

# Lukasz Ziarek

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## CONTACT INFORMATION

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USA

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## EDUCATION

**Purdue University**, West Lafayette, Indiana USA

Ph.D. Computer Science, May 2011.

**University of Chicago**, Chicago, Illinois USA

B.S., Computer Science, December 2003.

## ACADEMICS

**SUNY Buffalo**, Buffalo, New York USA

*Assistant Professor*

**August 2012 - Present**

## JOURNAL PUBLICATIONS

- [J1] Yin Yan\*, Shaun Gerard Cosgrove\*, Varun Anand\*, Amit Kulkarni\*, Sree Harsha Konduri\*, Steven Y. Ko, **Lukasz Ziarek**. Transactions on Mobile Computing. (to appear, 30 pages)
- [J2] KC Sivaramakrishnan, **Lukasz Ziarek**, and Suresh Jagannathan. MultiMLton: A Multicore-Aware Runtime for Standard ML. Journal of Functional Programming. DOI:10.1017/S0956796814000161, 2015. (62 pages)
- [J3] Ethan Blanton, Puneet Aurora\*, Demian Lessa\*, **Lukasz Ziarek**, and Bharat Jayaraman. Ji.Fi: Visual Test and Debug Queries for Hard Real-Time. Concurrency and Computation: Practice and Experience. DOI: 10.1002/cpe.3156, 2013. (34 pages)
- [J4] KC Sivaramakrishnan, Mohammad Qudeisat, **Lukasz Ziarek**, Karthik Nagaraj, and Patrick Eugster. Efficient Sessions. Science of Computer Programming, Volume 78 Issue 2, 2013. (20 pages)
- [J5] 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, Volume 7271, 2012. (44 pages)
- [J6] **Lukasz Ziarek** and Suresh Jagannathan. Lightweight Checkpointing for Concurrent ML. Journal of Functional Programming, Volume 20, Issue 02, 2010. (36 pages)
- [J7] **Lukasz Ziarek**, Stephen Weeks, and Suresh Jagannathan. Flattening Tuples in an SSA Intermediate Representation. Higher Order and Symbolic Computation, Volume 23, Number 3, 2008. (26 pages)
- [J8] **Lukasz Ziarek**, Phil Schatz, and Suresh Jagannathan. Modular Checkpointing for Atomicity. Electronic Notes in Theoretical Computer Science, Volume 174, Issue 9, 2007. (30 pages)

## CONFERENCE PUBLICATIONS

- [C1] Justin Del Vecchio\*, Feng Shen\*, Kenny Yee\*, Boyu Wang\*, Steven Ko, **Lukasz Ziarek** String Analysis for Android Apps. International Conference on Automated Software Engineering — ASE 2014. (6 pages) [AR 23.6%]
- [C2] Oliver Kennedy, Geoffrey Challen, **Lukasz Ziarek** and Jerry Antony Ajay\*. PocketData: The Need for TPC-MOBILE. Seventh TPC Technology Conference on Performance Evaluation & Benchmarking — TPCTC 2015 (16 pages) [AR not available]
- [C3] Oliver Kennedy and **Lukasz Ziarek**. Just-In-Time Data Structures. The biennial Conference on Innovative Data Systems Research — CIDR 2015. (10 pages) [AR not available]

