

*Summer lectures in Artificial Intelligence*

**Speaker:** Prof. Georg Gottlob, Oxford University, UK

**Title:** Living with computational complexity

**Abstract:** Many computational problems that are important in real life are intractable. There are different ways of coping with intractability.

This talk will focus, in particular, on methods of recognizing large "islands of tractability" for NP-hard problem, i.e., large tractable subclasses.

We will illustrate the use of graph-theoretic concepts such as treewidth and hypertree width in order to obtain large polynomial classes of intractable problems. In addition, we will mention a number of other ways for coping with complexity and illustrate how Logic Programming may help to recognize that a problem is actually tractable. The talk will end with some thoughts of more philosophical nature about the genesis of computational complexity.

**Short Biography:** Georg Gottlob is a Professor of Informatics at Oxford University, a Fellow of St John's College, Oxford, and an Adjunct Professor at TU Wien. His interests include knowledge representation and reasoning including ontological reasoning, logic and complexity, database theory, graph decomposition techniques, and web data extraction. Gottlob has received the Wittgenstein Award from the Austrian National Science Fund, is an ACM Fellow, an ECCAI Fellow, a Fellow of the Royal Society, and a member of the Austrian Academy of Sciences, the German National Academy of Sciences, and the Academia Europaea. He chaired the Program Committees of IJCAI 2003 and ACM PODS 2000. He is currently a member of the editorial boards of journals, such as JACM and JCSS. He was the main founder of Lixto ([www.lixt.com](http://www.lixt.com)), a company that provides datalog-based tools and services for web data extraction which was recently acquired by McKinsey & Company. Gottlob was awarded an ERC Advanced Investigator's Grant for the project "DIADEM: Domain-centric Intelligent Automated Data Extraction Methodology" (see also <http://diadem.cs.ox.ac.uk/>). Based on the results of this and other projects, he recently co-founded in 2015 the Wrapidity company at Oxford. More information on Georg Gottlob can be found on his Web page: <http://www.cs.ox.ac.uk/people/georg.gottlob/>.

Date  
September, 2016

Time  
11:00

Room  
University Club