

Tanvir Ahmed Khan

Assistant Professor, Columbia University in the City of New York

Research Interests

I build systems techniques to enable efficient data center processing. Efficient data center processing is challenging due to rapid growth in data and software complexity along with the ongoing slowdown in hardware performance scaling. As a consequence, micro-architectural structures (e.g., instruction and data cache, branch predictors) can no longer meet the demand of data center applications. Combining insights from computer architecture, compilers, and operating systems, I design techniques to enable near-ideal micro-architectural structures via profile-guided optimizations. Consequently, Intel and ARM have adopted a couple of my techniques. Bridging hardware and software, my work appears in venues like ISCA, MICRO, ASPLOS, OSDI, PLDI, Oakland, HPCA, FAST, and EuroSys. My research has also received 2024 ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation Award, IEEE Micro Top Picks 2023 distinction, and MICRO 2022 Best Paper Award.

Education

- 2017-2023 **Ph.D.**, *University of Michigan*, Ann Arbor, Michigan, USA
 - Computer Science and Engineering
 - Thesis: Rescuing Data Center Processors
- 2017 **M.Sc.**, *Bangladesh University of Engineering and Technology*, Dhaka, Bangladesh
 - Computer Science and Engineering
- 2014 **B.Sc.**, *Bangladesh University of Engineering and Technology*, Dhaka, Bangladesh
 - Computer Science and Engineering
 - Class Rank: 1/153

Employment

- 2024-present **Columbia University in the City of New York**, New York, USA
 - Assistant Professor, Electrical Engineering Department
 - Fu Foundation School of Engineering and Applied Science
- 2017-2023 **University of Michigan**, Ann Arbor, Michigan, USA
 - Research Assistant, Electrical Engineering and Computer Science
 - Advisor: Baris Kasikci
- 2019-2023 **Google, ARM, Facebook, Microsoft**
 - Summer Research/Software Engineer Intern
 - Mentors: Victor Lee (Google), Krishnendra Nathella and Dam Sunwoo (ARM), Maksim Panchenko (Facebook), and Gagan Gupta and Rathijit Sen (Microsoft)
- 2014-2017 **Bangladesh University of Engineering and Technology**, Dhaka, Bangladesh
 - Lecturer, Department of Computer Science and Engineering

Awards and Honors

- 2024 **ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation Award**
- 2023 **IEEE Micro Top Pick** (awarded to the top 12 computer architecture papers of 2022)
- 2023 **DATE Best Paper Award Nomination**

- 2023 **Richard F. and Eleanor A. Towner Prize for Outstanding Ph.D. Research** (\$2,500), University of Michigan
- 2022-2023 **Rackham Predoctoral Fellowship** (\$100,000 towards tuition, stipend, and insurance), University of Michigan
- 2022 **MICRO Best Paper Award** (top two of 83 papers, top 1% of 348 submissions)
- 2022 Qualcomm Innovation Fellowship Finalist (one of 46 finalists)
- 2021 Graduate Student Honors (**Best PhD Research Award** in the Michigan Systems Lab), University of Michigan
- 2020 Facebook Fellowship Finalist (top 4% of 1800 applicants)
- 2017-2018 Rollin M. Gerstacker Foundation Fellowship (\$100,000 towards tuition, stipend, and insurance)
- 2014 Crest of Honor, Highest CGPA in the department, presented by BUET alumni association
- 2009-2014 University Merit Scholarship, Bangladesh University of Engineering and Technology
- 2009-2014 Dean's List Scholarship, Bangladesh University of Engineering and Technology

Peer-Reviewed Conference Publications

Underlined authors are PhD students I advise.

