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ICOOOLPS 2025 – Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems
Preface

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ABSTRACT ICOOOLPS 2025 — the International Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems — was held in Bergen, Norway, on July 2, 2025, co-located with ECOOP 2025.

KEYWORDS Compilation tools, Resource-sensitive Systems, Design Choices, Runtime Technologies.

Welcome to the 2025 edition of the *International Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS 2025)*, held in Bergen, Norway, on July 2, 2025, co-located with ECOOP 2025.

ICOOOLPS brings together researchers and practitioners working in the field of programming language implementation, compilation, and optimization. Although its origins are rooted in object-oriented programming, the workshop now embraces a broader perspective, encompassing a wide range of language paradigms and runtime technologies.

This year, we received eight submissions: seven full research papers and one lightning talk. Four full papers were accepted for presentation at the workshop, covering topics such as language runtime systems, compilation techniques, and performance engineering. The accepted contributions are:

– *Cellato: a DSL for Cellular Automata based on C++ Template Meta-programming* — Matyáš Brabec, Jiří Klepl, Martin Kruliš

– *Revisiting Borrow Checking with Abstract Interpretation* — Aurélien Coet, Didier Buchs
– *AST, Bytecode, and the Space In Between: An Exploration of Interpreter Design Tradeoffs* — Octave Larose, Michael Vollmer, Stefan Marr
– *Low Overhead Allocation Sampling in a Garbage Collected Virtual Machine* — Christoph Jung, C. F. Bolz-Tereick

We were pleased by the strong participation and high attendance throughout the workshop, reflecting our community's sustained engagement and confidence in the bright future of programming language research.

We were also honoured to host an invited keynote by **Eric Jul**, who presented *"Implementing Object Tracking in the Emerald Object-Oriented Language."* The talk introduced a new language mechanism for efficiently tracking and reporting object movements in a distributed object-oriented system, requiring coordinated extensions to both the Emerald language and its underlying virtual machine.

We would like to express our sincere gratitude to the members of the Program Committee for their exceptionally hard work and timely reviews under a very tight schedule. The committee was composed as follows:

– Edd Barrett, King's College London, United Kingdom
– Rodrigo Bruno, INESC-ID / Instituto Superior Técnico, Universidade de Lisboa, Portugal

- Aleksandar Prokopec, Oracle Labs, Switzerland
- Dimi Racordon, EPFL, Switzerland
- Adam Welc, Mysten Labs, United States
- Olivier Zendra, Inria, France

We also thank the ECOOP 2025 organizers for their support in hosting the workshop.

We hope that ICOOOLPS 2025 once again provided a stimulating environment for discussion and collaboration, and that the exchanges initiated during the workshop will continue to strengthen our research community.

About the Chairs

Andrea Rosà is a Senior Researcher and Lecturer at the Faculty of Informatics, Università della Svizzera italiana (USI), Switzerland. His research interests include analysis and optimization of large-scale parallel and distributed systems, concurrent computing frameworks, compiler optimizations, and benchmarking. You can contact the author at andrea.rosa@usi.ch.

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