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Special Guest Lectures

Exploiting Parallelism in Logic Programming and Non-monotonic Reasoning Systems

Hung Le, Computer Science Department, New Mexico State University

Applicant for the CCT IT Analyst Position in the CyD

Johnston Hall 338
February 21, 2007 - 10:00 am

Abstract:
Logic-based and non-monotonic formal systems (LPNMR) have grown in popularity over the last few years, as they provide formal and executable frameworks to describe the capabilities of intelligent software agents and to reason about them (e.g., for the purpose of planning or diagnosis). In spite of the fantastic efforts in developing efficient implementations (e.g., current LPNMR inference engines can easily handle knowledge bases with hundreds of thousands of rules), there are important application domains that are beyond the computational reach of existing sequential systems. In this project, we explore the use of parallelism as an avenue to expand efficiency and applicability of LPNMR systems. We explore the major issues involved in the automatic exploitation of parallelism from the execution models of logic-based non-monotonic reasoning systems. We describe orthogonal techniques to parallelize the computation of models of non-monotonic logic theories, and investigate a wide range of various sharing strategies and alternative dynamic schedulers to demonstrate the effectiveness of the proposed techniques in prototypical implementation.

Speaker's Bio:
Hung Le is currently a PH.D. student in Computer Science at New Mexico State University. He received his M.S. in Computer Science from Asian Institute of Technology, and his B.S. in Computer Science from Hanoi University of Technology. His research interests include research on high performance computing on logic programming and the satisfiability problem (concentrated on load sharing strategies and the scheduling tasks); designing and developing a first complete parallel solver system for answer set programming, including development in MPI, Java, C++ for Linux on Beowulf Clusters, and system Jsmodels and parallel Jsmodels.

Refreshments will be served.
This lecture has a reception.