- IEEE S&P'26 Mingkai Li, Hang Ye, Joseph Devietti, Suman Jana, and **Tanvir Ahmed Khan**
NanoTag: Systems Support for Efficient Byte-Granular Overflow Detection on ARM MTE.
 In proceedings of the 47th IEEE Symposium on Security and Privacy (**IEEE S&P [Oakland]**), 2026.
 Acceptance rate: $135/1070 = 12.62\%$.
 The first low-overhead technique to detect byte-granular buffer overflows in real hardware. Buffer overflows are the root cause of most software vulnerabilities. ARM's Memory Tagging Extension (MTE) aims to prevent such buffer overflows in hardware by ensuring that a pointer's tag matches the tag of any 16-byte memory the pointer accesses, sanitizing memory accesses. This work shows that such a 16-byte tag granularity prevents MTE from sanitizing many memory accesses, exposing a large surface (87%) of bypassing MTE checks. To address this limitation, NanoTag enables byte-granular overflow detection via software checks, controlled by a sampling knob to explicitly balance bug-detection capability and performance overhead. For popular benchmarks and real-world case studies, NanoTag detects nearly all buffer overflows while incurring the same overhead as MTE.
- ASPLOS'26 Tawhid Bhuiyan, Sumya Hoque, Angélica Aparecida Moreira, and **Tanvir Ahmed Khan**
Wax: Optimizing Data Center Applications With Stale Profile.
 In proceedings of the 31st ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), 2026.
 Acceptance rate: $152/1048 = 14.5\%$.
 A novel technique to optimize data center applications with stale profiles. Data center providers, Google and Meta, continuously profile the current versions of data center applications and use these profiles to optimize subsequent versions. As practitioners deploy new versions every one or two weeks, source code changes rapidly between them, causing 70-92% of profile samples to become stale. Wax addresses this profile staleness with the key insight of using the debug and source code information. Wax provides 6-26% performance speedups across widely used data center applications, achieving 65-93% of fresh profiles' benefits.
- IISWC'25 Matthew Edwin Weingarten, Michael Grieco, Stephen A. Edwards, and **Tanvir Ahmed Khan**
Icicle: Open-Source Hardware Support for Top-Down Microarchitectural Analysis on RISC-V.
 In proceedings of the IEEE International Symposium on Workload Characterization (**IISWC**), IEEE, 2025.
 Acceptance rate: $38/91 = 41.8\%$.
 The first open-source implementation of top-down microarchitectural analysis, including superscalar counters and trace-based validation methodology.
- HOST'25 Ryan Piersma, Tawhid Bhuiyan, **Tanvir Ahmed Khan**, and Simha Sethumadhavan
Reverse Engineering DVFS Mechanisms.
 In proceedings of the 18th IEEE International Symposium on Hardware Oriented Security and Trust (**HOST**), IEEE, 2025.
 The first study to identify distinct voltage-frequency states of a hardware-managed Dynamic Voltage and Frequency Scaling (DVFS) mechanism, modeling transitions with near-ideal accuracy.

