UNIVERSITÀ DELLA CALABRIA

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Summer lectures in Artificial Intelligence

Speaker: **Prof. Leonid Libkin, University of Edinburgh, UK**

Title: **Efficient Computation of Certain Answers: Breaking the CQ Barrier**

Abstract: Computing certain answers is the standard way of answering queries over incomplete data; it is also used in many applications such as data integration, data exchange, consistent query answering, ontology-based data access, etc. Unfortunately certain answers are often computationally expensive, and in most applications their complexity is intolerable if one goes beyond the class of conjunctive queries (CQs), or a slight extension thereof. However, high computational complexity does not yet mean one cannot approximate certain answers efficiently. In this talk we survey several recent results on finding such efficient and correct approximations, going significantly beyond CQs. We do so in a setting of databases with missing values, and first-order (relational calculus/algebra) queries. Even the class of queries where the standard database evaluation produces correct answers is larger than previously thought. When it comes to approximations, we present two schemes with good theoretical complexity. One of them also performs very well in practice, and restores correctness of SQL query evaluation on databases with nulls.

Short Biography: Leonid Libkin is Professor of Foundations of Data Management in the School of Informatics at the University of Edinburgh. He was previously a Professor at the University of Toronto and a member of research staff at Bell Laboratories in Murray Hill. He received his PhD from the University of Pennsylvania in 1994. His main research interests are in the areas of data management and applications of logic in computer science. He has written five books and over 200 technical papers. His awards include a Marie Curie Chair Award and five Best Paper Awards. He has chaired programme committees of major database conferences (ACM PODS, ICDT) and was the conference chair of the 2010 Federated Logic Conference. He is a fellow of the ACM, a fellow of the Royal Society of Edinburgh, and a member of Academia Europaea.

Date	Time	Room
July, 20, 2016	11:00	MT10-30B