Curriculum Vitae   LUKASZ ZIAREK

Department of Computer Science and Engineering   1730 Amherst st.
338E Davis Hall   Buffalo, NY, 14214.
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Buffalo, NY, 14260.
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Education

- *Ph.D.*, Purdue University, West Lafayette, IN.   May 2011
  Department of Computer Science
  Thesis: "*Abstractions for Robust Higher-Order Message-Based Communication*"
  Advisor: Suresh Jagannathan

- *B.S.*, University of Chicago, Chicago, IL.   December 2003
  Department of Computer Science
  B.A. Thesis: "*Adding Existential Types to SML/NJ*"
  Advisor: David MacQueen

Employment History

- *Assistant Professor,* Computer Science & Eng., University at Buffalo   Aug 2012 – present

- *Visiting Assistant Professor,* Computer Science, Purdue University   Jun 2011 – Aug 2012

- *Graduate Lecturer,* Computer Science, Purdue University   Jan 2011 – May 2011

- *Research Assistant,* Computer Science, Purdue University   Jan 2004 – Dec 2010

- *Technical Intern,* Intel Corporation, Santa Clara, California USA   Mar 2007 – Sep 2007

- *Research Assistant,* Computer Science, University of Chicago   Jun 2003 – Dec 2003

Professional Board Membership

- *President,* Fiji Systems Inc.   Dec 2009 – Nov 2019

- *Vice-President,* Fiji Systems Inc.   Dec 2008 – 2009

Awards

- University at Buffalo Exceptional Scholar : Young Investigator Award, 2018.

- National Science Foundation CAREER award, 2018.

- University at Buffalo Award for Teaching Innovation, 2017.

- SEAS Early Career Teacher of the Year, 2016.

- CSE Early Career Teacher of the Year, 2015.

- *Best Paper award* Many-core Applications Research Community Symposium, 2012.

- Halstead Award for Outstanding Research in Software Engineering, 2009.

Honors

- 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.

Service and Professional Memberships

Service

- **Organization Committee** Workshop on Reactive and Event-based Languages and Systems 2014 – 2020

- **Organization Committee** Workshop on Programming Across the System Stack   2017

- **Local Arrangements co-Chair** Mobisys   2017

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

- **General Chair** Workshop on Java Technologies for Real-time and Embedded Systems   2014

- **Program Chair** Doctoral Symposium – ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity   2013 – 2014

- **Organization Committee** Workshop on Reactivity, Events and Modularity   2013

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

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

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

Program Committees and Reviews

- **Program Committee** 39th International Conference on Formal Techniques for Distributed Objects, Components, and Systems   2019

- **Program Committee** IEEE/ACM International Conference on Automated Software Engineering 2018

- **Program Committee** Workshop on Programming Across the System Stack   2017

- **Program Committee** Workshop on Declarative Embedded and Cyber-Physical Systems   2017

- **Program Committee** International Symposium on Practical Aspects of Declarative Languages 2016 – 2019

- **Program Committee** Workshop on Reactive and Event-based Languages and Systems 2015 – 2017

- **Program Committee** Workshop on Java Technologies for Real-time and Embedded Systems 2010, 2011, 2014 – 2016

- **Program Committee** Workshop on Programming Language Approaches to Concurrency and Communication Centric Software   2016

- **Program Committee** International Workshop on Modularity Across the System Stack   2016

- **Program Committee** First CPSWeek Workshop on Declarative Cyber-Physical Systems   2016

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

- **Program Committee** ACM SIGAda's Annual International Conference on High Integrity Language Technology (HILT)   2014

- **Program Committee** Workshop on Declarative Aspects for Multi-Core Programming   2012

- **Reviewer** Research Grants Council (RGC) of Hong Kong [3]   2014, 2015, 2017, 2020

- **Panelist** NSF – Computing and Communication Foundations (CCF) [6]   2013, 2014, 2016, 2017, 2018 (2)

- **Reviewer** National Science Centre (Narodowe Centrum Nauki - NCN), Poland   2013

- **Reviewer** Netherlands Organization for Scientific Research (NWO), Netherlands   2013

- **Journal reviewer for 12 Journals:** Concurrency and Computation Practice and Experience; Software: Practice and Experience; IEEE Software; ACM Transactions on Computing Education; Computer Languages, Systems & Structures; Journal of Logical and Algebraic Methods in Programming; IEEE Transactions on Mobile Computing; Journal of Information Security and Applications; Sensors; Theory and Practice of Logic Programming; IEEE Access; Journal of Systems and Software.