- HPCA'25 Kan Zhu, Yilong Zhao, Yufei Gao, Peter Braun, **Tanvir Ahmed Khan**, Heiner Litz, Baris Kasikci, and Shuwen Deng
From Optimal to Practical: Efficient Micro-op Cache Replacement Policies for Data Center Applications.
 In proceedings of the 31st High-Performance Computer Architecture (**HPCA**), 2025.
 Acceptance rate: $83/423 = 19.6\%$.
 The first micro-op cache replacement policy.
- ISCA'24 Surim Oh, Mingsheng Xu, **Tanvir Ahmed Khan**, Baris Kasikci, and Heiner Litz
UDP: Utility-Driven Fetch Directed Instruction Prefetching.
 In proceedings of the 51th International Symposium on Computer Architecture (**ISCA**), 2024.
 Acceptance rate: $83/423 = 19.6\%$.
 First utility-based mechanism for instruction prefetching that ensures both accuracy and timeliness
- ASPLOS'24 Yuxuan Zhang, Nathan Sobotka, Soyeon Park, Saba Jamilan, **Tanvir Ahmed Khan**, Baris Kasikci, Gilles A Pokam, Heiner Litz, and Joseph Devietti
RPG²: Robust Profile-Guided Runtime Prefetch Generation.
 In proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), 2024.
 Acceptance rate: $81/409 = 19.8\%$.
 An online system that injects and tunes prefetch instructions to make prefetching more robust optimization
- DATE'23 Yuhan Chen, Alireza Khadem, Xin He, Nishil Talati, **Tanvir Ahmed Khan**, and Trevor Mudge
PEDAL: A Power Efficient GCN Accelerator with Multiple DATAflows.
 In proceedings of the 26th Design, Automation, and Test in Europe (**DATE**) conference, 2023.
 Acceptance rate: 25%.
Best Paper Award Nomination 🏆
 An accelerator for graph convolutional neural networks that automatically selects optimized dataflow and phase ordering
- MICRO'22 **Tanvir Ahmed Khan**, Muhammed Ugur, Krishnendra Nathella, Dam Sunwoo, Heiner Litz, Daniel A. Jiménez, and Baris Kasikci
Whisper: Profile-Guided Branch Misprediction Elimination for Data Center Applications.
 In proceedings of the 55th IEEE/ACM International Symposium on Microarchitecture (**MICRO**), IEEE, 2022.
 Acceptance rate: $83/348 = 23.9\%$.
Best Paper Award 🏆
 First branch prediction technique that identifies precise program contexts leading to branch mispredictions and encodes corresponding hard-to-predict correlations in branch history efficiently using Boolean formulas
- MICRO'22 Yuxuan Zhang, **Tanvir Ahmed Khan**, Gilles Pokam, Baris Kasikci, Heiner Litz, and Joseph Devietti
OCOLOS: Online CODE Layout OptimizationS.
 In proceedings of the 55th IEEE/ACM International Symposium on Microarchitecture (**MICRO**), IEEE, 2022.
 Acceptance rate: $83/348 = 23.9\%$.
IEEE Micro Top Pick 🏆
 First online system that enables profile-guided optimizations of unmanaged applications on a running process
- ISCA'22 Shixin Song, **Tanvir Ahmed Khan**, Sara Mahdizadeh Shahri, Akshitha Sriraman, Niranjan K Soundararajan, Sreenivas Subramoney, Daniel A. Jiménez, Heiner Litz, and Baris Kasikci
Thermometer: Profile-Guided BTB Replacement for Data Center Applications.
 In proceedings of the 49th International Symposium on Computer Architecture (**ISCA**), ACM, 2022.
 Acceptance rate: $67/398 = 16.8\%$.
 First replacement technique that realizes applications' holistic behavior to avoid branch target mispredictions

