

# BARIS KASIKCI

*Morris Wellman Assistant Professor*  
Electrical Engineering and Computer Science  
University of Michigan

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## RESEARCH INTERESTS

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My research is centered around building efficient and trustworthy computer systems. I build techniques to improve the efficiency of datacenter applications, provide systems support for heterogeneous platforms, verify the safety of complex distributed systems, analyze and fix failures, and improve the security of modern hardware. Building efficient and trustworthy systems requires a combination of approaches. My work draws insights from a broad set of disciplines such as systems, computer architecture, and programming languages.

## EDUCATION

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### **Ecole Polytechnique Fédérale de Lausanne (EPFL)**

*Lausanne, Switzerland*

*PhD in Computer Science*

Sep. 2010–Dec. 2015

Thesis: Techniques for Detection, Root Cause Diagnosis,  
and Classification of In-Production Concurrency Bugs

Advisor: Prof. George Candea

### **Middle East Technical University (METU)**

*Ankara, Turkey*

*M.Sc. in Electrical and Electronics Engineering*

Sep. 2006–Jun. 2009

Thesis: Variability Modeling in Software Product Lines

*Graduated with the top grade*

Advisor: Prof. Semih Bilgen

*B.Sc. in Electrical and Electronics Engineering*

Sep. 2002–Jun. 2006

Project: Embedded Target Estimation, Detection, and Tracking

*Graduated with High Honors*

Advisor: Prof. Arzu Koc

## AWARDS AND HONORS

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MICRO Best Paper Award

2022

Morris Wellman Endowed Professorship	2022
PLDI Distinguished Reviewer Award	2022
Microsoft Research Faculty Fellowship	2021
Google Fuzzing Research Award	2021
VMware Early Career Grant	2021
IEEE Micro Top Pick Honorable Mention, "Agamoto"	2021
NSF CAREER Award	2020
Intel Rising Star Award	2020
IEEE Micro Top Pick Honorable Mention, "NDA"	2020
Google Faculty Research Award	2019
IEEE Micro Top Pick, "Foreshadow"	2019
Intel Faculty Award	2019
Jay Lepreau Best Paper Award, OSDI	2018
Intel Faculty Award	2018
Microsoft Azure Cloud Computing Award	2017
Outstanding Reviewer Award, WWW	2017
Patrick Denantes Memorial Prize for outstanding PhD thesis, EPFL	2016
EuroSys Roger Needham Award for Best PhD. Thesis in Computer Systems in Europe	2016
Intel Corp. Software and Services Group, Grant	2014–2016
VMware Inc., Doctoral Fellowship	2014–2015
EPFL, Doctoral Fellowship	2010–2011
Scientific and Technological Research Council of Turkey, Master Scholarship	2006–2008

## STUDENT AWARDS AND HONORS

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Rackham Doctoral Fellowship, Tanvir Ahmed Khan	2022
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Google Fellowship, Kevin Loughlin	2021
Facebook Fellowship, Marina Minkin	2021
Facebook Fellowship Finalist, Ian Neal	2021
ACM Student Research Competition First Prize (MICRO), Shixin Song	2021
CRA Outstanding Undergraduate Researcher Award Honorable Mention, Shixin Song	2021
CRA Undergraduate Awards, Honorable Mention, Shixin Song	2021
NSF Graduate Research Fellowship (GRFP), Kevin Loughlin	2020
Award for Excellence in Climate, Diversity, Equity, and Inclusion; Univ. of Michigan, Kevin Loughlin	2020
NSF Graduate Research Fellowship (GRFP), Andrew Loveless	2020
Facebook Fellowship Finalist, Tanvir Ahmed Khan	2020
ACM Student Research Competition First Prize (CGO), Nathan Brown	2020
Microsoft Research PhD Fellowship, Andrew Quinn	2017
NSF Graduate Research Fellowship (GRFP), Andrew Quinn	2017

## FUNDING

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Overall, in the first 4.5 years as faculty, my group raised 5.869 million USD for my group's research funding, including fellowships (37.769M total amount of funding).

