

Welcome from the Program Chairs

On behalf of the Program Committee of the International Symposium on Code Generation and Optimization (CGO), we are delighted to present the papers featured in the 2024 edition of the conference. This year marks a significant milestone in the history of CGO, as the symposium embraced a dual-round submission process for the first time. The initial round had a deadline set on May 19th, 2023, while the second round followed the traditional CGO deadline on September 1st, 2023. Although the program committee remained consistent throughout both rounds, each round had distinct program co-chairs overseeing coordination. The first-round coordinators were Jingling Xue and Michel Steuwer, while the second-round coordinators were Fernando Pereira and Guilherme Ottoni.

The decision to implement two paper selection rounds was made by CGO's steering committee in 2023, aligning with practices already adopted by other conferences in the programming languages field, such as OOPSLA and ASPLOS. In retrospect, we consider this change highly beneficial: we received a total of 114 submissions, a notable increase compared to the 55 submissions received just a year ago. More importantly, the program committee had the opportunity to refine papers conditionally accepted in the first round, contributing to the creation of a robust program that upholds the prestige and excellence CGO has maintained throughout its history. In total, the program committee has selected 37 papers to appear in these proceedings.

Despite the dual-round submission process, reviewing adhered to the established modus operandi followed in previous editions of the conference. Submissions were double-blind, ensuring that authors remained unaware of the reviewers' identities, and vice versa. Yet, due to the double round of submissions, CGO introduced a new dynamic where papers could progress from the first to the second round of evaluation with major revisions. The increased number of submissions and the necessity to review the same work multiple times added to the workload of the program committee. We express our heartfelt gratitude to this committee for their dedicated efforts. This year, CGO benefited from the contributions of 41 committee members plus 14 external reviewers—experts specially invited to assess the quality of specific works.

Furthermore, CGO had an active Artifact Reviewing Committee comprising 47 researchers, competently coordinated by Roland Leissa and Andrés Goens. The committee awarded different artifact evaluation badges to 24 papers out of the 37 accepted submissions. Artifact evaluation has become integral to CGO, playing a crucial role in ensuring the reproducibility of scientific results and enhancing the

visibility of papers published in the conference. We aspire to witness this practice applied in more conferences, not only within computer science but in any domain where reproducibility is attainable.

In line with an enduring tradition, CGO 2024 boasts robust participation from industry researchers, with a total of 60 authors contributing to 16 out of the 37 presented papers. These researchers are affiliated with renowned entities such as Huawei, Intel, Meta, Microsoft, Google, AMD, Enclave, ARM, Intel, Codeplay, Uber, Nvidia, and Mitsubishi. The substantial involvement of the industry in CGO is no happenstance; compilers and runtime environments hold pivotal significance for the information technology sector. The evolution witnessed in computer science is invariably the outcome of extensive engineering effort dedicated to the design and implementation of code generation technologies.

Recognizing the critical role of these tools and runtime systems, CGO 2024 features two dedicated tracks. The first is the Tool Paper Track, which welcomes submissions detailing tools with practical significance. The second special track, the Experience Track, is open to works presenting authentic case studies. These contributions frequently encompass insights and concepts that empower fellow researchers and engineers to focus their endeavors on crafting effective solutions to persistent challenges that have long impeded the progress of hardware and software development.

In concluding this preface, we want to express our sincere gratitude to the individuals who helped in bringing this conference to fruition. Special thanks go to Tobias Grosser, the General Chair, whose unwavering support and prompt, precise responses have been invaluable. Our appreciation extends to CGO's steering committee—Aaron Smith, Ayal Zaks, Fabrice Rastello, Jingling Xue, Michel Steuwer, and Teresa Johnson—all of whom have chaired the program committee at different times. Their wealth of experiences and willingness to share insights significantly eased the process of organizing the double-round submission. Our heartfelt thanks also reach Kunle Olukotun, our keynote speaker, for graciously sharing his expertise on the development of efficient machine learning systems with the CGO community. Additionally, we acknowledge the contributions of Alexandra Jimborean, Amir Shaikhha, EunJung Park, Jackson Woodruff, and Martin Kong, who diligently handled various organizational aspects of the conference, including the publication of these proceedings. As we open the doors to CGO 2024, we welcome you to explore and benefit from the collective efforts of these remarkable individuals.

Guilherme Ottoni, Fernando Pereira, Michel Steuwer and Jingling Xue
CGO 2024 PC co-chairs
Edinburgh, March 2024