- EuroSys'22 Saba Jamilan, **Tanvir Ahmed Khan**, Grant Ayers, Baris Kasikci, and Heiner Litz
APT-GET: Profile-Guided Timely Software Prefetching.
 In proceedings of the 17th European Conference on Computer Systems (**EuroSys**), ACM, 2022.
 Acceptance rate: $45/161 = 28\%$.
 First data prefetching technique that ensures prefetch timeliness using **Intel LBR's** cycle information
- MICRO'21 **Tanvir Ahmed Khan**, Nathan Brown, Akshitha Sriraman, Niranjan Soundararajan, Rakesh Kumar, Joseph Devietti, Sreenivas Subramoney, Gilles Pokam, Heiner Litz, and Baris Kasikci
Twig: Profile-Guided BTB Prefetching for Data Center Applications.
 In proceedings of the 54th IEEE/ACM International Symposium on Microarchitecture (**MICRO**), IEEE, 2021.
Semiconductor Research Corporation (SRC) Best Paper, Q3'2021
 Acceptance rate: $94/423 = 22.2\%$.
 First prefetching technique that enables near-ideal branch predecoding to avoid branch target mispredictions
- MICRO'21 Niranjan Soundararajan, Peter Braun, **Tanvir Ahmed Khan**, Baris Kasikci, Heiner Litz, and Sreenivas Subramoney
PDede: Partitioned, Deduplicated, Delta Branch Target Buffer.
 In proceedings of the 54th IEEE/ACM International Symposium on Microarchitecture (**MICRO**), IEEE, 2021.
 Acceptance rate: $94/423 = 22.2\%$.
 First architectural design that stores branch targets efficiently by removing redundancies among branches
- OSDI'21 **Tanvir Ahmed Khan**, Ian Neal, Gilles Pokam, Barzan Mozafari, and Baris Kasikci
DMon: Efficient Detection and Correction of Data Locality Problems using Selective Profiling.
 In proceedings of the 15th USENIX Symposium on Operating Systems Design and Implementation (**OSDI**), USENIX Association, 2021.
 Acceptance rate: $31/165 = 18.8\%$.
Received the "Artifact Available" USENIX badge
 First profiling technique that enables in-production profiling without any overhead, guides optimizations to make real-world workloads twice as faster, and **has been adopted in the Arm Neoverse N1 Core**
- ISCA'21 **Tanvir Ahmed Khan**, Dexin Zhang, Akshitha Sriraman, Joseph Devietti, Gilles Pokam, Heiner Litz, and Baris Kasikci
Ripple: Profile-Guided Instruction Cache Replacement for Data Center Applications.
 In proceedings of the 48th International Symposium on Computer Architecture (**ISCA**), IEEE, 2021.
 Acceptance rate: $76/406 = 18.7\%$.
 First cache replacement technique that uses program context to make efficient code replacement decisions
- FAST'21 Ian Neal, Gefei Zuo, Eric Shiple, **Tanvir Ahmed Khan**, Youngjin Kwon, Simon Peter, and Baris Kasikci
Rethinking File Mapping for Persistent Memory.
 In proceedings of the 19th USENIX Conference on File and Storage Technologies (**FAST**), USENIX, 2021.
 Acceptance rate: $28/130 = 21.5\%$.
 Optimizes the file offsets to persistent memory mapping operation, providing up to 45% performance gains
- MICRO'20 **Tanvir Ahmed Khan**, Akshitha Sriraman, Joseph Devietti, Gilles Pokam, Heiner Litz, and Baris Kasikci
I-SPY: Context-Driven Conditional Instruction Prefetching with Coalescing.
 In proceedings of the 53rd IEEE/ACM International Symposium on Microarchitecture (**MICRO**), IEEE, 2020.
 Acceptance rate: $82/424 = 19.3\%$.
Semiconductor Research Corporation (SRC) Best Paper, Q3'2020
 First instruction prefetching technique that enables conditional prefetching only when program context leads to instruction cache misses; I-SPY achieves near-ideal cache performance and **has been adopted by Intel**

- IISWC'20 Yuhan Chen, Jingyuan Zhu, **Tanvir Ahmed Khan**, and Baris Kasikci
CPU Microarchitectural Performance Characterization of Cloud Video Transcoding.
 In proceedings of the IEEE International Symposium on Workload Characterization (**IISWC**), IEEE, 2020.
 Acceptance rate: $26/70 = 37.1\%$.
 Finds key bottlenecks in instruction cache, data cache, and branch predictor for video transcoding workloads
- PLDI'19 **Tanvir Ahmed Khan**, Yifan Zhao, Gilles Pokam, Barzan Mozafari, and Baris Kasikci
Huron: Hybrid False Sharing Detection and Repair.
 In proceedings of the 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (**PLDI**), ACM, 2019.
 Acceptance rate: $76/274 = 27.7\%$.
 Received the "Artifacts Available" and "Artifacts Functional" ACM badges
 Semiconductor Research Corporation (SRC) Best Paper, Q2'2019
 A system that makes parallel programs up to $8\times$ faster by automatically detecting and repairing false sharing

