

Compositional Program Analysis using Max-SMT

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Sala de Grados - Lunes 19 de Marzo de 2018 - 14:00
Entrada libre hasta completar el aforo

Resumen:

Recent developments on SMT solvers for non-linear polynomial constraints have become crucial to make the template-based (or constraint-based) method for program analysis effective in practice. Moreover, using Max-SMT (its optimization version) is the key to extend this approach to develop an automated compositional program verification method based on generating conditional inductive invariants. We build a bottom-up program verification framework that propagates preconditions of small program parts as postconditions for preceding program parts and can recover from failures when some precondition is not proved. These techniques have successfully been implemented within the VeryMax tool which currently can check safety, reachability and termination properties of C++ code. In this talk we will provide an overview of the Max-SMT solving techniques and its application to compositional program analysis.

Sobre Albert Rubio Gimeno:

Albert Rubio is Full Professor at the Technical University of Catalonia - BarcelonaTech. He started his research on automated deduction and (higher-order) rewriting. He has also worked in the development of SMT solvers within the Barcelogic team and more recently on the application of SMT and Max-SMT solvers in program analysis. Albert is Chair of the Steering Committee of the International Termination Competition, has been invited speaker at RTA and LOPSTR, and has been PC member in many international conferences.