Professional Memberships

- **Member** Association for Computer Machinery (ACM)   2013 – present

- **Member** Computer Science Teachers Association (CSTA)   2012 – present

Departmental Service

- Department of CSE, University at Buffalo

  - co-Chair, Undergraduate Diversity Committee   Spring 2017 – Spring 2019
  - co-Chair, Introductory Programming Sequence Revision Committee   Spring 2015 – Spring 2019
  - Member, Teaching Effectiveness Committee   Spring 2017 – present
  - Member, Undergraduate Affairs Committee   Fall 2012 – Fall 2019
  - Member, Graduate Admissions Committee   Fall 2012 – Fall 2017
  - Member, Faculty Search Committee   Fall 2014 – Fall 2015
  - Member, Colloquium Committee   Fall 2014 – Fall 2015
  - Member, Distinguished Speakers Committee   Fall 2013 – Summer 2014

- Department of CS, Purdue University

  - Graduate Student Board Representative   Spring 2005 - Fall 2008

Community Service and Outreach

- **High School Outreach** CSTA of Western NY Professional Development Series.   2014

- **Invited Workshop** Data Science in the CS Classroom Resources. CS4HS, Buffalo State.   2014

- **Invited Workshop** Google Mentor's Summit.   2013

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

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

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

Courses Taught

- Department of CSE, University at Buffalo (20)

  - CSE 305: Introduction to Programming Languages   Summer 2020
  - CSE 305: Introduction to Programming Languages   Spring 2020
  - CSE 711: Topics in Programming Languages   Spring 2020
  - CSE 305: Introduction to Programming Languages   Spring 2019
  - CSE 711: Topics in Programming Languages   Spring 2019
  - CSE 605: Advanced Programming Languages   Fall 2018
  - CSE 662: Languages and Runtimes for Big Data   Fall 2018
  - CSE 711: Topics in Programming Languages   Spring 2018
  - CSE 605: Advanced Programming Languages   Fall 2017
  - CSE 305: Introduction to Programming Languages   Spring 2017

    – CSE 662: Languages and Runtimes for Big Data — Fall 2016

    – CSE 305: Introduction to Programming Languages — Summer 2016

    – CSE 305: Introduction to Programming Languages — Spring 2016

    – CSE 662: Languages and Runtimes for Big Data — Fall 2014

    – CSE 605: Advanced Programming Languages — Spring 2015

    – CSE 605: Advanced Programming Languages — Fall 2014

    – CSE 711: Static and Dynamic Analysis of Android Applications — Spring 2014

    – CSE 505: Fundamentals of Programming Languages — Fall 2013

    – CSE 711: Topics in Programming Languages — Spring 2013

    – CSE 605: Advanced Programming Languages — Fall 2012

- Department of CS, Purdue University (4)

    – CS 177: Programming With Multimedia Objects — Summer 2012

    – CS 177: Programming With Multimedia Objects — Spring 2012

    – CS 177: Programming With Multimedia Objects — Fall 2011

    – CS 177: Programming With Multimedia Objects — Spring 2011

Courses Supervised

- Department of CSE, University at Buffalo

    – CSE 305: Intro. to Programming Languages (Taught by: Ladan Golshanara) — Summer 2014

Research Supervision

Students Supervised as Major Professor (7)

- Grant Iraci (Ph.D.) — Fall 2019 – present

- Cheng-En Chuang (Ph.D.) — Fall 2018 – present

- Amy Pritchard (Ph.D.) — Summer 2017 – present

- Bhargav Shivkumar (Ph.D.) — Fall 2016 – present

- Jeff Murphy (Ph.D.) — Fall 2016 – present

- Adam Czerniejewski (Ph.D.) — Summer 2015 – present

- Justin Del Vechio (Ph.D.) — Fall 2013– present

Past Students Supervised as Major Professor (2)

- Yin Yan (Ph.D.) — Fall 2013 – Summer 2018

- Shaun Cosgrove (M.S.) — Spring 2013– Fall 2014

Students co-Supervised (2)

