

# Preface

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Two years ago the AAAI/SIGMAN (American Association for Artificial Intelligence/Special Interest Group in Manufacturing) broke with tradition and held a summer workshop that was *not* colocated with the annual AAAI conference in order to attract more industry and government laboratory participants. The focus of this workshop was current successes and issues related to applying new Artificial Intelligence research in manufacturing. The first (1996) Artificial Intelligence and Manufacturing Workshop focused on research planning and yielded a report summarizing much of the progress and issues in the field, along with a proceedings containing relevant papers. SIGMAN decided as a group to continue this workshop venue by holding the Artificial Intelligence and Manufacturing Workshop on a biannual basis in the US and supporting an international manufacturing workshop at IJCAI (International Joint Conference for Artificial Intelligence) during the alternating years. This year's workshop focus was the State of the Art and State of the Practice.

The field of AI has undergone some dramatic changes in the last several years, rendering its application to manufacturing problems much more near-term and cost-effective for industry and government. This is particularly true in the more data-oriented technologies such as machine learning, data mining, and the combination of such data with more conventional, knowledge-rich representations. The combination of control theory and data-driven AI techniques has also proven to be successful.

This explosion in AI techniques and applications has led to some confusion in the field. The number of conferences and workshops vying for participants has increased exponentially; it is difficult to maintain focus and community in this environment. This workshop has been established for the purpose of pulling together researchers, practitioners, and fiscal/program planners to exchange research results and potential application areas, to discuss the issues related to combining research and applications, to share successes, and to support planning of programs and initiatives in this rapidly-expanding field.

The papers contained herein are organized under four broad headings:

1. Intelligent product and process design
2. Production planning and scheduling
3. Robotics, sensors, and control
4. Systems engineering, learning, and architectures

To emphasize broad-based coverage and consensus on issues, we solicited participation from within the programs of several organizations that sponsor or are otherwise involved in intelligent manufacturing research. The organizations include the National Science Foundation, Sandia National Laboratories/Department of Energy, the National Institute of Standards and Technology, and the Defense Advanced Research Projects Agency. We gratefully acknowledge the contributions of each of these organizations, along with that of AAAI and AAAI Press, which made the workshop possible.

The workshop is a collaborative effort supported by the time and talents of a number of people from a variety of organizations. The efforts of the organizing committee members are greatly appreciated. Many thanks to Linda Daniels who put in her time coordinating the workshop and making it a success.