

Quality Verification Tools for Quality Software

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Abstract:

Quality software requires complex verification activities. Such activities cannot be practically and reliably performed without extensive use of tools. Poor-quality verification tools either result into higher costs of the verification process or fail their goal altogether, delivering a false sense of security instead of the promised quality for the developed software. There are well-engineered verification tools that are based on obsolete technology, to the point of ignoring 30+ years of research in software verification. There also are theoretically-sophisticated tools that fall short of their objectives due to poor engineering. In this talk I will illustrate what I believe are the most important pitfalls of the design of software verification tools, drawing on the experience of the BUGSENG's team that developed the ECLAIR software verification platform. The talk will highlight some key features one should pay particular attention to when looking for a high-quality software verification tool.

Biography:



Roberto Bagnara is a Professor of Computer Science at the University of Parma and a member of the Board of Professors of the Ph.D. School on Mathematics and Statistics for the Computational Sciences of the University of Milan. He is active, since 20 years, in the fields of program analysis and verification, abstract interpretation and, more generally, semantics-based program manipulation. He coauthored around 40 papers that have been published in international journals and proceedings of international conferences with referees. The research of Roberto Bagnara joins the scrupulous investigation on the theoretical foundations to experimental validation and the application in concrete contexts. He has been the inspirator and the principal architect of several

software projects in the above mentioned research field, among which the Parma Polyhedra Library (PPL), a widely-used library of numerical abstractions especially targeted at applications in the field of analysis and verification of hardware and software. He is deeply involved in the transfer of the best software verification technology to industry: this is the mission of BUGSENG, a spin-off company of the University of Parma he co-founded in 2011.