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PREFACE

These proceedings contain the eighty-nine papers presented at CIVIL-COMP 89, The Fourth International Conference on Civil and Structural Engineering Computing which was held at the City University, London during 19th-21st September 1989. The thirty six papers presented at the Artificial Intelligence CIVIL-COMP 89 are published in "Artificial Intelligence Applications and Techniques for Civil and Structural Engineers", Civil-Comp Press, 1989 *(ISBN 0-948749-13-X)*.

The first conference in the CIVIL-COMP series was held in London during November 1983 and concentrated on the application of micro and mini computers to civil and structural engineering. Forty papers were presented at that conference which was opened by David Taffs of Ove Arup & Partners, London. Owing to the greater number of participants, the 1985 conference was held at the Institution of Civil Engineers, London. One hundred and thirty-four papers, covering a wide range of applications, were presented. The hardware discussed ranged from the Cray X/MP supercomputer to programmable calculators. Eighty-seven papers were presented at the 1987 meeting which was also held at the Institution of Civil Engineers, London. In 1987, sixteen other papers were presented on applications of artificial intelligence to civil and structural engineering. These sixteen papers were published with reprints of five artificial intelligence papers from the 1985 conference in "The Application of Artificial Intelligence Techniques to Civil and Structural Engineering", Civil-Comp Press, 1987 *(ISBN 0-948749-06-7)*.

In 1983, many practising engineers were apprehensive of the use of computers in civil engineering. In particular, the use of microcomputers was a source of much debate. Today, the role of the microcomputer is taken for granted. In 1989, the use of expert systems appears to have become a topic of heated debate. The same luddite criticisms which were levelled at microcomputers in 1983 are now being made of expert systems in 1989. It is sad that for the most part industry has failed to solve a number of practical problems which hamper the efficient use of computers in practice. Among these must come compatibilty for data; graphics and other communication between systems.

I would particularly like to thank David Taffs of Ove Arup and Partners for his contribution to each of the four meetings and his general support of the CIVIL-COMP series of meetings. I should also like to express my gratitude to all those members of the Editorial Board without whose help it would have been difficult to organise such broad based confercences. The assistance of the sponsors in organising the meeting is greatly appreciated. In particular, I am very pleased that this conference was held in and sponsored by The Department of Civil Engineering, City University, London since I was both an undergraduate and postgraduate student in the Department. I would like to thank Dr M. R. Barnes and Professor K.S. Virdi for their valuable help in organising this conference at the City University.

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September 1989