Peer-Reviewed Journal/Workshop Publications and Posters

- HotEthics'26 Mingkai Li, Joseph Devietti, Suman Jana, and **Tanvir Ahmed Khan**
Challenges and Design Considerations for Finding CUDA Bugs Through GPU-Native Fuzzing.
 Workshop on Ethical Systems and Architecture Design (HotEthics), 2026.
- IEEE Yuxuan Zhang, **Tanvir Ahmed Khan**, Gilles Pokam, Baris Kasikci, Heiner Litz, and Joseph Devietti
 Micro'23 *Online COde Layout OptimizationS via OCOLOS*.
 IEEE Micro, IEEE, 2023.
- OSR'22 Muhammed Ugur, Cheng Jiang, Alex Erf, **Tanvir Ahmed Khan**, and Baris Kasikci
One Profile Fits All: Profile-Guided Linux Kernel Optimizations for Data Center Applications.
 ACM Special Interest Group on Operating Systems (SIGOPS) Operating Systems Review, ACM, 2022.
- WoSC'22 Truls Asheim, **Tanvir Ahmed Khan**, Baris Kasikci, and Rakesh Kumar
Impact of Microarchitectural State Reuse on Serverless Functions.
 In proceedings of the 8th International Workshop on Serverless Computing (WoSC), ACM, 2022.
- Wireless **Tanvir Ahmed Khan** and A. B. M. Alim Al Islam
 Networks'19 *Enhancing Throughput in Multi-Radio Cognitive Radio Networks*.
 Wireless Networks, Springer, 2019.
- MobiSys'16 **Tanvir Ahmed Khan** and A. B. M. Alim Al Islam
Poster: Overcoming Throughput Degradation in Multi-Radio Cognitive Radio Networks.
 In proceedings of the 14th Annual International Conference on Mobile Systems, Applications, and Services (MobiSys) Companion, ACM, 2016.
- WiMob'15 **Tanvir Ahmed Khan**, Chowdhury Sayeed Hyder, and A. B. M. Alim Al Islam
Towards Exploiting a Synergy between Cognitive and Multi-Radio Networking.
 In proceedings of the 11th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), IEEE, 2015.

PhD Students

- 2024-present Mingkai Li (Electrical Engineering, Columbia University)
 Enabling Secure and Reliable Heterogeneous Computer Systems
- 2024-present Matt Weingarten (Electrical Engineering, Columbia University)
 Enabling Performant Heterogeneous Computer Systems
- 2024-present Tawhid Bhuiyan (Electrical Engineering, Columbia University)
 Enabling Energy-Efficient Heterogeneous Computer Systems

Teaching

- Spring 2026 **Columbia University in the City of New York**, EECS 4340
○ **Primary Instructor** for the course, Computer Hardware Design
- Fall 2025 **Columbia University in the City of New York**, EECS 6894
○ **Primary Instructor** for the course, Hardware/Software Co-Design for Data Center Processing
- Spring 2025 **Columbia University in the City of New York**, CSEE 4824
○ **Primary Instructor** for the course, Computer Architecture
- Fall 2024 **Columbia University in the City of New York**, EECS 6894
○ **Primary Instructor** for the course, Hardware/Software Co-Design for Data Center Processing
- Spring 2024 **Columbia University in the City of New York**, CSEE 4824
○ **Primary Instructor** for the course, Computer Architecture
- Winter 2022 **University of Michigan**, EECS 582
○ **Primary Instructor** for the graduate course, Advanced Operating Systems
- Winter 2019 **University of Michigan**, EECS 570
○ Teaching Assistant with Prof. Thomas Wenisch for the graduate course, Parallel Computer Architecture
- 2014-2017 **Bangladesh University of Engineering and Technology**, CSE 305, CSE 309, CSE 313
○ **Primary Instructor** for undergraduate courses, Computer Architecture, Compilers, and Operating Systems

Grants and Gifts

- 2026 School of Engineering and Applied Sciences Research Stabilization Grant (RSG), 100K USD
- 2025 SRC JUMP 2.0 Mid-Program Realignment (MPRA), 661.5K USD
- 2024 Google gift, 35K USD