- [C4] Feng Shen\*, Namita Vishnubhotla\*, Chirag Todarka\*, Mohit Arora\*, Babu Prasad\*, Eric Lehner\*, Steve Ko, and **Lukasz Ziarek**. Information Flows as a Permission Mechanism. International Conference on Automated Software Engineering — ASE 2014. (12 pages) [AR 16.3%]
- [C5] Yin Yan\*, Shaun Gerard Cosgrove\*, Varun Anand\*, Amit Kulkarni\*, Sree Harsha Konduri\*, Steven Y. Ko, **Lukasz Ziarek**. Real-Time Android with RTDroid. International Conference on Mobile Systems, Applications, and Services — MobiSys 2014. (14 pages) [AR 13.5%]
- [C6] KC Sivaramakrishnan, **Lukasz Ziarek**, Suresh Jagannathan. Rx-CML: A Prescription for Safely Relaxing Synchrony. Practical Aspects of Declarative Languages — PADL 2014. (16 pages) [AR 40%]
- [C7] Shashank Holavanalli\*, Don Manuel\*, Vishwas Nanjundaswamy\*, Brian Rosenberg\*, Feng Shen\*, Steven Y. Ko, **Lukasz Ziarek**. Flow Permissions for Android. International Conference on Automated Software Engineering — ASE 2013. (6 pages) [AR 17.0%]
- [C8] KC Sivaramakrishnan, **Lukasz Ziarek**, Suresh Jagannathan. A Coherent and Managed Runtime for ML on the SCC. Many-core Applications Research Community Symposium — MARC 2012. **Best Paper** (6 pages) [AR 40%]
- [C9] KC Sivaramakrishnan, **Lukasz Ziarek**, and Suresh Jagannathan. Eliminating read barriers through procrastination and cleanliness. International Symposium on Memory Management — ISMM 2012. (12 pages) [AR 40%]
- [C10] **Lukasz Ziarek**, Siddharth Tiwary, and Suresh Jagannathan. Isolating Determinism in Multi-Threaded Programs. Runtime Verification — RV 2011. (15 pages) [AR 33.8%]
- [C11] **Lukasz Ziarek**, KC Sivaramakrishnan, and Suresh Jagannathan. Composable Asynchronous Events. Programming Language Design and Implementation — PLDI 2011. (12 pages) [AR 23.3%]
- [C12] 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 — AOSD 2011. (12 pages) [AR 21.0%]
- [C13] KC Sivaramakrishnan, Karthik Nagaraj, **Lukasz Ziarek**, and Patrick Eugster. Efficient Session Type Guided Distributed Interaction. International Conference on Coordination Models and Languages — COORD 2010. (16 pages) [AR 42.8%]
- [C14] 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 — PLDI 2010. (14 pages) [AR 19.9%]
- [C15] Filip Pizlo, **Lukasz Ziarek**, Ethan Blanton, Petr Maj and Jan Vitek. High-level Programming of Embedded Hard Real-Time Devices. EuroSys 2010. (14 pages) [AR 19.1%]
- [C16] **Lukasz Ziarek**, KC Sivaramakrishnan, and Suresh Jagannathan. Partial Memoization of Concurrency and Communication. International Conference on Functional Programming — ICFP 2009. (12 pages) [AR 30.5%]
- [C17] **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 — ECOOP 2008. (26 pages) [AR 19.0%]
- [C18] **Lukasz Ziarek**, Phil Schatz, and Suresh Jagannathan. Stabilizers: A Modular Checkpointing Abstraction for Concurrent Functional Programs. International Conference on Functional Programming — ICFP 2006. (12 pages) [AR 32.4%]

#### WORKSHOP PUBLICATIONS

- [W1] Muyuan Li\*, Daniel E McArdle\*, Jeffrey C Murphy\*, Bhargav Shivkumar\*, **Lukasz Ziarek** Adding Real-time Capabilities to a SML Compiler. The First IEEE Workshop on Declarative Programming for Real-Time and Cyber-Physical Systems — DPRTCPS 2015. (6 pages)

- [W2] Geoffrey Challen, Jerry Antony Ajay\*, Nick DiRienzo\*, Oliver Kennedy, Anudipa Maiti\*, Anandathirtha Nandugudi\*, Guru Prasad\*, Sriram Shantharam\*, Jinghao Shi\* and **Lukasz Ziarek** maybe We Should Enable More Uncertain Mobile App Programming. The 16th International Workshop on Mobile Computing Systems and Applications — HOT Mobile 2015. (6 pages)
- [W3] Yin Yan\*, Shaun Cosgrove\*, Ethan Blanton, Steve Ko, **Lukasz Ziarek**. Real-Time Sensing on Android. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2014. (10 pages)
- [W4] Ethan Blanton and **Lukasz Ziarek**. Non-Blocking Inter-Partition Communication with Wait-Free Pair Transactions. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2013. (10 pages)
- [W5] Yin Yan\*, Sree Harsha Konduri\*, Amit Kulkarni\*, Varun Anand\*, Steve Ko, and **Lukasz Ziarek**. RTDroid: A Design for Real-Time Android. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2013. (10 pages)
- [W6] Sumit Agarwal\*, Daniel Bellinger\*, Oliver Kennedy, Ankur Upadhyay\*, and **Lukasz Ziarek**. Monadic Logs for Collaborative Web Applications. International Workshop on the Web and Databases — WebDB 2013 (6 pages).
- [W7] Ethan Blanton, Demian Lessa\*, **Lukasz Ziarek**, and Bharat Jayaraman. JI.FI : Visual Test and Debug Queries for Hard Real-Time. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2012. (10 pages)
- [W8] **Lukasz Ziarek**. PRP: priority rollback protocol – a PIP extension for mixed criticality systems. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2010. (6 pages)
- [W9] KC Sivaramakrishnan, **Lukasz Ziarek**, Raghavendra Prasad, and Suresh Jagannathan. Lightweight Asynchrony using Parasitic Threads. Workshop on Declarative Aspects of Multi-Core Programming — DAMP 2010. (10 pages)
- [W10] Filip Pizlo, **Lukasz Ziarek**, and Jan Vitek. Toward Java on Bare Metal with the Fiji VM. Java Technologies for Real-time and Embedded Systems — JTRES 2009. (10 pages)
- [W11] **Lukasz Ziarek**, Suresh Jagannathan, Matthew Fluet, and Umut A. Acar. Speculative N-Way Barriers. Workshop on Declarative Aspects of Multi-Core Programming — DAMP 2009. (12 pages)
- [W12] **Lukasz Ziarek** and Suresh Jagannathan. Memoizing Multi-Threaded Transactions. Workshop on Declarative Aspects of Multi-Core Programming — DAMP 2008. (15 pages)
- [W13] **Lukasz Ziarek**, Phil Schatz, and Suresh Jagannathan. Modular Checkpointing for Atomicity. Multithreading in Hardware and Software: Formal Approaches to Design and Verification 2006. (14 pages)

