ΤΜΗΜΑ ΜΗΧΑΝΙΚΩΝ Η/Υ ΚΑΙ ΠΛΗΡΟΦΟΡΙΚΗΣ · ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING · UNIVERSITY OF IOANNINA

Σ Ε Μ Ι Ν Α Ρ Ι Ο Τ Μ Η Μ Α Τ Ο Σ

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ΗΜΕΡΟΜΗΝΙΑ: **Παρασκευή, 23 Φεβρουαρίου 2018**

ΩΡΑ: 12:00

ΑΙΘΟΥΣΑ: Αίθουσα Σεμιναρίων (ισόγειο Ι11)
Κτήριο Τμήματος Μηχανικών Η/Υ& Πληροφορικής

Θέμα

Interval Joins: Evaluation, Parallelization, Aggregation

Περίληψη

The interval join is a basic operation that finds application in temporal, spatial, and uncertain databases. In this talk, I will present our recent research findings on the evaluation of interval joins. In our work, we explore the applicability of a largely ignored forward scan (FS) based plane sweep algorithm, which is extremely simple to implement. We propose two optimizations of FS that greatly reduce its cost, making it competitive to the state-of-the-art single-threaded interval join algorithm while achieving a lower memory footprint. In addition, for the parallel processing of interval joins, we study a domain-based partitioning approach that does not produce duplicate results. Within our approach we propose a novel breakdown of the partition-level join into a small number of independent mini-join jobs with varying cost and manage to avoid redundant comparisons. We show how these mini-joins can be scheduled in multiple CPU cores and suggest an adaptive domain partitioning, aiming at load balancing. Finally, we study the evaluation of a temporal aggregation operation, which can be used for selecting or ranking intervals based on the number of join pairs they appear in. For this problem, we present an algorithm that generates the result at the cost of only scanning the sorted interval endpoints.

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