ONR Grant (recommended for funding), 510K USD, PI	2022
Morris Wellman Professorship Endowment, 40K USD, PI	2022
Google Fuzzing Research Award, 50K USD, PI	2021
Microsoft Research Faculty Fellowship, 200K USD, PI	2021

VMware Early Career Grant, 50K USD, PI	2021
SRC Realignment Grant, 406K USD, PI	2021
NSF CAREER Award, 576K USD, PI	2020
NSF/Intel FoMR Grant, 180K USD (360K USD total), co-PI	2020
NSF FMitF Grant, 375K USD (750K USD total), co-PI	2020
DARPA AMP Grant, 600K USD (1.8M USD total), PI	2020
SRC Seed Grant, 50K USD (150K USD total), PI	2020
Intel Rising Star Award, 50K USD, PI	2020
Intel Faculty Award, Performance Debugging, 75K USD, PI	2019
Google Cloud Computing Grant, 5K USD, PI	2019
Google Faculty Research Award, 80K USD, PI	2019
Intel Faculty Award, Automated Performance Optimization, 75K USD, PI	2018
Michigan College of Engineering Grant, 3K USD, PI	2018
Michigan Cambridge Research Initiative, 15K USD, PI	2018
Intel Gift, SysTEX'18 Workshop Sponsorship, 2K USD, PI	2018
Microsoft Azure Cloud Computing Grant, 25K USD, PI	2018
SRC JUMP grant, 1,25M USD (31.2M USD total), PI	2017

## EMPLOYMENT

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### **University of Michigan**

Assistant Professor

Electrical Engineering and Computer Science Department

*Ann Arbor, Michigan, USA*  
Sep. 2017–present

### **Microsoft Research**

Researcher

Research on computer systems and networks

*Cambridge, United Kingdom*  
Aug. 2016–Aug. 2017

## Ecole Polytechnique Fédérale de Lausanne (EPFL)

Postdoctoral Researcher  
Research on software security

*Lausanne, Switzerland*

Dec. 2015–Jul. 2016

- I developed infrastructure that relies on hardware support to improve software security.

Research Assistant

Sep. 2010–Dec. 2015

Research on software reliability with an emphasis on concurrent software

- I developed **Gist**, the first technique for accurately, efficiently, and automatically diagnosing the root causes of in-production failures, by using a combination of static and dynamic program analysis.
- I developed **RaceMob**, the first automated in-production data race detection technique that can be kept always-on and provides high accuracy, by combining static data race detection with adaptive, crowdsourced dynamic data race detection.
- I developed **Portend**, a high-accuracy technique to classify data races according to their potential consequences under arbitrary memory models, by using symbolic program analysis to explore multiple program paths and schedules to determine the effects of data races.
- I developed **Bias-Free Sampling**, a technique that allows efficient sampling of rarely executed code (where bugs often lurk) without over-sampling frequently executed code, by using a new sampling algorithm and existing hardware support.

## Intel Corp.

Research Intern

*Santa Clara, CA, USA*

Jul. 2015–Sep. 2015

Automated root cause diagnosis of failures and security enhancements using hardware support

- I developed a tool that allows developers to determine which program statements operate on a given data type at runtime using a mix of static program analysis and hardware support. In our experiments, this tool reduces the number of statements to examine during debugging by an order of magnitude. This tool is being extended internally at Intel.
- I began investigating hardware support for enhancing system security, in particular, efficient path profiling for auditing and detecting control flow hijack attacks.

## VMware Inc.

Research and Development Intern

*Palo Alto, CA, USA*

Jun. 2014–Sep. 2014

Automated debugging and runtime control flow tracking

- I implemented a runtime for efficient control flow tracking in software. This work formed the basis of my **Gist** work on root cause diagnosis.
- I designed and implemented an infrastructure to remotely debug and profile VMware VCenter virtual machine management software, while it is running in production. This infrastructure is used by VCenter developers at VMWare.

