The Universities of York and Leeds present the

Ninth
Knowledge Representation and Reasoning
Distinguished Lecturer

Peter van Beek

Professor van Beek will deliver two talks, both aimed at a general audience of computer scientists. The public is invited to attend these talks and the receptions afterwards.

Constraint Programming for Compiler Optimisation

13:30, Wednesday, 10 March 2004
Haycock Lecture Theatre (Room CS/103)
Department of Computer Science
University of York

Many interesting optimization problems arise in compilers. Currently, these problems are solved heuristically in production compilers. However, techniques such as constraint programming have improved sufficiently that optimal yet fast approaches are now possible. In this talk, I will introduce constraint programming through a simple example. I will then focus on our current work in instruction scheduling, one of the most important steps for improving the performance of object code produced by a compiler. The work has led to optimal and (mostly) fast schedulers as well as to improvements in constraint propagation algorithms that are useful in many other problems.

Finding Needles in Haystacks
Search Algorithms for Constraint Programming

14:00, Thursday, 11 March 2004
Staff Room, 9.21
EC Stoner Building
School of Computing
University of Leeds

Constraint programming is a simple paradigm. One models a problem by stating constraints on acceptable solutions and then uses a general purpose search algorithm to find a solution which satisfies the constraints. The approach is powerful and has led to state-of-the-art solutions to many important problems. In this talk, I will review the fundamental techniques of constraint programming and then discuss a long-standing research program that I and others have pursued on determining which backtracking search algorithms are the best.

———————————— • ————————————

About the Speaker: Peter van Beek is a Professor in the Department of Computer Science at the University of Waterloo, Canada. He received his PhD in 1990 from the University of Waterloo and at that time joined the faculty at the University of Alberta. Ten years later he returned to Waterloo.

He is well-respected for his work on the fundamental techniques of constraint programming as well as their applications to problems in planning, sequencing, scheduling and temporal reasoning. He has co-authored four papers that have won awards: Honorable Mention Award for Best Written Paper at the 1992 National Conference of the American Association for Artificial Intelligence, Outstanding Paper Award at the 1995 International Joint Conference on Artificial Intelligence, Best Paper Award at the 2001 Canadian Conference on Artificial Intelligence, and Best Paper Award (Innovative Applications Track) at the 2001 International Conference on Principles and Practice of Constraint Programming.

About the Lecture Series: This lecture series is sponsored and organised by the Department of Computer Science at the University of York and the School of Computing at the University of Leeds. Its purpose is to promote the strong research interests that both departments have in knowledge representation and reasoning. Further information can be found at http://www.cs.york.ac.uk/aig/seminars/dist.html.

For further information contact either:

Alan Frisch, Department of Computer Science,
    University of York, York YO10 5DD.
    phone: +44 (1904) 432745
    email: frisch@cs.york.ac.uk

Diane Collett, School of Computing,
    University of Leeds, Leeds LS2 9JT.
    phone: +44 (113) 343 1708
    email: dianec@comp.leeds.ac.uk