PODS Invited Talks

Keynote

How Can Reasoners Simplify Database Querying (And Why Haven't They Done It Yet)?

Speaker: Michael Benedikt (Oxford University)

Abstract

This talk will be a reflection on the state of tools and algorithms for applying reasoning to simplify database querying. What's been done, and how well did it work? One motivation for this comes from within database theory, where a huge amount of research has been devoted to reasoning problems. The work spans several decades and includes a wide range of problems, including query equivalence, query simplification, and many flavors of query transformation/rewriting. It's a good moment to try to make sense of what's been done, highlighting some accomplishments as well as gaps. A second motivation comes from outside of database management, where there has been enormous progress in the development of reasoning systems. The advances have not only been in theory, but in system building, engineering, and the development of a robust culture of experimental evaluation. It's worthwhile examining how work on reasoning for query simplification and transformation within data management -- the stuff done at database conferences like PODS -- fits within the larger landscape of automated reasoning. It's also useful to consider how the increasing maturity of reasoning systems could be harnessed to solve database querying problems.

Bio

Michael Benedikt is a professor at Oxford University's computer science department, and a fellow of University College Oxford. He came to Oxford after a decade in US industrial research laboratories, including a position as Distinguished Member of Technical Staff at Bell Laboratories. He has worked extensively in computational logic, finite model theory, verification, and data management, and specializes in the interaction between these topics. He has been a keynote in past meetings on mathematical logic, computational logic, description logics, and databases. He has co-authored papers receiving best paper awards and test-of-time awards in major conferences within databases and theoretical computer science, and he has served as the program chair of both the ACM Principles of Database Systems conference (2012) and the International Conference on Database Theory (2017). He currently holds an Established Career Fellowship from the UK's Engineering and Physical Science's Research Council, and serves on the steering committees for the Association for Symbolic Logic, the European Association for Theoretical Computer Science, and the International Conference on Database Theory.

Tutorial 1

Blockchains: Past, Present, and Future

Speaker: Arvind Narayanan (Princeton University)