## Microsoft Research

Research Intern

*Redmond, WA, USA*

Jun. 2013–Sep. 2013

Efficient runtime execution sampling technique and low overhead coverage measurement

- I worked on the design of the **Bias-Free Sampling** framework for efficient runtime sampling. I designed and implemented the bias-free sampling framework for managed code (i.e., C#). This tool is internally used at Microsoft.
- I designed and implemented a fault injection tool to detect resource leakage problems using dynamic binary instrumentation.

**Siemens Corporate Technology**

Senior Software Engineer  
Embedded home and industrial automation software

*Istanbul, Turkey*  
Mar. 2008–May 2010

- I designed and implemented a real-time embedded gateway software between Siemens communication processors and a building automation system using C++ on top of VxWorks.

**Aselsan Electronic Industries**

Software Engineer  
Embedded motor control and functional testing infrastructure

*Ankara, Turkey*  
May 2006–Mar. 2008

- I was responsible for a real-time embedded control software for turret motor control. I also designed and implemented a full-system functional testing software using C++ on top of VxWorks for Power PC architectures.

Student Intern  
Embedded software development

Jun. 2005–Jul. 2005

- I developed embedded control software for a night vision camera using C++ and PIC assembly on a PIC microcontroller.

**PEER-REVIEWED PUBLICATIONS**

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- [1] Whisper: Profile-Guided Branch Misprediction Elimination for Data Center Applications. Tanvir Ahmed Khan, Muhammed Ugur, Krishnendra Nathella, Dam Sunwoo, Heiner Litz, Daniel A Jiménez, and Baris Kasikci. MICRO 2022, Oct 2022.
- [2] OCOLOS: Online COde Layout OptimizationS. Yuxuan Zhang, Tanvir Ahmed Khan, Pokam Gilles, Baris Kasikci, Heiner Litz, and Joseph Devietti. MICRO 2022, Oct 2022.
- [3] Sift: Using Refinement-guided Automation to Verify Complex Distributed Systems. Haojun Ma, Hamad Ahmad, Aman Goel, Eli Goldweber, Jean-Baptiste Jeannin, Manos Kapritsos, and Baris Kasikci. [Usenix ATC'22], Carlsbad, CA, USA, July 2022.
- [4] Transcendent Debugging the OmniTable Way. Andrew Quinn, Michael Cafarella, Jason Flinn, and Baris Kasikci. [OSDI'21], Carlsbad, CA, USA, July 2022.
- [5] MOESI-prime: Preventing Coherence-Induced Hammering in Commodity Workloads. Kevin Loughlin, Stefan Saroiu, Alec Wollman, Yatin Manerkar, and Baris Kasikci. [ISCA 2022], NYC, NY, USA, June 2022.
- [6] Thermometer: Profile-Guided BTB Replacement for Data Center Applications. Shixin Song, Tanvir Ahmed Khan, Sara Mahdizadeh Shahri, Akshitha Sriraman, Niranjan K Soundararajan, Sreenivas Subramoney, Daniel A Jiménez, Heiner Litz, and Baris Kasikci. [ISCA 2022], NYC, NY, USA, June 2022.
- [7] Debugging in the Brave New World of Heterogeneous Systems. Jiacheng Ma, Gefei Zuo, Kevin Loughlin, Andrew Quinn, and Baris Kasikci. [ASPLOS'22], Lausanne, Switzerland, February 2022.
- [8] Twig: Profile-Guided BTB Prefetching for Data Center Applications. Tanvir Ahmed Khan, Nathan Brown, Akshitha Sriraman, Niranjan Soundararajan, Rakesh Kumar, Joseph Devietti, Sreenivas Subramoney, Gilles Pokam, Heiner Litz, and Baris Kasikci. [MICRO'21], Athens, Greece, October 2021.
- [9] PDede: Partitioned, Deduplicated, Delta Branch TargetBuffer. Niranjan Soundararajan, Peter Braun, Tanvir Ahmed Khan, Baris Kasikci, Heiner Litz, and Sreenivas Subramoney. [MICRO'21], Athens, Greece, October 2021.

