

A Case Study on Context Maintenance in Dynamic Hybrid Race Detectors

SPEAKER Mr POBEE Ernest Bota

PhD Student
Department of Computer Science
City University of Hong Kong
Hong Kong

DATE 25 August 2017 (Friday)

TIME 10:00 am - 10:30 am

VENUE G7315, 7th Floor, Green Zone
Yeung Kin Man Academic Building
City University of Hong Kong
83 Tat Chee Avenue
Kowloon Tong

ABSTRACT

Many dynamic hybrid race detectors aim at detecting violations of the lockset discipline in execution traces of multithreaded programs. They are designed to abstract memory accesses appearing in traces as contexts. Nonetheless, they keep these contexts in different extents and partition the sets of contexts into equivalent classes by different granularity. In our case study, we compare three detectors using the PARSEC benchmark suite to examine the impact of using unrestricted strategy or restricted strategy for keeping these contexts in sequence on detection effectiveness, and the impact of partitioning context sequences by different granularities on scalability in time cost. The case study results indicate that using restricted context sequences sufficed to detect very high proportions of locking discipline violations detectable by using unrestricted context sequences, and the partitioning of context sets into finer equivalent classes significantly lowers the scalability in time cost with increasing number of threads to handle the same input workload.

This paper was presented at the 2017 IEEE International Computer Software and Applications Conference (COMPSAC), 2-9 July 2017, Turin, Italy.

Supervisor: Dr CHAN Wing Kwong Ricky

Research Interests: Deterministic Replay; Data Races

All are welcome!



In case of questions, please contact Dr W K Chan at Tel: 3442 9684, E-mail: wkchan@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/news/seminars/seminars.html>.

