Ivan Radanov Ivanov

Curriculum Vitae

EDUCATION

Doctoral degree	*Apr. 2023 - Ongoing*	**Tokyo Institute of Technology**

School of Computing · Department of Mathematical and Computing Science

Master's degree	*Apr. 2021 - Mar. 2023*	**Tokyo Institute of Technology**

School of Computing · Department of Mathematical and Computing Science

Master's thesis: Optimizations and Transformations of Parallel Code via High Level Intermediate Representation

Degree received: Master of Science (March 2023)

Bachelor's degree	*Apr. 2017 - Mar. 2021*	**Tokyo Institute of Technology**

School of Computing · Department of Mathematical and Computing Science

Bachelor's thesis: Improved failover for HPC interconnects through localised routing restoration

Degree received: Bachelor of Science (March 2021)

Other	*Apr. 2016 - Mar. 2017*	**Osaka university**

Center for Japanese Language and Culture · Undergraduate Students Program

	Sep. 2015 - Mar. 2016	**Sofia University St. Kliment Ohridski**

Faculty of Mathematics and Informatics · Computer Science

High school	*Sep. 2010 - Aug. 2015*	**Sofia High School of Mathematics**

High school diploma received

RESEARCH EXPERIENCE

	Oct. 2023 - Feb. 2024	**Lawrence Liveremore National Laboratory**

Research Internship

	Apr. 2023 - Ongoing	**RIKEN Center For Computational Science**

Junior Research Associate

	Apr. 2021 - Mar. 2023	**RIKEN Center For Computational Science**

Research part timer

	Oct. 2020 - Mar. 2021	**RIKEN Center For Computational Science**

Research internship · Development of fast failover for deadlock-free routings in HPC interconnects

	Jun. 2018 - Feb. 2019	**Tokyo Institute of Technology**

Research assistant · Supercomputer system modification, benchmark

preparation and execution

RESEARCH

Publications

William S. Moses, Ivan R. Ivanov, Jens Domke, Toshio Endo, Johannes Doerfert, and Oleksandr Zinenko. "High-Performance GPU-to-CPU Transpilation and Optimization via High-Level Parallel Constructs". In: *Proceedings of the 28th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming*. PPoPP '23. Montreal, QC, Canada: Association for Computing Machinery, 2023, pp. 119–134

Jens Domke, Satoshi Matsuoka, Ivan R. Ivanov, Yuki Tsushima, Tomoya Yuki, Akihiro Nomura, Shin'ichi Miura, Nie McDonald, Dennis L. Floyd, and Nicolas Dubé. "HyperX Topology: First at-Scale Implementation and Comparison to the Fat-Tree". In: *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*. SC '19. Denver, Colorado: Association for Computing Machinery, 2019

Talks

Oct. 2023   I. R. Ivanov, O. Zinenko, J. Domke, T. Endo, and W. S. Moses. Optimization of CUDA GPU Kernels and Translation to AMDGPU in Polygeist/MLIR. 2023 LLVM Developers' Meeting. Student Talk

Oct. 2023   I. R. Ivanov, O. Zinenko, J. Domke, T. Endo, J. Doerfert, and W. S. Moses. GPU Kernel Compilation in Polygeist/MLIR. 2023 LLVM Developers' Meeting GPU Offloading Workshop. Lightning Talk

Nov. 2022   W. S. Moses, I. R. Ivanov, J. Domke, T. Endo, J. Doerfert, and O. Zinenko. High-Performance GPU-to-CPU Transpilation and Optimization via High-Level Parallel Constructs in Polygeist/MLIR. 2022 LLVM Developers' Meeting. Lightning Talk

Feb. 2022   I. R. Ivanov, J. Domke, and T. Endo. Automatic translation of CUDA code into high performance CPU code using LLVM IR transformations. The 4th R-CCS Internation Symposium. Lightning Talk

Feb. 2021   I. R. Ivanov, J. Domke, A. Nomura and T. Endo. Improved failover for HPC interconnects through localised routing restoration The 3rd R-CCS Internation Symposium. Lightning Talk

Posters

May. 2023   Ryan Barton, Mohamed Wahib, Jens Domke, Ivan R. Ivanov, Toshio Endo, Satoshi Matsuoka. BITFLEX - An HPC User-Driven Automatic Toolchain for Precision Manipulation and Approximate Computing, ISC High Performance 2023

Feb. 2023   Ivan R. Ivanov, William S. Moses, Jens Domke, Toshio Endo. Parallel Optimizations and Transformations of GPU Kernels Using a High-Level representation in MLIR/Polygeist. IEEE/ACM International Symposium on Code Generation and Optimization (CGO)

OTHER

Leadership and service activities

2019-2020 · President of Tokyo Institute of Technology Gliding Club

Languages	Bulgarian	·	Native
	English	·	Proficient
	Japanese	·	Proficient

October 11, 2023