- [10] Software-Driven Security Attacks: From Vulnerability Sources to Durable Hardware Defenses. Lauren Biernacki, Mark Gallagher, Zhixing Xu, Misiker Tadesse Aga, Austin Harris, Shijia Wei, Mohit Tiwari, Baris Kasikci, Sharad Malik, and Todd Austin. *[ACM JETC'21]*, New York, NY, USA, Aug 2021.
- [11] DOLMA: Securing Speculation with the Principle of Transient Non-Observability. Kevin Loughlin, Ian Neal, Jicheng Ma, Elisa Tsai, Ofir Weisse, Satish Narayanasamy, and Baris Kasikci. *[USENIX Security'21]*, Vancouver, Canada, August 2021.
- [12] DMon: Efficient Detection and Correction of Data Locality Problems using Selective Profiling. Tanvir Ahmed Khan, Ian Neal, Gilles Pokam, Barzan Mozafari, and Baris Kasikci. *[OSDI'21]*, Online, July 2021.
- [13] Ripple: Profile-Guided Instruction CacheReplacement for Data Center Applications. Tanvir Ahmed Khan, Dexin Zhang, Akshitha Sriraman, Joseph Devietti, Gilles Pokam, Heiner Litz, and Baris Kasikci. *[ISCA'21]*, Worldwide, June 2021.
- [14] Reproducing Production Failures with Execution Reconstruction. Gefei Zuo, Jiacheng Ma, Andrew Quinn, Pramod Bhatotia, and Baris Kasikci. *[PLDI'21]*, June 2021.
- [15] Stop! Hammer Time: Rethinking Our Approach to Rowhammer Mitigations. Kevin Loughlin, Stefan Saroiu, Alec Wolman, and Baris Kasikci. *[HotOS'21]*, Online, May 2021.
- [16] IGOR: Accelerating Byzantine Fault Tolerance for Real-Time Systems with Eager Execution. Andrew Loveless, Ron Dreslinski, Baris Kasikci, and Linh Phan. *[RTAS'21]*, May 2021.
- [17] Hippocrates: Healing Persistent Memory Bugs Without Doing Any Harm. Ian Neal, Andrew Quinn, and Baris Kasikci. *[ASPLOS'21]*, Detroit, USA, April 2021.
- [18] Rethinking File Mapping Structures for Persistent Memory. Ian Neal, Gefei Zuo, Eric Shiple, Tanvir Ahmed Khan, Youngjin Kwon, Simon Peter, and Baris Kasikci. *[FAST'21]*, February 2021.
- [19] Morpheus II: A RISC-V Security Extension for Protecting Vulnerable Software and Hardware. Todd Austin, Austin Harris, Tarunesh Verma, Shijia Wei, Alex Kisil, Misiker Aga, Valeria Bertacco, Baris Kasikci, and Mohit Tiwari. *[HCS'21]*, 2021.
- [20] Agamoto: How Persistent is your Persistent Memory Application? Ian Neal, Ben Reeves, Ben Stoler, Andrew Quinn, Youngjin Kwon, Simon Peter, and Baris Kasikci. *[OSDI'20]*, Vancouver, Canada, November 2020.
- [21] I-SPY: Context-Driven Conditional Instruction Prefetching with Coalescing. Tanvir Ahmed Khan, Akshitha Sriraman, Joseph Devietti, Gilles Pokam, Heiner Litz, and Baris Kasikci. *[MICRO'20]*, Athens, Greece, October 2020.
- [22] Optimus: A Hypervisor for Shared-Memory FPGA Platforms. Jiacheng Ma, Gefei Zuo, Kevin Loughlin, Xiaohu Cheng, Yanqiang Liu, Abel Mulugeta Eneyew, Zhengwei Qi, and Baris Kasikci. *[ASPLOS'20]*, Lausanne, Switzerland, March 2020.
- [23] CPU Microarchitectural Performance Characterization of Cloud Video Transcoding. Yuhan Chen, Jingyuan Zhu, Tanvir Ahmed Khan, and Baris Kasikci. *[IISWC'20]*, Beijing, China, 2020.
- [24] I4: Incremental Inference of Inductive Invariants. Haojun Ma, Aman Goel, Jean-Baptiste Jeannin, Manos Kapritsos, Baris Kasikci, and Karem Sakallah. *[SOSP'19]*, Ontario, Canada, October 2019.
- [25] NDA: Preventing Speculative Execution Attacks at Their Source. Ofir Weisse, Ian Neal, Kevin Loughlin, Thomas Wenisch, and Baris Kasikci. *[MICRO'19]*, Cleveland, USA, October 2019.
- [26] Huron: Hybrid False Sharing Detection and Repair. Tanvir Ahmed Khan, Yifan Zhao, Gilles Pokam, Barzan Mozafari, and Baris Kasikci. *[PLDI'19]*, Phoenix, USA, June 2019.

