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Towards Geometric Engineering

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Preface

Computational geometry (CG), as a discipline, has been intended to provide algorithmic foundations and analytic tools for geometric problems encountered in many fields of science and engineering. These include computer graphics, solid modeling, robotics, manufacturing, computer vision, astrophysics, geographical information systems, fluid dynamics, computational biology, etc. However, despite the wealth and abundance of literature and research, the intended technology transfer has been slow and limited.

The core of computational geometry can be enriched by new problem domains. At the same time, exposure to various applications will help in making CG more directly relevant. Today, computational geometry is in transition. To narrow the gap between theory and practice, a number of workshops have been organized in the last few years. Continuing the trend, the First ACM Workshop on Applied Computational Geometry (WACG), held as part of the second *Federated Computing Research Conference* (FCRC'96), was intended to bring together theorists and practitioners in computational geometry and related application areas. The main objectives were to identify factors that hinder timely and effective technology transfer and to foster dialogue and collaboration among different communities.

This volume contains invited contributions, state-of-the-art reports, and 12 contributed papers presented at WACG. The contributed papers were selected from a total of 32 submissions on the basis of the quality of the results and their relevance to the theme of the workshop.

We would like to thank Chee Yap for proposing the idea of organizing such a workshop at FCRC'96 and the Computational Geometry Advisory Committee for providing suggestions in the early planning stage. We are grateful to the Program Committee members for reviewing all the submissions. We wish to acknowledge the sponsorship of ACM SIGACT and SIGGRAPH, and additional support from the U.S. Army Research Office and National Science Foundation. Finally, we would like to thank all the speakers, panelists, and authors who contributed to this workshop.

We hope that the effort in organizing this workshop will start a new trend of *geometric engineering* and encourage cross-fertilization among different communities which share the use of geometric algorithms and techniques for applications in sciences, engineering, and computing.

August 1996   Ming C. Lin
                                                                              Dinesh Manocha

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