IMPACT 2023

13th International Workshop on Polyhedral Compilation Techniques

Program

Opening and Keynote (10:00 - 11:00)

- Keynote: Compilation and Optimization of Static Control Flow Programs: Polyhedral Compilation at Large. *Louis-Noël Pouchet*

Break (11:00 — 11:30)

Session 1: Theory and Techniques (11:30 — 13:00)

- Maximal Atomic irRedundant Sets: a Usage-based Dataflow Partitioning Algorithm. *Corentin Ferry, Sanjay Rajopadhye and Steven Derrien*
- Algebraic Tiling. *Clément Rossetti and Philippe Clauss*
- Automatic Algorithm-Based Fault Tolerance (AABFT) of Stencil Computations. *Louis Narmour, Steven Derrien and Sanjay Rajopadhye.*

Lunch (13:00 — 14:00)

Session 2: Performance Optimization (14:00 — 14:50)

- Kernel Merging for Throughput-Oriented Accelerator Generation. *Nicolas Derumigny, Louis-Noël Pouchet and Fabrice Rastello.*
- Superloop Scheduling: Loop Optimization via Direct Statement Instance Reordering. *Cedric Bastoul, Alain Ketterlin and Vincent Loechner.*

Session 3: DSLs and MLIR (14:50 — 15:30)

- PolyLingual: a Programmable Polyhedral Scheduler. *Tom Hammer and Vincent Loechner.*
- Building a Static HLS Pass with FPL. *Kunwar Shaanjeet Singh Grover, Arjun Pitchanathan, Julian Oppermann, Mike Urbach and Tobias Grosser.*

Break (15:30 — 16:00)

Session 4: Benchmarks and Internals (16:00 — 16:40)

- GeMS: Towards Generating Millions of SCoPs. *Venkatakeerthy S, Nilesh Shah, Anilava Kundu, Shikhar Jain and Ramakrishna Upadrasta.*
- Which is the Best Farkas Multipliers Elimination Method? *Nassim Tchoulak, Adilla Susungi, Gianpietro Consolaro, Harenome Razanajato, Nelson Lossing, Zhen Zhang, Cedric Bastoul, Corinne Ancourt and Renwei Zhang.*

Session 5: Fault tolerance and Sparse Matrices (16:40 — 17:30)

- Modelling linear algebra kernels as polyhedral volume operations. *Karl F. A. Friebel, Asif Ali Khan, Lorenzo Chelini and Jeronimo Castrillon.*
- Sparse Tetris: Reconstructing Sparse Matrices with Polyhedra. *Gabriel Rodriguez and Louis-Noel Pouchet.*

Community news and closing notes (17:30 — 17:40)

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Keynote

Compilation and Optimization of Static Control Flow Programs: Polyhedral Compilation at Large

Louis-Noël Pouchet