- [27] Towards Automatic Inference of Inductive Invariants. Haojun Ma, Aman Goel, Jean Baptiste Jeannin, Manos Kapritsos, Baris Kasikci, and Karem Sakallah. *[HotOS'19]*, Bertinoro, Italy, May 2019.
- [28] Morpheus: A Vulnerability-Tolerant Secure Architecture Based on Ensembles of Moving Target Defenses with Churn. Mark Gallagher, Lauren Biernacki, Shibo Chen, Zelalem Birhanu Aweke, Salessawi Ferede Yitbarek, Misiker Tadesse Aga, Austin Harris, Zhixing Xu, Baris Kasikci, Valeria Bertacco, Sharad Malik, Mohit Tiwari, and Todd Austin. *[ASPLOS'19]*, Providence, RI, March 2019.
- [29] Breaking Virtual Memory Protection and the SGX Ecosystem with Foreshadow. Jo Van Bulck, Marina Minkin, Ofir Weisse, Daniel Genkin, Baris Kasikci, Frank Piessens, Mark Silberstein, Thomas F. Wenisch, Yuval Yarom, and Raoul Strackx. *[IEEE Micro'19]*, 2019.
- [30] REPT: Reverse Debugging of Failures in Deployed Software. Xinyang Ge Weidong Cui, Baris Kasikci, Ben Niu, Upamanyu Sharma, Ruoyu Wang, and Insu Yun. *[OSDI'18]*, Carlsbad, USA, October 2018.
- [31] Foreshadow: Extracting the Keys to the Intel SGX Kingdom with Transient Out-of-Order Execution. Jo Van Bulck, Marina Minkin, Ofir Weisse, Daniel Genkin, Baris Kasikci, Frank Piessens, Mark Silberstein, Thomas F. Wenisch, Yuval Yarom, and Raoul Strackx. *[USENIX Security'18]*, Baltimore, MD, USA, August 2018.
- [32] Cntr: Lightweight OS Containers. Jorg Thalheim, Pramod Bhatotia, Pedro Fonseca, and Baris Kasikci. *[USENIX ATC'18]*, Boston, MA, USA, July 2018.
- [33] Vulnerability-tolerant secure architectures. Todd M. Austin, Valeria Bertacco, Baris Kasikci, Sharad Malik, and Mohit Tiwari. *[ICCAD'18]*, San Diego, CA, USA, 2018.
- [34] Foreshadow-NG: Breaking the Virtual Memory Abstraction with Transient Out-of-Order Execution. Ofir Weisse, Jo Van Bulck, Marina Minkin, Daniel Genkin, Baris Kasikci, Frank Piessens, Mark Silberstein, Raoul Strackx, Thomas F. Wenisch, and Yuval Yarom. *[arXiv'18]*, 2018.
- [35] Lazy Diagnosis of In-Production Concurrency Bugs. Baris Kasikci, Weidong Cui, Xinyang Ge, and Ben Niu. *[SOSP'17]*, Shanghai, China, October 2017.
- [36] Failure Sketching: A Technique for Automated Root Cause Diagnosis of In-Production Failures. Baris Kasikci, Benjamin Schubert, Cristiano Pereira, Gilles Pokam, and George Candea. *[SOSP'15]*, Monterey, CA, USA, October 2015.
- [37] Failure Sketches: A Better Way to Debug. Baris Kasikci, Benjamin Schubert, Cristiano Pereira, Gilles Pokam, Madanlal Musuvathi, and George Candea. *[HotOS'15]*, Kartause Ittingen, Switzerland, May 2015.
- [38] Automated Classification of Data Races Under Both Strong and Weak Memory Models. Baris Kasikci, Cristian Zamfir, and George Candea. *[TOPLAS'15]*, May 2015.
- [39] Efficient Tracing of Cold Code Via Bias-Free Sampling. Baris Kasikci, Thomas Ball, George Candea, John Erickson, and Madanlal Musuvathi. *[USENIX ATC'14]*, Philadelphia, PA, USA, June 2014.
- [40] Lockout: Efficient Testing for Deadlock Bugs. Ali Kheradmand, Baris Kasikci, and George Candea. *[WODET'14]*, Salt Lake City, UT, USA, March 2014.
- [41] RaceMob: Crowdsourced Data Race Detection. Baris Kasikci, Cristian Zamfir, and George Candea. *[SOSP'13]*, Farmington, PA, USA, November 2013.
- [42] Automated Debugging for Arbitrarily Long Executions. Cristian Zamfir, Baris Kasikci, Johannes Kinder, Edouard Bugnion, and George Candea. *[HotOS'13]*, Santa Ana Pueblo, NM, USA, May 2013.
- [43] CORD: A Collaborative Framework for Distributed Data Race Detection. Baris Kasikci, Cristian Zamfir, and George Candea. *[HotDep'12]*, Hollywood, CA, USA, October 2012.



