**Invited Talk**
Department of Computer Science and Engineering
Indian Institute of Technology Kanpur

## Automating Common Sense Reasoning

Gopal Gupta
Department of Computer Science
The University of Texas at Dallas

**Abstract:** In this talk I will discuss the problem of automating common sense reasoning. I will first give an introduction to answer set programming (ASP), a rule-based paradigm for programming intelligent applications. ASP is based on non-monotonic logic, frequently employed in common sense reasoning where conclusions may be withdrawn as more information becomes available. ASP allows simulation of reasoning techniques that humans employ on a daily basis---default reasoning, counterfactual reasoning, abductive reasoning, preferences, etc. I will then give an overview of the s(ASP) system, a query-driven predicate answer set programming system developed by my group. The s(ASP) system overcomes many practical limitations faced by the current ASP systems.  I will also discuss applications of ASP (and the s(ASP) system) to various domains:  web-based recommendation systems, undergraduate degree audit and advising, disease                      management,                      Internet-of-Things,                      etc.

**Bio:** Gopal Gupta is the head of the Computer Science Department at the University of Texas at Dallas where he holds the Erik Jonsson professorial chair. He has conducted research in automated reasoning, computational logic, programming languages, parallel computing, and assistive technology and has published extensively in these areas. His group has also authored many software systems, including the s(ASP) answer set programming system.  His research work has also resulted in commercial software systems that have formed the basis of two start-up companies. His group has won several best-paper awards as well as the ICLP 2016 test-of-time award for his work on coinductive logic programming, the technique that serves as the foundation of the s(ASP) system. He obtained his MS & PhD degrees from UNC Chapel Hill and his B.Tech in Computer Science from IIT Kanpur, India. He serves as an area editor of the Journal of Theory and Practice of Logic Programming, as well as in the executive board of the Association for Logic Programming, of which he was also the president in the past.