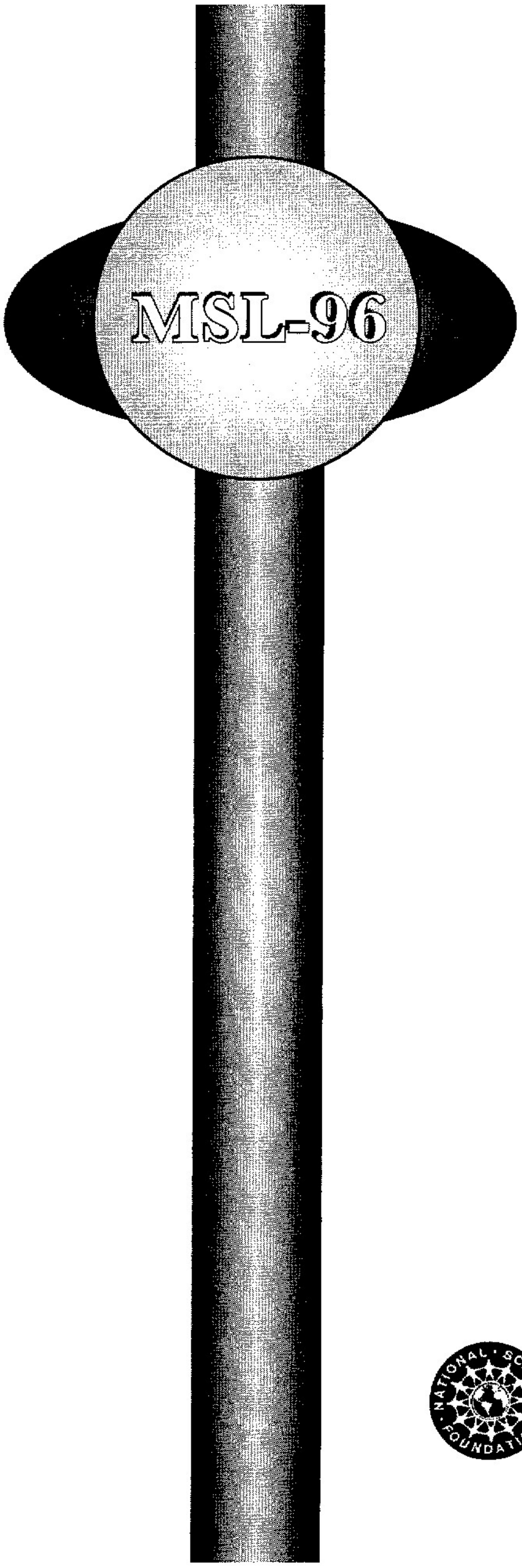
PROCEEDINGS OF THE THIRD INTERNATIONAL WORKSHOP ON MULTISTRATEGY LEARNING (MSL-96)

Edited by

R. S. Michalski
J. Wnek

Harpers Ferry, WV, May 23-25, 1996.



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Edited by Ryszard S. Michalski
and Janusz Wnek

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Foreword

This volume contains papers presented at the Third International Workshop on Multistrategy Learning (MSL-96), held in Harpers Ferry, WV, May 23-25, 1996. The workshop was organized by the Machine Learning and Inference Laboratory at George Mason University, with the collaboration of the International Joint Conferences on Artificial Intelligence, Inc. Support for the workshop was provided by the National Science Foundation, Office of Naval Research and American Association for Artificial Intelligence.

The theme of the workshop, multistrategy learning, concerns theoretical and empirical issues in the development of learning systems that employ multiple inferential and/or computational strategies. The study of such systems draws upon the achievements in all other research subareas of machine learning, and constitutes a major new research challenge for this field. As humans are multistrategy learners, multistrategy learning has a natural connection to cognitive studies of learning, and provides an excellent opportunity for cross-fertilization of these two areas. Due to their versatility and the ability to integrate complementary strategies, multistrategy learning systems have a potential for solving more complex learning problems than monostrategy systems, which have so far been the main focus of machine learning research. Multistrategy learning workshops serve as a forum for presenting and discussing research progress in this area. MSL-96 is a sequel to the previous workshops, MSL-91 and MSL-93, also organized by the GMU Machine Learning and Inference Laboratory.

Papers in this volume present a sample of the recent research on multistrategy learning conducted at major research laboratories in Australia, Austria, Belgium, France, Germany, Italy, Japan, New Zealand, Poland, and the United States. This indicates a truly international research interest in this area. Major topics of the workshop include: the study of interrelationships among learning strategies and paradigms, cognitive models of learning and their relationships to methods and paradigms of machine learning, the development of multistrategy learning systems, and their practical applications. The papers have been grouped into four categories, according to their primary themes:

Theoretical Issues
Cognitive Models
Methods and Systems
Special Topics and Applications.

The organizers thank all of the individuals and organizations for making this workshop possible, in particular:

Larry H. Reeker, Program Director of the Knowledge Models and Cognitive Systems Program at the National Science Foundation, and Michael O. Shneier, Program Director of Artificial Intelligence at the Office of Naval Research, for their interest and support that was indispensable to the organization of this workshop.

Ray Perrault, President of the International Joint Conferences on Artificial Intelligence, Inc. for his interest and collaboration.

Carol Hamilton and Mike Hamilton from American Association for Artificial Intelligence, for their help in the preparation of the workshop proceedings.

Program Committee members John Anderson, Francesco Bergadano, Jaime Carbonell, Hugo De Garis, Luc De Raedt, Marie desJardains, Diana Gordon, Kenneth Haase, Heedong Ko, Yves Kodratoff, Stan Matwin, Doug Medin, Raymond Mooney, Stephen Muggleton, Michael Pazzani, Ashwin Ram, Lorenza Saitta, Claude Sammut, Jude Shavlik, Derek Sleeman,

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Invited speakers Jaime Carbonell, Hugo De Garis, Luc De Raedt, Kenneth Haase, Larry Hunter, Doug Medin, Katharina Morik, Michael Pazzani, Paul Rosenbloom, Lorenza Saitta, Benjamin Smith, and Claude Sammut.

Abhay Kasera, Grant Manager at the GMU Machine Learning and Inference Laboratory, and Local Arrangements Chair, who so diligently directed and executed many organizational aspects of the workshop.

Eric Bloedorn, Ken Kaufman, Mark Maloof, Haleh Vafaie and Qi Zhang, Graduate Research Assistants in the GMU Machine Learning and Inference Laboratory, for skillfully handling many organizational chores. They were a great and reliable team, whose help cannot be overstated.

Yves Kodratoff, Stan Matwin and Gheorghe Tecuci for their contribution to the initiation and development of the Multistrategy Learning Workshop series.

Last but not least, our deep and special gratitude goes to the Defense Advanced Research Projects Agency, the National Science Foundation and the Office Naval Research for supporting research in the Machine Learning and Inference Laboratory. Their continuous support over the years has enabled us to develop a critical mass of researchers, and to build at George Mason University a research program in machine learning and inference. The MSL series of workshops is one of its byproducts.

We present these Proceedings to the reader with the hope that they will contribute in a meaningful manner to the dissemination of ideas and further progress in this highly challenging and important research direction.

Ryszard S. Michalski

Janusz Wnek

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