- [44] Data Races vs. Data Race Bugs: Telling the Difference with Portend. Baris Kasikci, Cristian Zamfir, and George Candea. *[ASPLOS'12]*, London, UK, March 2012.
- [45] Scalable Modeling of Software Product Line Variability. Baris Kasikci and Semih Bilgen. *[SPLC'09]*, San Francisco, CA, USA, August 2009.

## TALKS

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### **The Quest Towards Efficient and Trustworthy Systems**

- ETH Zurich (Invited Talk, Workshop on Dependable and Secure Software Systems) Oct 2022
- Ecole Polytechnique Fédérale de Lausanne (EPFL) May 2022
- Cornell University April 2022
- University of Washington April 2022
- Carnegie Mellon University Feb 2022
- University of Texas at Austin Feb 2022
- IEEE CITS (Keynote) Nov 2021
- University of Wisconsin Madison (Invited Talk) Sep 2021
- VMware (Invited Talk) Jun 2021
- Intel (Invited Talk) Jun 2021

### **Optimizing the Front-end Performance of Modern Datacenter Servers**

- Intel (Invited Talk) Jun 2021

### **Eliminating the Instruction Bottleneck in Modern Data Center Applications**

- Intel (Invited Talk) Mar 2021

### **Eliminating Speculative Execution Vulnerabilities**

- DARPA (Invited Talk) Sep 2019

### **Towards Continuous In-Production Failure Diagnosis**

- Ohio State University (Invited Talk) July 2018
- Greater Chicago Area Systems Research Workshop, University of Chicago (Invited Talk) May 2018
- Purdue University (Invited Talk) May 2018