- Darshana Balakrishnan (Ph.D., co-Advised with Oliver Kennedy)   Spring 2018– present
- Carl Nuessle (Ph.D., co-Advised with Oliver Kennedy)   Fall 2017– present

Past Students co-Supervised (5)

- Weihao Qu (Ph.D., co-Advised with Marco Gaboardi)   Fall 2016– Fall 2018
- Feng Shen (Ph.D., co-Advised with Steve Ko)   Fall 2012– Summer 2018
- Gourab Mitra (M.S., co-Advised with Oliver Kennedy)   Fall 2017– Spring 2018
- Ankur Upadhyay (M.S., co-Advised with Oliver Kennedy)   Fall 2012– Spring 2014
- Sumit Agarwal (M.S., co-Advised with Oliver Kennedy)   Fall 2012– Spring 2014

Independent Study (25)

16 of the students performing independent study under my guidance have published papers in peer reviewed journals, conferences, and workshops as a result of the work performed in the independent study. They are denoted by *.

- Grant Iraci* (B.S.)   Spring 2019
- Grant Iraci* (B.S.)   Spring 2018
- Grant Iraci* (B.S.), Aniruddha Nandi (B.S.)   Fall 2017
- Lucas Siebert (B.S.), William Stewart* (B.S.)   Spring 2017
- Girish Gokul* (M.S)   Fall 2016
- Chun Yu Chen* (M.S), Bhargav Shivkumar* (Ph.D.)   Fall 2015
- Boyu Wang* (M.S), Vasanth Subramanian (M.S), Xinyu Yuan (M.S), Shanyao Jian (M.S)   Spring 2015
- Babu Prasad* (M.S.), Boyu Wang* (M.S), Yongshen Song (M.S), Vasanth Subramanian (M.S),   Fall 2014
- Yin Yan* (Ph.D.), Sai Sekhar Reddy Tummala (M.S.), Amber Rastogi (M.S.), Niranjan Mohan (M.S.), Karnesh Mehra (M.S.), Harsha Somashekara Hassan (M.S.), Shaun Gerard Cosgrove* (M.S.), Sneha Banerjee (M.S), Mohit Arora*(M.S.)   Spring 2014
- Chirag Todarka* (M.S.), Amit Kulkarni* (M.S.), Sree Harsha Konduri* (M.S.), Ankit Deshmukh (M.S.), Varun Anand* (M.S.)   Fall 2013
- Ankur Upadhyay* (M.S.), Manish Jain (M.S.) Vishwas Nanjudaswamy*   Spring 2013
- Don Manuel* (M.S.)   Fall 2012

Undergraduate Advising (9)

- William Stewart   Summer 2017– Summer 2019
- Grant Iraci   Fall 2016– Summer 2019
- Amy Pritchard   Summer 2016– Summer 2017
- Dhruv Kumar   Fall 2016– Spring 2017
- Sun Hyuong Kim   Summer 2016– Spring 2017
- Hank Lin (co-Advised with Oliver Kennedy)   Fall 2016– Spring 2017
- Greg Bunyea   Summer 2015– Fall 2015
- Nate Burgers   Fall 2013– Fall 2015
- Daniel Bellinger (co-Advised with Oliver Kennedy)   Fall 2012– Fall 2013

Student Committee Membership (5)

- Yin Yan (Advisor: Lukasz Ziarek)
- Feng Shen (Advisor: Lukasz Ziarek and Steve Ko)
- Taeyeon Ki (Advisor: Steve Ko)
- Dennis Patronne (Advisor: Bina Ramamurthy)
- Demian Lessa (Advisor: Bharat Jayaraman – unofficial member)

Grant Support (Total: $4,502,924, Portion Attributed to Me: $1,777,242)

Total NSF Amount: $4,405,518 — UB NSF Amount: $3,796,870 — I am credited with $1,739,983 of the portion of the NFS grants brought into UB including one $16,000 REU supplement. Of the peer reviewed NSF grants, I am PI on 4 grants and co-PI on 3 grants. In addition, I have also been a PI on two UB internal grants and co-PI on one, co-PI on one SUNY wide grant, as well as a co-PI on a gift from Google. These small grants total $97,406 and I am credited with $37,259.