Open-Source Software and Tools

- March 2026 **NanoTag**
The artifact of the Oakland 2026 paper implements the first low-overhead technique to detect byte-granular buffer overflows in real hardware.
<https://github.com/ice-rlab/NanoTag>
- February 2026 **Wax**
The artifact of the ASPLOS 2026 paper implements a novel technique to optimize data center applications with stale profile.
<https://github.com/ice-rlab/Wax>
- August 2025 **Icicle**
The artifact of the IISWC 2025 paper implements the first open-source hardware implementation of the top-down microarchitectural analysis.
<https://github.com/ice-rlab/Icicle>
- September 2022 **OCOLOS**
The artifact implements the first online code layout optimization system (MICRO 2022) for applications written in C/C++ languages and allows profile-guided optimization to be performed on a running process.
<https://github.com/upenn-acg/Ocolos-MySQL>

July 2022 **One Profile Fits All**

The artifact consists of software and source code of Linux Kernel's profile-guided optimizations (OSR 2022 and [Linux Plumbers Conference 2021](#)) and evaluation scripts for eight open-source data center applications (Apache, Nginx, Redis, Memcached, Leveldb, Rocksdb, MySQL, and PostgreSQL).

<https://github.com/efeslab/lk-profile> and <https://github.com/facebookincubator/BOLT>

June 2022 **Thermometer**

The artifact consists of Thermometer's (ISCA 2022) software and source code, evaluation, and instructions.

<https://github.com/efeslab/thermometer-artifact>

July 2021 **DMon**

The artifact contains the prototype of DMon (OSDI 2021) implementing selective profiling, a technique that locates data locality problems with low-enough overhead that is suitable for production use.

<https://github.com/efeslab/dmon-ae>

June 2021 **I-SPY and Ripple**

The artifact consists of software and source code of I-SPY (MICRO 2020) and Ripple (ISCA 2021), a VirtualBox image with pre-installed data center applications, and these applications' traces.

<https://github.com/efeslab/ispy-ripple>

February 2021 **NVM File Indexing**

The open-source file system is optimized for file mapping on persistent/non-volatile memory (FAST 2021).

<https://github.com/efeslab/nvm-file-indexing>

May 2019 **Huron**

The artifact consists of a VirtualBox image containing the Huron (PLDI 2019) software and source code, evaluation data, instructions, and all open source evaluation applications and input files.

<https://github.com/efeslab/huron> and <https://doi.org/10.1145/3325966>

Selected Press

March 2022 **Tanvir Ahmed Khan awarded Rackham Predoctoral Fellowship**

The Michigan Engineer News Center

<https://cse.engin.umich.edu/stories/tanvir-ahmed-khan-awarded-rackham-predoctoral-fellowship>

November 2021 **Outstanding research recognized at Graduate Honors Competition**

The Michigan Engineer News Center

<https://cse.engin.umich.edu/stories/outstanding-research-recognized-at-graduate-honors-competition>

October 2021 **Arm Neoverse N1 – Performance Analysis Methodology to Tune Production Systems and Application Code**

Arm Community Blogs

<https://community.arm.com/arm-community-blogs/b/tools-software-ides-blog/posts/arm-neoverse-n1-performance-analysis-methodology>

September 2021 **Facebook Has Been Working On BOLT'ing The Linux Kernel For Greater Performance**

Phoronix

<https://www.phoronix.com/news/Facebook-BOLTing-The-Kernel>

April 2020 **Undergraduate research on speeding up data centers earns ACM first prize**

The Michigan Engineer News Center

<https://cse.engin.umich.edu/stories/undergraduate-research-on-speeding-up-data-centers-earns-acm-first-prize>

August 2019 **Automated tool optimizes complex programs better than humans**

The Michigan Engineer News Center

<https://cse.engin.umich.edu/stories/automated-tool-optimizes-complex-programs-better-than-humans>

February **Speeding up code with clever data manipulation**
2019 The Michigan Engineer News Center
<https://cse.engin.umich.edu/stories/speeding-up-code-with-clever-data-manipulation>