### **Hardware-Software Co-Design for Debugging and Performance Anlysis**

- Workshop on Resilient Systems, TU Dresden (Keynote) Apr. 2017

### **Symbolic Execution: A Gentle Introduction**

- Cyber In Bretagne Summer School (Invited Talk) Jul. 2016

### **Stamping Out Concurrency Bugs**

- Royal Holloway, University of London, Seminar Apr. 2016
- Georgia Institute of Technology, Seminar Apr. 2016
- Carnegie Mellon University, Seminar Apr. 2016
- University of Southern California, Seminar Mar. 2016
- University of Rochester, Seminar Mar. 2016
- Microsoft Research Redmond, Seminar Mar. 2016
- Microsoft Research Cambridge, Seminar Mar. 2016
- MPI Software Systems, Seminar Mar. 2016
- University College London, Seminar Mar. 2016
- Rice University, Seminar Feb. 2016
- University of Toronto, Seminar Feb. 2016
- University of Michigan, Seminar Feb. 2016
- Boston University, Seminar Feb. 2016

• Georgia Institute of Technology, Seminar	Feb. 2016
• VMWare Research, Seminar	Feb. 2016
• University of British Columbia, Seminar	Feb. 2016
• Simon Fraser University, Seminar	Jan. 2016
<b>Automated Root Cause Diagnosis of In-Production Failures</b>	
• Symposium on Operating System Principles (SOSP)	Oct. 2015
• Intel Corp.	Sep. 2015
• Google	Sep. 2015
• VMware Inc.	Sep. 2015
<b>Failure Sketches: A Better Way to Debug</b>	
• EcoCloud Annual Event	Jun. 2015
• Hot Topics in Operating Systems (HotOS)	May 2015
<b>Efficient Tracing of Cold Code via Bias-Free Sampling</b>	
• USENIX Annual Technical Conference (USENIX ATC)	Jun. 2014
<b>Lockout: Efficient Testing for Deadlock Bugs</b>	
• Workshop on Determinism and Correctness in Parallel Programming (WoDet)	Mar. 2014
<b>RaceMob: Crowdsourced Data Race Detection.</b>	
• Symposium on Operating System Principles (SOSP)	Oct. 2013
• EPFL Systems Seminar	Oct. 2013
<b>CoRD: A Collaborative Framework for Distributed Data Race Detection</b>	
• Workshop on Hot Topics in System Dependability (HotDep)	Oct. 2012
<b>Data Races vs. Data Race Bugs: Telling the Difference with Portend</b>	
• International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)	Mar. 2012
<b>How to Build Reliable Software?</b>	
• Seminar talk to the incoming undergraduate students at EPFL	Sep. 2011

## PROFESSIONAL SERVICE

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### PC Chair

ASPLOS Wild and Crazy Ideas Session (WACI)	2022
Workshop on Hot Topics In Operating Systems (HotOS)	2021
ACM Student Research Competition (ACM SRC), SOSP 2021	2021
EuroSys Doctoral Workshop (Euro'DW)	2021
International Conference on Virtual Execution Environments (VEE)	2020
Workshop on System Software for Trusted Execution (SysTEX) (co-located with CCS'18)	2018
Symposium on Cloud Computing (SoCC) Poster Session	2018

## PC Member

IEEE MICRO Top Picks	2023
International Symposium on Computer Architecture (ISCA)	2023
Symp. on Operating System Design and Implementation (OSDI)	2020, 2021, 2022, 2023
Symp. on Operating Systems Principles (SOSP)	2019, 2023
Intl Conf. on Architectural Support for Programming Languages and Operating Systems (ASPLOS)	2021, 2022, 2023
Programming Language Design and Implementation (PLDI)	2022
Intl. Symp. on Microarchitecture (MICRO)	2022
EuroSys	2019, 2021
Intl. Conf. on Virtual Execution Environments (VEE)	2019
Intl. Conf. on Distributed Computing Systems (ICDCS)	2017, 2019
EuroSys Roger Needham PhD Award Committee	2019, 2022
EuroSys Doctoral Workshop (EuroDW)	2018
Symp. on Cloud Computing (SoCC)	2018
World Wide Web Conference (WWW)	2017
Intl. Symp. on Software Testing and Analysis (ISSTA), Artifact Evaluation Committee	2014

## Journal Reviewer

Transactions on Architecture and Code Optimization	2018
Transactions on Software Engineering	2015
Transactions on Software Engineering and Methodology	2015

