CITY UNIVERSITY OF HONG KONG

DEPARTMENT OF ELECTRONIC ENGINEERING & IEEE HK SECTION CAS/COM CHAPTER

Presents a seminar on

Canonical computation without canonical representation

Dr Alan Mishchenko
Senior Researcher
Electrical Engineering and Computer Sciences
University of California, Berkeley

Date   : 10 May 2019 (Friday)
Time   : 10:00am – 11:00 am
Venue : G6302, 6/F, Green Zone, Yeung Kin Man
            Academic Building, CityU

Abstract

A computation is canonical if the result depends only on the Boolean function and a selected variable order, and does not depend on how the function is represented and how the computation is implemented. In the context of Boolean satisfiability (SAT), canonicity implies that the result (a satisfying assignment for satisfiable instances and a UNSAT core for unsatisfiable ones) does not depend on the circuit structure, CNF generation algorithm, and the SAT solver used. The main highlight of this paper is that all SAT-based computations can be made canonical without building a canonical data-structure. The runtime overhead for inducing canonicity is relatively small and is often justifies by the uniqueness and the improved quality of results.

Biography

Alan graduated with M.S. from Moscow Institute of Physics and Technology (Moscow, Russia) in 1993 and received his Ph.D. from Glushkov Institute of Cybernetics (Kiev, Ukraine) in 1997. In 2002, Alan joined the EECS Department at University of California, Berkeley, where he is currently a full researcher. His research is in computationally efficient logic synthesis and formal verification.

~~~ All are welcome ~~~