Abstractions for Robust Higher-Order Message-Based Communication
- Advisor: Suresh Jagannathan

University of Chicago, Chicago, Illinois USA

B.S., Computer Science, December 2003.

- BA Thesis: Adding Existential Types to SML/NJ
- BA Advisor: David MacQueen

HONORS AND AWARDS

Halstead Award for Outstanding Research in Software Engineering, 2009.
Intel Fellowship, 2008.
Department Of Education Graduate Assistance In Areas Of National Need Fellowship, 2004.
University of Chicago: Graduated with General Honors, 2003.
University of Chicago: Dean's List, 2000-2001 and 2002-2003.

ACADEMICS

Purdue University, West Lafayette, Indiana USA

Graduate Lecturer/Visiting Faculty **January 2011 - Present**

Duties included designing, preparing, and managing the CS177 course consisting of 240 students. This included creating lectures, recitations, labs, and projects as well as presenting two lectures per week. In addition, an online version of CS177 was created consisting of 22 modules. Course material amenable to online presentation was created.

Research Assistant **January 2004 - December 2010**

Member of the Secure Software Systems (S3) group, which explores diverse aspects in programming language and system design. Duties included work on the MLton SML compiler and developing new optimization passes and general data unboxing strategies as well as the development of Multi-MLton, a version of the MLton compiler with support for parallel architectures and new concurrent/parallel language primitives. Research conducted has resulted in nine publications and three technical reports.

- Advisor: Suresh Jagannathan

University of Chicago, Chicago, Illinois USA

Research Assistant **June 2003 - December 2003**

Added existential types, reworked the error message and pretty print system, as well as provided numerous bug fixes for the SML/NJ compiler. Work included modifying the type checker as well as the type inference algorithm.

- Advisor: David MacQueen

Research Assistant **June 2003 - December 2003**

Created an automated testing system for the SWIG compiler and the added a metalanguage testing harness to specify language independent tests.

- Advisor: David Beazley

Industrial Experience

Fiji Systems Inc. Indianapolis, Indiana USA

Vice-President/President **December 2008 - Current**

Duties included managing the Fiji Systems Inc's development team, business development, developing and maintaining the runtime system and libraries of the Fiji virtual machine as well as conducting research and developing new technologies. The research and development conducted at Fiji Systems Inc. resulted in four publications and two federal SBIR grants and two state grants.

Intel Corporation, Santa Clara, California USA

Technical Intern **March 2007 - September 2007**

Duties include development of a uniform transactional system which spanned a JIT compiler, the ORP Java virtual machine, and a transactional runtime system. The internship resulted in one publication.

Journal Publications

[1] Adrian Holzer, Lukasz Ziarek, K.R. Jayaram, and Patrick Eugster. Abstracting Context in Event-based Software. Special Issue for Transactions on Aspect-Oriented Software Development: Modularity in Systems Software **under review** 2011.

[2] KC Sivaramakrishnan, Mohammad Qudeisat, Lukasz Ziarek, Karthik Nagaraj, and Patrick Eugster. Efficient Sessions. Science of Computer Programming **under review** 2011.

[3] Lukasz Ziarek and Suresh Jagannathan. Lightweight Checkpointing for Concurrent ML. Journal of Functional Programming, Volume 20, Issue 02, 2010.

[4] Lukasz Ziarek, Stephen Weeks, and Suresh Jagannathan. Flattening Tuples in an SSA Intermediate Representation. Higher Order and Symbolic Computation, Volume 23, Number 3, 2008.

[5] Lukasz Ziarek, Phil Schatz, and Suresh Jagannathan. Modular Checkpointing for Atomicity. Electronic Notes in Theoretical Computer Science, Volume 174, Issue 9, 2007.

Conference Publications

[1] Lukasz Ziarek, Siddharth Tiwary, and Suresh Jagannathan. Isolating Determinism in Multi-Threaded Programs. Runtime Verification 2011.

[2] Lukasz Ziarek, KC Sivaramakrishnan, and Suresh Jagannathan. Composable Asynchronous Events. Programming Language Design and Implementation 2011.

[3] Adrian Holzer, Lukasz Ziarek, K. R. Jayaram and Patrick Eugster. Putting Events in Context: Aspects for Event-based Distributed Programming. International Conference on Aspect Oriented Software Development 2011.

[4] KC Sivaramakrishnan, Karthik Nagaraj, Lukasz Ziarek, and Patrick Eugster. Efficient Session Type Guided Distributed Interaction. International Conference on Coordination Models and Languages 2010.

[5] Filip Pizlo, Lukasz Ziarek, Petr Maj, Anthony Hosking, Ethan Blanton, and Jan Vitek. Schism: Fragmentation-Tolerant Real-Time Garbage Collection. Programming Language Design and Implementation 2010.

[6] Filip Pizlo, Lukasz Ziarek, Ethan Blanton, Petr Maj and Jan Vitek. High-level Programming of Embedded Hard Real-Time Devices. EuroSys 2010.

[7] Lukasz Ziarek, KC Sivaramakrishnan, and Suresh Jagannathan. Partial Memoization of Concurrency and Communication. International Conference on Functional Programming 2009.

[8] Lukasz Ziarek, Adam Welc, Ali-Reza Adl-Tabatabai, Vijay Menon, Tatiana Shpeisman, and Suresh Jagannathan. A Uniform Transactional Execution Environment for Java. European Conference on Object-Oriented Programming 2008.

[9] Lukasz Ziarek, Phil Schatz, and Suresh Jagannathan. Stabilizers: A Modular Checkpointing Abstraction for Concurrent Functional Programs. International Conference on Functional Programming 2006.

Workshop Publications

[1] Suresh Jagannathan, Armand Navabi, KC Sivaramakrishnan, and Lukasz Ziarek. The Design Rationale for Multi-MLton (short paper). Workshop on ML 2010.

[2] Lukasz Ziarek. PRP: priority rollback protocol – a PIP extension for mixed criticality systems (short paper). International Workshop on Java Technologies for Real-Time and Embedded Systems 2010.

[3] KC Sivaramakrishnan, Lukasz Ziarek, Raghavendra Prasad, and Suresh Jagannathan. Lightweight Asynchrony using Parasitic Threads. Workshop on Declarative Aspects of Multi-Core Programming 2010.

[4] Filip Pizlo, Lukasz Ziarek, and Jan Vitek. Toward Java on Bare Metal with the Fiji VM. Java Technologies for Real-time and Embedded Systems 2009.

[5] Lukasz Ziarek, Suresh Jagannathan, Matthew Fluet, and Umut A. Acar. Speculative N-Way Barriers. Workshop on Declarative Aspects of Multi-Core Programming 2009.

[6] Lukasz Ziarek and Suresh Jagannathan. Memoizing Multi-Threaded Transactions. Workshop on Declarative Aspects of Multi-Core Programming 2008.

[7] Lukasz Ziarek, Phil Schatz, and Suresh Jagannathan. Modular Checkpointing for Atomicity. Multithreading in Hardware and Software: Formal Approaches to Design and Verification 2006.

Professional Service

Program Committee Declarative Aspects for Multi-Core Programming, 2012.
Program Committee Java Technologies for Real-time and Embedded Systems, 2011.
Program Committee Java Technologies for Real-time and Embedded Systems, 2010.
Graduate Student Board Representative, 2005 - 2008.