## Extended Review Committee

Intl. Symp. on Microarchitecture (MICRO)	2021
Intl. Symp. on Computer Architecture (ISCA)	2021
Intl. Conf. on Architectural Support for Programming Languages and Operating Systems (ASPLOS)	2018

## Shadow PC Member

EuroSys Conference on Computer Systems (EuroSys)	2013, 2015
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## External Reviewer

Symp. on Operating Systems Principles (SOSP)	2011, 2013
EuroSys Conf. on Computer Systems (EuroSys)	2011, 2012
USENIX Annual Technical Conf. (USENIX ATC)	2011
Intl. Conf. on Compiler Construction (CC)	2017
Workshop on Hot Topics in Operating Systems (HotOS)	2011, 2013
Conf. on Innovative Data Systems Research (CIDR)	2013
Intl. Conf. on Dependable Systems and Networks (DSN)	2011, 2013
Symposium on Cloud Computing (SOCC)	2012
Intl. SPIN Workshop on Model Checking of Software (SPIN)	2011

## Committee Member

University of Michigan, Computer Science and Engineering, DEI Committee	2021, 2022
University of Michigan, Computer Science and Engineering, Graduate Admissions Committee	2017–
OSDI Mentorship Arrangement Committee	2021
EPFL Doctoral School of Computer and Communication Sciences Audit Committee	2015

## TEACHING

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<b>Introduction to Operating Systems (EECS 482)</b> (undergraduate)	2018, 2019, 2021, 2022
<b>Advanced Operating Systems (EECS 582)</b> (graduate)	2017, 2019, 2020, 2021

## RESEARCH MENTORING

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### PhD

Ofir Weisse	Sep 2017–May 2020
Tanvir Ahmed Khan	Jan 2018–
Kevin Loughlin	Sep 2018–
Andrew Loveless	Sep 2018–
Jiacheng Ma	Sep 2018–
Ian Neal	Sep 2018–
Gefei Zuo	Sep 2018–
Marina Minkin	Sep 2020–
Andrew Quinn	Sep 2020–Sep 2021
Sara Mahdizadeh Shahri	Sep 2021–

### Master's

Muhammed Ugur	Jan 2021–
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### Undergraduate

Shixin Song (ACM Student Research Competition Winner)	Feb 2021–
Haoyang Zhang	Jun 2021–
Diane Tchiang	May 2022–
Kan Zhu	May 2022–
Wangrui Lei	May 2022–

### Alumni

Shixin Song	BSc → MIT PhD, 2022
Haoyang Zhang	BSc → UIUC PhD, 2022
Muhammed Ugur	BSc → Yale PhD, 2022
Andrew Quinn	PhD → Assistant Professor, UCSC, 2021
Nathan Brown	MSc → ARM, 2021
Ben Stoler	MSc → CMU PhD, 2021
Yineng Yan	MSc → UT Austin PhD, 2021
Morgan Borjigin-Wang	MSc → Google, 2021
Ashfaqur Rahaman	BSc → University of Utah PhD, 2021
Dexin Zhang	MSc → USTC PhD, 2021
Zhiqi Chen	BSc → CMU MSc, 2020
Yongwei Yuan	BSc → Purdue PhD, 2020
Ruiyang Zhu	BSc → Michigan PhD, 2020
Elisa Tsai	BSc → Michigan PhD, 2020
Ben Reeves	MSc → Qumulo, 2020
Ofir Weisse	PhD → Google, 2020
Upamanyu Sharma	BSc → MIT PhD, 2020
Yimeng Zhou	BSc → Google, 2020
Xiaohe Cheng	BSc → Google, 2019
John Wu	MSc → Apple, 2019
Liran Xiao	BSc → UCLA MSc, 2019
Yifan Dai	BSc → University of Wisconsin PhD, 2019
Yifan Zhao	BSc → UIUC PhD, 2019

## PATENTS

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**Reverse Debugging of Software Failures**

US Patent Number 10,565,511

## LANGUAGES

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English: fluent

French: fluent

Turkish: native

German: beginner