Current Grants (4)

Title:	CRI:CI-New: Collaborative Research: Extensible, Software Enabled Unmanned Aerial Vehicles
Agency:	NSF
Role:	PI
Total Amount:	$900,000
Other PIs/co-PIs:	Karthik Dantu (UB), David Liu (SUNY Binghamton)
UB Amount:	$558,414
Credit of UB Amount:	50%

Title:	CAREER: Enabling Adaptable, Object Oriented, Real-time Systems
Agency:	NSF
Role:	PI
Effective Dates:	03/2018–02/2023
Total Amount:	$500,000
UB Amount:	$500,000
Credit of UB Amount:	100%

Title:	MRI: Development of iCAVE2 (Instrument for Connected and Autonomous Vehicle Evaluation and Experimentation)
Agency:	NSF
Role:	co-PI
Effective Dates:	07/2016–07/2019
Total Amount:	$1,699,274
Other PIs/co-PIs:	Chunming Qiao (UB), Adel Sadek (UB), Changxu Wu (UB), Qing He (UB), Kevin Hulme (UB), Dimitros Koutsonikolas (UB)
UB Amount:	$1,699,274
Credit of UB Amount:	14%

Title:	III: Small: Just in Time Data Structures
Agency:	NSF
Role:	co-PI
Effective Dates:	07/2016–07/2019
Total Amount:	$499,274
Other PIs/co-PIs:	Oliver Kennedy (UB)
UB Amount:	$499,274
Credit of UB Amount:	50%

Concluded Grants (3)

Title:	II-EN: Collaborative Research: Positioning MLton for Next-Generation Programming Languages Research
Agency:	NSF
Role:	PI
Effective Dates:	08/2014–07/2018
Total Amount:	$605,970
Other PIs/co-PIs:	Matthew Fluet (RIT)
UB Amount:	$381,640
Credit of UB Amount:	100%

Title:	CI-P: Planning for a Community Infrastructure to Enable Pocket-Scale Data Management Research
Agency:	NSF
Role:	co-PI
Effective Dates:	08/2016–08/2018
Total Amount:	$100,000
Other PIs/co-PIs:	Oliver Kennedy (UB), Geoffrey Challen (UB)
UB Amount:	$100,000
Credit of UB Amount:	33%

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 of UB Amount:	100%

Small Grants (4)

Title:	IITG: Taking Laboratory Science Home
Agency:	SUNY
Role:	co-PI
Effective Dates:	05/2018–04/2019
Total Amount:	$10,000
Other PIs/co-PIs:	David Abbot (Buffalo State), Joseph Zawicki (Buffalo State)
UB Amount:	$2,500
Credit of UB Amount:	100.00%

Title:	Collaborative Research Grant Program Support - VPRED funding with CSE match
Agency:	UB VPRED
Role:	PI
Effective Dates:	01/2017–06/2018
Total Amount:	$28,750
Other PIs/co-PIs:	Carl Alphonce (UB)
UB Amount:	$28,750
Credit of UB Amount:	50.00%

Title:	Programming for Everyone
Agency:	UB CEI
Role:	co-PI
Effective Dates:	01/2017–01/2018
Total Amount:	$10,000
Other PIs/co-PIs:	Carl Alphonce (UB), Geoff Challen (UB), Jesse Hartloff (UB)
UB Amount:	$10,000
Credit of UB Amount:	25.00%

Title:	Cross Course Collaborative Learning
Agency:	UB CEI
Role:	co-PI
Effective Dates:	06/2017–06/2018
Total Amount:	$10,000
Other PIs/co-PIs:	Carl Alphonce (UB)
UB Amount:	$10,000
Credit of UB Amount:	50.00%

Grant Supplements (1)

Type:	REU Supplement
Title:	II-EN: Collaborative Research: Positioning MLton for Next-Generation Programming Languages Research
Agency:	NSF
Role:	PI
Effective Dates:	08/2014–07/2018
Total Amount:	$16,000
UB Amount:	$16,000
Credit of UB Amount:	100%

Gifts (2)

Title:	Expressing Uncertainty Using the Maybe System
Agency:	Google
Role:	co-PI
Effective Dates:	08/2015–07/2016
Total Amount:	$38,656
Other PIs/co-PIs:	Oliver Kennedy (UB), Geoff Challen (UB)
UB Amount:	$38,656
Credit of UB Amount:	33.33%