Invited Talks

Filling the RPC Gap Between Google and Open-Source Microservices

April 2024 Google Simulation Summit (Sunnyvale)
Host: Victor Lee

Rescuing Data Center Processors

September ACCESS-CEDA Seminar Series, Hong Kong University of Science and Technology (HKUST)
2023 Host: Zhiyao Xie

August 2023 Azure Systems Research group
Host: Esha Choukse and Daniel S. Berger

August 2023 Samsung Tech. Seminar
Host: Diane Jung

July 2023 Shanghai Jiao Tong University
Host: Zhengwei Qi

April 2023 Cornell University (Department of Computer Science)
Host: Giulia Guidi

April 2023 Stony Brook University (Department of Computer Science)
Host: Dongyoon Lee

April 2023 Texas A&M University (Department of Computer Science and Engineering)
Host: Daniel A. Jiménez

March 2023 University of Waterloo (Department of Electrical and Computer Engineering)
Host: Hiren Patel

March 2023 University of Waterloo (David R. Cheriton School of Computer Science)
Host: Martin Karsten

March 2023 Rutgers University (Department of Computer Science)
Host: Richard P. Martin

March 2023 École Polytechnique Fédérale de Lausanne (School of Computer and Communication Sciences)
Host: Sanidhya Kashyap

March 2023 University of Minnesota Twin Cities (Department of Electrical and Computer Engineering)
Host: Ulya Karpuzcu

March 2023 University of North Carolina at Chapel Hill (Department of Computer Science)
Host: Shahriar Nirjon

March 2023 University of Toronto (Department of Computer Science)
Host: Gennady Pekhimenko

March 2023 Columbia University (Electrical Engineering Department)
Host: Asaf Cidon

February University of Illinois Urbana-Champaign (Electrical and Computer Engineering Department and Department
2023 of Computer Science)
Hosts: Nam Sung Kim and Tianyin Xu

February Northeastern University (College of Engineering-Electrical and Computer Engineering)
2023 Host: Yanzhi Wang

- February 2023 Purdue University (Department of Computer Science)
Host: Xuehai Qian
- February 2023 New York University (NYU) Courant Institute of Mathematical Sciences (Computer Science Department)
Host: Lakshminarayanan Subramanian
- February 2023 Boston University (Department of Computer Science)
Host: Jonathan Appavoo
- February 2023 Boston University (Department of Electrical and Computer Engineering)
Host: Manuel Egele
- December 2022 Columbia University
Host: Baishakhi Ray
- October 2022 Intel Labs ArchFest
Host: Zeshan Chishti
- January 2022 University of California, Riverside
Host: Zhiyun Qian
- January 2022 University of California, Irvine
Host: Sangeetha Abdu Jyothi
- November 2021 Applications Driving Architectures (ADA) Fall Symposium
Session chair: Ada Gavrilovska
- November 2021 University of Michigan Graduate Honors Competition
Host: Emily Mower Provost
- November 2021 University of California, Los Angeles
Host: Jens Palsberg
- November 2021 University of California, San Diego
Host: Dean Tullsen
- October 2021 University of Michigan Systems Lab
Host: Max S. New
- October 2021 University of California, Santa Cruz
Hosts: Lindsey Kuper and Tyler Sorensen
- October 2021 Texas A&M University
Host: Daniel A. Jiménez
- September 2021 University of Rochester
Host: Sreepathi Pai
- How Can We Help Students Learn to Review Papers?**
- June 2023 Revisiting the Review Processes Workshop (Co-located with ISCA 2023)
Orlando, FL, USA
- Whisper: Profile-Guided Branch Misprediction Elimination for Data Center Applications**
- December 2022 Apple Computer Architecture Reading Group
Host: Muawya Al-Otoom and Tyler Huberty
- November 2022 AMD Tech Talk
Host: Jagadish Kotra
- November 2022 ARM Austin CPU Group
Host: Dam Sunwoo
- October 2022 IEEE/ACM International Symposium on Microarchitecture (MICRO)
Session chairs: Ulya Karpuzcu and Boris Grot

