

MODULARITY 2014 – Chairs’ Welcome

These are the proceedings of the 13th *International Conference on Modularity (Modularity’14, formerly AOSD)* in Lugano, Switzerland. This year’s conference continues the tradition of being the premier international conference on modularity in software systems.

Modularity’14 addresses all aspects of modularity, abstraction, and separation of concerns as they pertain to software, including new forms, uses, and analysis of modularity, along with the costs and benefits, and tradeoffs involved in their application. The broadening in scope of the conference is also reflected in the change of its name: the International Conference on Aspect-Oriented Software Development (AOSD) has evolved to become the International Conference on Modularity.

Modularity provides the international computer science research community and its many sub-disciplines (including software engineering, languages, and computer systems) with unique opportunities to come together to share and discuss perspectives, results, and visions with others interested in modularity as well as in the languages, development methods, architectures, algorithms, and other technologies organized around this fundamental concept.

Modularity’14 comprises two main parts: Research Results and Modularity Visions. Both parts invited full, scholarly papers of the highest quality on results and new ideas in areas that include but are not limited to complex systems, software design and engineering, programming languages, cyber-physical systems, and other areas across the whole system life cycle.

Research Results invited papers on new ideas and results, stressing the contribution of significant new research with rigorous and substantial validation of its technical claims, based on scientifically sound reflections on experience, analysis, experimentation, or formal models, and emphasizing compelling new ideas. The review process consisted of two rounds, as a further development of the multi-round model that has been used for four years at this conference. The outcome in the first round could be ‘accept’ and ‘reject’ as usual, but also ‘reject, with a recommendation to resubmit’. The intention behind the third outcome is to push for improvements to papers that are promising, but not quite ready; and letting the same reviewers judge the improved paper. The multi-phase model is being used by multiple conferences in its own right, but it could also be considered to be a highly extended version of the well-known concept of an author response period. It is definitely our experience that this mechanism produces significant improvements in several papers, and we are very happy about the high quality of the selected papers. The Program Committee (PC) meetings were online meetings, heavily supported by online discussions in smaller groups. Submissions where one or more of the authors were members of the PC were reviewed and decided by the External Review Committee (ERC) before the PC meetings, such that the PC was totally isolated from the processing of PC papers. All papers had at least three reviews, and PC papers had at least four reviews. The papers live up to the changed name and broadened scope, including such topics as language mechanisms, semantics, program correctness proofs, user studies (where the user is a programmer), software evolution, concurrency, and more.

Modularity influences system diversity, dependability, performance, evolution, the structure and the dynamics of the organizations that produce systems, human understanding and management of systems, and ultimately system value. Yet the nature of and possibilities for modularity, limits to modularity, the mechanisms needed to achieve it in given forms, and its costs and benefits remain poorly understood. Significant advances in modularity thus are possible and promise to yield breakthroughs in our ability to conceive, design, develop, validate, integrate, deploy, operate, and

evolve modern information systems and their underlying software artifacts. Modularity Visions invited submissions presenting compelling insights into modularity in information systems, including its nature, forms, mechanisms, consequences, limits, costs, and benefits, and proposals for future work. Modularity Visions followed a two-phase review process. The first reviewing phase assessed the papers and resulted in the selection of a subset of submissions that were either accepted as-is or deemed potentially acceptable, with all other papers being rejected in this phase. Authors of potentially accepted papers were requested to improve specific aspects of the papers in keeping with the assessment criteria and the nature of Modularity Visions. Authors were given about two months to perform the revisions, after which a second submission occurred. The second submission should have reflected the revision requests sent to the authors. The second and final reviewing phase assessed how the revision requests have been acted upon by the authors, and whether the final paper improved the original submission.

Research Results attracted 53 submissions and accepted 20 papers; of these submissions, five were resubmissions, but they were, of course, extensively rewritten. Modularity Visions received seven submissions and accepted one. Altogether, 21 papers out of 60 submissions were accepted, yielding an acceptance rate of 35%.

The Modularity'14 program includes three keynotes: Julia Lawall from Inria on *Coccinelle: Reducing the Barriers to Modularization in a Large C Code Base*, Eelco Visser from TU Delft on *Separation of Concerns in Language Definition*, and Thomas Würthinger from Oracle Labs on *Graal and Truffle: Modularity and Separation of Concerns as Cornerstones for Building a Multipurpose Runtime*.

Putting together Modularity'14 was a team effort. First of all, we would like to thank the authors and the keynote speakers for providing the contents of the program. We would like to express our gratitude to the program committees, to the external review committee, and to all reviewers, who worked very hard on reviewing papers and providing detailed suggestions for their improvement. We would also like to thank Danilo Ansaloni, this year's Publicity Chair. Special thanks go to Elisa Larghi for helping with the local organization of Modularity'14 and to Giacomo Toffetti Carughi for the design and maintenance of the conference web pages. We thank Hidehiko Masuhara, the General Chair of MODULARITY:aosd.13, for his support. We would like to thank our supporters, the University of Lugano, Oracle Labs, and the city of Lugano. We also thank ACM SIGPLAN and ACM SIGSOFT for their continued support of the Modularity conference.

We hope that you will find this program inspiring and compelling, and that the conference will provide you with a valuable opportunity to share ideas with other researchers and practitioners from institutions around the world.

Walter Binder
General Chair
University of Lugano, Switzerland

Achille Peternier
Organizing Chair
University of Lugano, Switzerland

Erik Ernst
Program Chair Research Results
Aarhus University, Denmark

Robert Hirschfeld
Program Chair Modularity Visions
Hasso-Plattner-Institut Potsdam, Germany