

2nd Workshop on Memory-Centric Computing: Logistics

Dr. Geraldo F. Oliveira

<https://geraldofojunior.github.io>

ICS 2025

08 June 2025

Brief Self Introduction



■ Dr. Geraldo F. Oliveira

- ❑ Researcher @ SAFARI Research Group since November 2017
- ❑ I am in the job market for industry positions
- ❑ <https://geraldofojunior.github.io/>
- ❑ geraldofojunior@gmail.com (Best way to reach me)
- ❑ <https://safari.ethz.ch>

■ Research in:

- ❑ Computer architecture, computer systems, hardware security
- ❑ Memory and storage systems
- ❑ Hardware security, safety, predictability
- ❑ Fault tolerance
- ❑ Hardware/software cooperation
- ❑ ...

Get the Materials Online



<https://events.safari.ethz.ch/ics25-MCCSys/doku.php>

Organizers

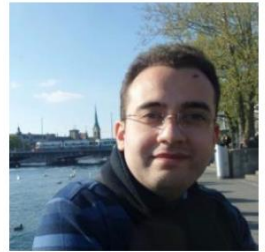
■ Dr. Geraldo F. Oliveira

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- ❑ I am in the job market for industry positions
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■ Dr. Mohammad Sadrosadati

- ❑ Senior Researcher and Lecturer, SAFARI @ ETH Zürich
- ❑ <https://scholar.google.com/citations?user=-mHpDvAAAAAJ>



■ Ataberk Olgun

- ❑ PhD Candidate, SAFARI Research @ ETH Zürich
- ❑ <https://ataberkolgun.com/>



■ Prof. Onur Mutlu

- ❑ Professor of Computer Science at ETH Zurich
- ❑ <https://people.inf.ethz.ch/omutlu/index.html>



Agenda Tutorial (Morning)

- **Prof. Onur Mutlu / Dr. Geraldo F. Oliveira:**
Recent Advances in Processing-in-DRAM
- Processing-Using-Memory (PUM) Systems – Part I
- **Coffee Break**
- **Ismail E. Yuksel**
Functionally-Complete Boolean Logic in Real DRAM Chips
- Processing-Using-Memory (PUM) Systems – Part II
- Processing-Near-Memory (PNM) Systems: Academia & Industry Developments – Part I
- **Lunch**

Agenda Workshop (Afternoon) – Part I

- Processing-Near-Memory (PNM) Systems: Academia & Industry Developments – Part II
- **Dr. Konstantina Koliogeorgi**
PIM Architectures for Bioinformatics
- Infrastructure for PIM Research & Research Challenges
- *Proteus*: Achieving High-Performance Processing-Using-DRAM with Dynamic Bit-Precision, Adaptive Data Representation, and Flexible Arithmetic
- **Coffee Break**

Agenda Workshop (Afternoon) – Part II

- **Taewoon Kang**

SparsePIM: An Efficient HBM-Based PIM Architecture for Sparse Matrix-Vector Multiplications

- **Prof. Elaheh Sadredini**

Keep it Close, Keep it Secure! Towards Efficient, Secure, and Programmable Memory-Centric Computing

- **Melina Soysal**

MARS: Processing-In-Memory Acceleration of Raw Signal Genome Analysis Inside the Storage Subsystem

- Closing Remarks

Next PIM Workshops (II)

ISCA 2025 - 3rd Workshop on Memory-Centric Computing Systems

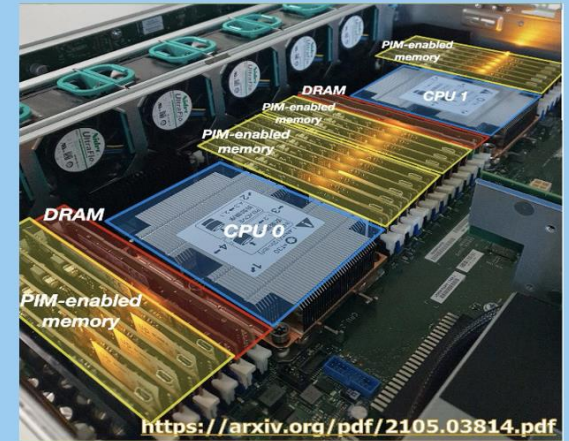
Saturday, 21st June, 2025, Tokyo, Japan

Organizers: Geraldo F. Oliveira, Dr. Mohammad Sadrosadati,
Ataberk Olgun, Professor Onur Mutlu

Program: <https://events.safari.ethz.ch/isca25-MCCSys/doku.php>



Overview of PIM | PIM taxonomy
PIM in memory & storage
Real-world PNM systems
PUM for bulk bitwise operations
Programming techniques & tools
Infrastructures for PIM Research
Research challenges & opportunities



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