Thermometer: Profile-Guided BTB Replacement for Data Center Applications

June 2022 IEEE/ACM International Symposium on Computer Architecture (ISCA)
Session chair: Esha Choukse

Twig: Profile-Guided BTB Prefetching for Data Center Applications

May 2022 Applications Driving Architectures (ADA) Annual Symposium
Session chair: Zachary Tatlock

October 2021 IEEE/ACM International Symposium on Microarchitecture (MICRO)
Session chair: Pedro Trancoso

Locality Optimizations for Data Center Applications

September 2021 Semiconductor Research Corporation (SRC) TECHCON
Session chair: Lisa Green

July 2021 ARM Research
Host: Alex Rico

May 2021 Applications Driving Architectures (ADA) Annual Symposium
Session chair: Timothy G. Rogers

April 2021 EuroSys Doctoral Workshop
Session chair: Irene Zhang

December 2020 Students' Forum Speaker, International Conference on Networking, Systems and Security
Session chair: Mahmuda Naznin

DMon: Efficient Detection and Correction of Data Locality Problems Using Selective Profiling

July 2021 USENIX Symposium on Operating Systems Design and Implementation (OSDI)
Session chairs: Deniz Altinbükten and Rashmi Vinayak

Ripple: Profile-Guided Instruction Cache Replacement for Data Center Applications

June 2021 IEEE/ACM International Symposium on Computer Architecture (ISCA)
Session chair: Esha Choukse

I-SPY: Context-Driven Conditional Instruction Prefetching with Coalescing

October 2020 IEEE/ACM International Symposium on Microarchitecture (MICRO)
Session chair: Trevor E. Carlson

Huron: Hybrid False Sharing Detection and Repair

August 2019 Microsoft C++ Compiler Team
Host: Mo Di

June 2019 ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)
Session chair: Veselin Raychev

May 2019 Azure Hardware Research Group
Host: Lisa Hsu

Overcoming Throughput Degradation in Multi-Radio Cognitive Radio Networks

May 2018 Intel Labs Wireless Networking Research Group
Host: Satish C. Jha

Selected Professional Services

2026 Program Committee Member for International Symposium on Microarchitecture (MICRO'26)

2026 Program Committee Member for International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'26)

- 2025 Program Committee Member for International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'25)
- 2024 Student Scholarship Chair for ACM Symposium on Operating Systems Principles (SOSP'24)
- 2024 Program Committee Member for International Symposium on Computer Architecture (ISCA'24)
- 2024 Program Committee Member for USENIX Annual Technical Conference (ATC'24)
- 2024 Program Committee Member for European Conference on Computer Systems (EuroSys'24)
- 2024 Program Committee Member for International Symposium on Code Generation and Optimization (CGO'24)
- 2023 Program Committee Member for International Symposium on Code Generation and Optimization (CGO'23)
- 2023 Scholarship Selection Committee Member for ACM Symposium on Operating Systems Principles (SOSP'23)
- 2022 External Review Committee Member for International Symposium on Microarchitecture (MICRO'22)
- 2022 Publicity Chair for Young Architect Workshop (YArch'22)
- 2022 External Review Committee Member for International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'22)
- 2021 Shadow Program Committee Member for European Conference on Computer Systems (EuroSys'21)
- 2021 External Review Committee Member for International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'21)
- 2020 Artifact Evaluation Committee Member for SIGPLAN Conference on Programming Language Design and Implementation (PLDI'20)
- 2020 Artifact Evaluation Committee Member for Third Conference on Machine Learning and Systems (MLSys'20)
- 2020 Artifact Evaluation Committee Member for International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'20)
- 2019 Artifact Evaluation Committee Member for ACM Symposium on Operating Systems Principles (SOSP'19)
- 2019 Student Volunteer for SIGPLAN Conference on Programming Language Design and Implementation (PLDI'19)