Title:	Intel Galileo Donation Program
Company:	Intel
Role:	PI
Date Received:	09/13
UB Amount:	10 Galileo Development Boards
Credit of UB Amount:	100%

Publications (Total - 71, Since Joining UB - 49)

To date I have published 16 peer reviewed journal publications, 33 peer reviewed conference publications, 19 peer reviewed workshop publications, and 3 lightly reviewed workshop publications. Since joining UB I have published 12 peer reviewed journal publications, 23 peer reviewed conference publications, 13 peer reviewed workshop publications, and 1 lightly reviewed workshop publication. Based on Google scholar, my work has been cited 864 times resulting in an i-10 index score of 27 and an h-index score of 15. Additionally I have self-published 2 instructional e-books, which are used by Purdue University in their CS177 course. In programming language papers the advisor is typically listed last. When the author list is alphabetical this indicates that all members contributed equally. In the references bellow ∗ denotes UB student author. [AR] denotes Acceptance Rate when available.

Books (2)

[B1] **Lukasz Ziarek**, Leah Hoffmann, and Christoph Hoffmann. Computing for the Sciences Using Python, Part 1. ASIN: B008KSGL98, Amazon Digital Services, Inc. 2012. (220 pages — ebook)

[B2] Leah Hoffmann, Christoph Hoffmann, and **Lukasz Ziarek**. Computing for the Sciences Using Python, Part 2. ASIN: B009CXKAOW, Amazon Digital Services, Inc. 2012. (184 pages — ebook)

Refereed Journals (16)

[J1] Farshad Ghanei∗, Pranav Tipnis∗, Kyle Marcus∗, Karthik Dantu, Steve Ko, and **Lukasz Ziarek**. OS-based Resource Accounting for Asynchronous Resource Use in Mobile Systems. IEEE Internet of Things Journal. volume 6(3) 2019 (20 pages)

[J2] Yin Yan∗, Girish Gokul∗, Karthik Dantu, Steve Ko, Jan Vitek, and **Lukasz Ziarek**. Can Android Run on Time? Extending and Measuring the Android Platform's Timeliness Transactions on Embedded Computing Systems. volume 17(6) 2019 (26 pages)

[J3] Chang Min Park∗, Taeyeon Ki∗, Ali J. Ben Ali∗, Nikhil Sunil Pawar∗, Karthik Dantu, Steven Y. Ko, and **Lukasz Ziarek**. Mu: Mapping UI Events to Gestures and Voice. Proceedings of the ACM on Human Computer Interaction. volume PACMHCI 3(EICS) 2019 (22 pages)

[J4] Feng Shen∗, Justin Del Vecchio∗, Aziz Mohaisen, Steven Y. Ko, and **Lukasz Ziarek** Android Malware Detection using Complex-Flows. Transactions on Mobile Computing. tvoume 18(6) 2019 (16 pages)

[J5] Jeffrey C Murphy∗, Bhargav Shivkumar∗, Amy Pritchard∗, Grant Iraci∗, Dhruv Kumar∗, Sun Hyoung Kim∗, and **Lukasz Ziarek**. A Survey of Real-time Capabilities in Functional Languages and Compilers. Concurrency and Computation: Practice and Experience. volume 31(4) 2019 (34 pages)

[J6] Yin Yan∗ and **Lukasz Ziarek**. Application Validation on RTDroid SIGBED Review. volume 15(4) 2018. (8 pages)

[J7] Karthik Dantu, Steve Ko, and **Lukasz Ziarek** RAINA: Reliability and Adaptability In Android For Fog Computing. IEEE Communications Magazine. volume 55(4): 41-45, 2017. (4 pages)

[J8] Muyuan Li*, Daniel E. McArdle*, Jeffrey C. Murphy*, Bhargav Shivkumar*, and **Lukasz Ziarek**. Adding real-time capabilities to a SML compiler. SIGBED Review 13(2): 8-13, 2016. (6 pages)

[J9] Yin Yan*, Shaun Gerard Cosgrove*, Varun Anand*, Amit Kulkarni*, Sree Harsha Konduri*, Steven Y. Ko, and **Lukasz Ziarek**. RTDroid: A Design for Real-Time Android. Transactions on Mobile Computing. volume 5(10): 2564-2584, 2016. (20 pages)