## FUNDING

### Current Grants (2)

|                          |  |
|--------------------------|--|
| <i>Title:</i>            | II-EN: Collaborative Research: Positioning MLton<br>for Next-Generation Programming Languages Research |
| <i>Agency:</i>           | NSF  |
| <i>Role:</i>             | PI   |
| <i>Effective Dates:</i>  | 08/2014–07/2017  |
| <i>Total Amount:</i>     | \$605,970  |
| <i>Other PIs/co-PIs:</i> | Matthew Fluet (RIT)  |
| <i>UB Amount:</i>        | \$381,640  |
| <i>Credit:</i>           | 100%   |

*Title:* II-NEW: Collaborative Research: An Extensible Software Infrastructure  
for Unmanned Aerial Vehicles  
*Agency:* NSF  
*Role:* PI  
*Effective Dates:* 08/2015–07/2016  
*Total Amount:* \$85,000  
*Other PIs/co-PIs:* David Liu (SUNY Binghamton)  
*UB Amount:* \$42,268  
*Credit:* 100%

## Gifts (1)

*Title:* Expressing Uncertainty Using the Maybe System  
*Agency:* Google  
*Role:* co-PI  
*Effective Dates:* 08/2015–07/2016  
*Total Amount:* \$38,656  
*UB Amount:* \$38,656  
*Credit:* 33.33%

## PROFESSIONAL SERVICE

**Program Committee** International Symposium on Practical Aspects of Declarative Languages 2016

**Organization Committee** Workshop on Reactive and Event-based Languages and Systems 2015

**Program Committee** IEEE Workshop on Declarative Programming for Real-Time and Cyber-Physical Systems 2015

**Program Committee** Workshop on Java Technologies for Real-time and Embedded Systems 2015

**Program Chair** Java Technologies for Real-time and Embedded Systems, 2015.

**Organization Committee** Workshop on Reactive and Event-based Languages and Systems 2014

**Program Committee** High Integrity Language Technology Conference, 2014.

**Program Chair** Splash Doctoral Symposium, 2014.

**General Chair** Java Technologies for Real-time and Embedded Systems, 2014.

**Program Committee** Java Technologies for Real-time and Embedded Systems, 2014.

**Organization Committee** Reactivity, Events and Modularity, 2013.

**Program Chair** Splash Doctoral Symposium, 2013.

**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.

**Journal Refereeing** Concurrency and Computation Practice and Experience; Software: Practice and Experience; IEEE Software; ACM Transactions on Computing Education; Computer Languages, Systems & Structures.

**NSF Panel Refereeing** 2013,2014.

**Guest Editor** Transactions on Aspect-Oriented Software Development: Special Issue on Events, Aspects, and Modularity.

**co-Editor** The JTRES 2014 Special Issue of Concurrency and Computation: Practice and Experience

**Invited Workshop** High-Level Programming Models for Parallelism. NSF. 2013.

**Invited Workshop** Using Python in the Classroom. CS4HS, Buffalo State. 2013.

**Invited Workshop** Using Python in the Classroom. CSTA, Buffalo State. 2012.

**Mentor** Google Summer of Code. MLton.org. 2013.