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**DEPARTMENT of COMPUTER AND INFORMATION SCIENCE**

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# "Restructuring Hyper-cubes Based on Usage Profiling"

by

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**Date : 18/11/2010 (THURSDAY)**
**Time : 11:30-12:30**
**Venue : L307B**

## Abstract

OLAP platforms are quite spread nowadays covering a lot of application domains. Supporting decision making activities or proving high-level structured information for reporting, they have been assumed a very important role in any organization. As their importance raise, OLAP systems administrators begin to worried a little bit more than before about the huge resources consumed with hyper-cubes (cubes, for short) implementation and exploitation. Cubes are usually designed and materialized according to the analysis requisites of decision-making agents. Without knowing a priori what data they will use, for a specific period of

time, OLAP systems administrators don't have any other chance than to materialize all the data required by them. As time passes, it is easy to show that a great part of the cubes are simply not used – clearly, cubes' data is oversized. In this seminar we will present some methods and techniques to evaluate the usage of an OLAP system, and establish OLAP usage profiles based on users' querying sessions. Combining querying analysis with OLAP sessions, Markov chains and equivalence classes, we will show how to propose a new structure for a hyper-cube based on its exploitation. Our goal is simple: to reduce hyper-cube materialization processing time and storage, providing smaller cubes with the same satisfaction level.

Area: On-Line Analytical Processing (OLAP)
Keywords: OLAP Usage Profiling, OLAP Sessions, Markov Chains, Equivalence Classes, and Hyper-Cube Selection and Restructuring.

## Biography

"Orlando Belo is an associate professor in the Department of Informatics at University of Minho, Portugal. He is a member of the Department of Informatics at University of Minho since 1986, and a member of the Computer Science and Technology Center, at the same university, working in areas like Databases, Data Warehousing Systems, OLAP, and Data Mining. His main research topics are related with data warehouse design, implementation and tuning, ETL services, and distributed multidimensional structures processing. During the last few years he was involved with several projects in the decision support systems area designing and implementing computational platforms for specific applications like fraud detection and control in telecommunication systems, data quality evaluation, and ETL systems for industrial data warehousing systems. He received a 5-year degree in Systems and Informatics Engineering in 1986, done "Provas de Aptidão Pedagógica e Capacidade Científica" (MSc equivalent) in 1991 in the Expert Systems area, and finished its Ph.D. thesis in Multi-Agent System in 1998 in the Department of Informatics at University of Minho. During the last few years, he published several scientific works, most of them in international conferences with peer reviewing, related to his main researching areas, with particular emphasis in Data Warehousing Systems, and Data Mining applications."

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