[J10] 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)

[J11] 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)

[J12] KC Sivaramakrishnan, Mohammad Qudeisat, **Lukasz Ziarek**, Karthik Nagaraj, and Patrick Eugster. Efficient Sessions. Science of Computer Programming, Volume 78 Issue 2, 2013. (20 pages)

[J13] 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)

[J14] **Lukasz Ziarek** and Suresh Jagannathan. Lightweight Checkpointing for Concurrent ML. Journal of Functional Programming, Volume 20, Issue 02, 2010. (36 pages)

[J15] **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)

[J16] **Lukasz Ziarek**, Phil Schatz, and Suresh Jagannathan. Modular Checkpointing for Atomicity. Electronic Notes in Theoretical Computer Science, Volume 174, Issue 9, 2007. (30 pages)

Refereed Conference Proceedings (33)

[C1] Justin Del Vecchio*, Steve Ko, and **Lukasz Ziarek** Representing String Computations as Graphs for Classifying Malware Conference on Mobile Software Engineering and Systems — MOBILESOFT 2020. (12 pages) [AR TBD]

[C2] Bhargav Shivkumar*, Jeffrey C. Murphy*, **Lukasz Ziarek** RTMLton: An SML Runtime for Real-Time Systems. International Symposium on Practical Aspects of Declarative Languages — PADL 2020. (27 pages) [AR TBD]

[C3] Carl Nuessle, Oliver Kennedy and **Lukasz Ziarek** Benchmarking Mobile Databases Eleventh TPC Technology Conference on Performance Evaluation & Benchmarking — TPCTC 2019. (16 pages) [AR TBD]

[C4] Darshana Balakrishnan*, **Lukasz Ziarek**, and Oliver Kennedy Fluid Data Structures International Symposium on Database Programming Languages — DBPL 2019. (11 pages) [AR TBD]

[C5]   Taeyeon Ki*, Chang Min Park*, Karthik Dantu, Steven Y. Ko, and **Lukasz Ziarek**. Mimic: Behavior Comparison Testing System for Android Apps. ACM/IEEE International Conference on Software Engineering — ICSE 2019. (14 pages) [AR 20.4%]

[C6]   Jennifer Winikus, **Lukasz Ziarek**, Carl Alphonce, and Jesse Hartloff. Improving Retention and Confidence Through Cross-Course Collaborative Project-Based Learning. Frontiers in Education — FIE 2018. (4 pages) [AR TBD]

[C7]   Malte Viering, Tzu-Chun Chen, Patrick Eugster, Raymond Hu and **Lukasz Ziarek** A Typing Discipline for Statically Verified Crash Failure Handling in Distributed Systems European Symposium on Programming — ESOP 2018 (27 pages) [AR 31.5%]

[C8]   Adam Czerniejewskii*, Karthik Dantu, and **Lukasz Ziarek** jUAV: a Real-Time Java UAV Autopilot IEEE International Conference on Robotic Computing — IRC 2018. (4 pages) [AR TBD]

[C9]   James Teresco, Razieh Fathi*, **Lukasz Ziarek**, Mariarose Bamundo, Arjol Pengu and Clarice Tarbay Map-based Algorithm Visualization with METAL Highway Data SIGCSE 2018. (6 pages) [AR 35%]

[C10] Feng Shen*, Justin Del Vecchio*, Aziz Mohaisen, Steven Y. Ko, and **Lukasz Ziarek** Android Malware Detection using Complex-Flow. International Conference on Distributed Computing Systems — ICDCS 2017. (8 pages) [AR 20.0%]

[C11] Taeyeon Ki*, Alexander Simeonov*, Bhavika Pravin Jain*, Chang Min Park*, Keshav Sharma*, Karthik Dantu, Steve Ko, and **Lukasz Ziarek** Reptor: Enabling API Virtualization on Android for Platform Openness. International Conference on Mobile Systems, Applications, and Services — MobiSys 2017. (14 pages) [AR 18.1%]

[C12] Yin Yan*, Karthik Dantu, Steve Ko, Jan Vitek, and **Lukasz Ziarek** Making Android Run on Time. Real-Time and Embedded Technology and Applications Symposium — RTAS 2017. (12 pages) [AR 34%]

[C13] **Lukasz Ziarek**, Bharat Jayaraman, Demian Lessa*, and J. Swaminathan Visualization and Verification in JIVE. Runtime Verification — RV 2016. (5 pages) [AR 40.2%]

[C14] Tzu-Chun Chen, Malte Viering, Andi Bejleri, **Lukasz Ziarek**, and Patrick Eugster A Type Theory for Robust Failure Handling in Distributed Systems. 36th IFIP International Conference on Formal Techniques for Distributed Objects, Components and Systems — FORTE 2016 (15 pages) [AR 40.9%]

[C15] Farshad Ghanei*, Pranav Tipnis*, Kyle Marcus*, Karthik Dantu, Steve Ko, and **Lukasz Ziarek** OS-based Resource Accounting for Asynchronous Resource Use in Mobile Systems. International Symposium on Low Power Electronics and Design — ISLEPD 2016. (6 pages) [AR 33.3%]

[C16] Justin Del Vecchio*, Feng Shen*, Kenny Yee*, Boyu Wang*, Steven Ko, and **Lukasz Ziarek** String Analysis for Android Apps. International Conference on Automated Software Engineering — ASE 2015. (6 pages) [AR 23.6%]

[C17] 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]

[C18] 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]

[C19] 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%]

[C20] 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%]

[C21] 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%]

[C22] 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%]

[C23] 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%]

[C24] 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%]

[C25] **Lukasz Ziarek**, Siddharth Tiwary, and Suresh Jagannathan. Isolating Determinism in Multi-Threaded Programs. Runtime Verification — RV 2011. (15 pages) [AR 33.8%]

[C26] **Lukasz Ziarek**, KC Sivaramakrishnan, and Suresh Jagannathan. Composable Asynchronous Events. Programming Language Design and Implementation — PLDI 2011. (12 pages) [AR 23.3%]

[C27] 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%]

[C28] 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%]

[C29] 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%]

[C30] 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%]

[C31] **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%]

[C32] **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%]

[C33] **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%]

Refereed Workshop Proceedings (19)

[W1] Yin Yan and **Lukasz Ziarek**. Application Validation on RTDroid Workshop on Declarative Embedded and Cyber-Physical Systems — DECPS 2018. (8 pages)

[W2] Girish Gokul*, Yin Yan*, Karthik Dantu, Steven Ko and **Lukasz Ziarek**. Real Time Sound Processing on Android. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2016. (10 pages)

[W3] Adam Czerniejewski*, Shaun Cosgrove*, Yin Yan*, Karthik Dantu, Steven Ko and **Lukasz Ziarek**. jUAV: A Java Based System for Unmanned Aerial Vehicles. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2016. (9 pages)

[W4] Jeffrey C Murphy*, Bhargav Shivkumar*, **Lukasz Ziarek** Real-time Capabilities in Functional Languages. First CPSWeek Workshop on Declarative Cyber-Physical Systems — DCPS 2016. (10 pages)

[W5] Yin Yan*, Chun Yu Chen*, Karthik Dantu, Steven Y. Ko, and **Lukasz Ziarek** Using a Multi-tasking-VM for Mobile Applications. The 17th International Workshop on Mobile Computing Systems and Applications — HOT Mobile 2016. (6 pages)

[W6] 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)

[W7] Geoffrey Challen, Jerry Antony Ajay*, Nick DiRienzo*, Oliver Kennedy, Anudipa Maiti*, Anandatirtha 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)

[W8] **Lukasz Ziarek** and Ethan Blanton. The Fiji MultiVM Architecture. International Workshop on Java Technologies for Real-Time and Embedded Systems — JTRES 2015. (10 pages)

[W9] 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)

[W10] 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)

[W11] 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)

[W12] 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).

[W13] 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)

[W14] **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)

[W15] 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)

[W16] 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)

[W17] **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)

[W18] **Lukasz Ziarek** and Suresh Jagannathan. Memoizing Multi-Threaded Transactions. Workshop on Declarative Aspects of Multi-Core Programming — DAMP 2008. (15 pages)

[W19] **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)

Lightly Refereed Workshops with Informal Proceedings (3)

[WL1] David Liu and **Lukasz Ziarek** Toward Energy-Aware Programming for Unmanned Aerial Vehicles. Proceedings of the 3rd International Workshop on Software Engineering for Smart Cyber-Physical Systems. 2017 (3 pages)

[WL2] KC Sivaramakrishnan, **Lukasz Ziarek**, and Suresh Jagannathan. Rx-CML: Migrating MultiMLton to the Cloud. Workshop on ML 2013. (2 pages)

[WL3] Suresh Jagannathan, Armand Navabi, KC Sivaramakrishnan, and **Lukasz Ziarek**. The Design Rationale for Multi-MLton. Workshop on ML 2010. (2 pages)

Software and Artifacts (6)

All software artifacts were developed in conjunction with collaborators.

- **Fiji VM**: a real-time Java Virtual Machine (JVM). `http://fiji-systems.com/academia/`. The Fiji VM is in use at 11 universities.

- **RTDroid**: a real-time Android variant consisting of an RTOS, Real-Time JVM, and Real-time framework extensions. `rtdroid.cse.buffalo.edu`.

- **BlueSeal**: a static analysis framework for Android applications. `blueseal.cse.buffalo.edu`.

- **MLton**: a standard ML compiler. `www.mlton.org`. MLton is in use at 15 universities.

- **Multi-MLton**: a multi-core aware runtime extension to MLton.
  `http://multimlton.cs.purdue.edu/mML/Welcome.html`. Multi-MLton is scheduled to be incorporated into the mainline MLton compiler.

- **Sting**: an optimizing session type compiler. `https://github.com/kayceesrk/Sting`.

Talks

Invited Talks

1. Invited talk - Cornell University: Real-time Android: building adaptive real-time systems   2018

2. Invited talk - Virginia Tech: Real-time Android: building adaptive real-time systems   2018

3. Invited talk - University of Central Florida: Real-time Android: building adaptive real-time systems 2018

4. Invited talk - University of Houston: Real-time Android: building adaptive real-time systems 2018

5. Invited talk - Dagstuhl Seminar: Real-time Android: building adaptive real-time systems   2017

6. Invited talk - SUNY Binghamton: Java Based UAV   2017

7. Invited talk - Navy Research: Real-time Android: building adaptive real-time systems   2015

8. Keynote - DPRTCPS: Real-time Android: building adaptive real-time systems   2015

9. Invited talk - JTRES: Open Source jUAV platform for Education and Research   2015

10. Invited talk - Data Science in the CS Classroom Resources. "Mobilize Prime."   2014

11. The ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity. "Doctoral Symposium Welcome."   2014

12. GCCIS PhD Colloquium Series. "Debugging Java in Safety-Critical Application Domains," Rochester Institute of Technology.   2013

13. Computer Science for High School, Buffalo State College. "Using Python in the Classroom."   2013

14. The ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity. "Doctoral Symposium Welcome."   2013

15. Computer Science Teachers Association of Western New York Annual Conference. "Using Python in the Classroom."   2012

Conference Presentations

1. The 2nd International Conference on Runtime Verification. "Isolating Determinism in Multi-threaded Programs."   2011

2. The 32nd ACM SIGPLAN conference on Programming Language Design and Implementation. "Composable Asynchronous Events."   2011

3. The European Professional Society on Computer Systems, Eurosys 2010 Conference. "High-level Programming of Embedded Hard Real-Time Devices." 2010

4. The 8th International Workshop on Java Technologies for Real-time and Embedded Systems. "PRP: Priority Rollback Protocol - A PIP Extension for Mixed Criticality Systems." 2010

5. The 14th ACM SIGPLAN International Conference on Functional Programming. "Partial Memoization of Concurrency and Communication." 2009

6. The 4th Workshop on Declarative Aspects of Multicore Programming. "Speculative N-Way Barriers." 2009

7. The 3rd Workshop on Declarative Aspects of Multicore Programming. "Memoizing Multi-Threaded Transactions." 2008

8. The 22nd European Conference on Object-Oriented Programming. "A Uniform Transactional Execution Environment for Java." 2008

9. The 11th ACM SIGPLAN International Conference on Functional Programming. "Stabilizers: A Modular Checkpointing Abstraction for Concurrent Functional Programs." 2006

10. Multithreading in Hardware and Software: Formal Approaches to Design and Verification. "Modular Checkpointing for Atomicity." 2006