

## Preface

This volume contains all the papers presented at the International Conference on Algorithmic Learning Theory 1999 (ALT'99), held at Waseda University International Conference Center, Tokyo, Japan, December 6–8, 1999. The conference was sponsored by the Japanese Society for Artificial Intelligence (JSAI).

In response to the call for papers, 51 papers on all aspects of algorithmic learning theory and related areas were submitted, of which 26 papers were selected for presentation by the program committee based on their originality, quality, and relevance to the theory of machine learning. In addition to these regular papers, this volume contains three papers of invited lectures presented by Katharina Morik of the University of Dortmund, Robert E. Schapire of AT&T Labs, Shannon Lab., and Kenji Yamanishi of NEC, C&C Media Research Lab.

ALT'99 is not just one of the ALT conference series, but this conference marks the *tenth anniversary* in the series that was launched in Tokyo, in October 1990, for the discussion of research topics on all areas related to algorithmic learning theory. The ALT series was renamed last year from “ALT workshop” to “ALT conference”, expressing its wider goal of providing an ideal forum to bring together researchers from both theoretical and practical learning communities, producing novel concepts and criteria that would benefit both. This movement was reflected in the papers presented at ALT'99, where there were several papers motivated by application oriented problems such as noise, data precision, etc. Furthermore, ALT'99 benefited from being held jointly with the 2nd International Conference on Discovery Science (DS'99), the conference for discussing, among other things, more applied aspects of machine learning. Also, we could celebrate the tenth anniversary of the ALT series with researchers from both theoretical and practical communities.

This year we started the **E Mark Gold Award** for the most outstanding paper by a student author, selected by the program committee of the conference. This year's award was given to **Yuri Kalnishkan** for his paper “General Linear Relations among Different Types of Predictive Complexity”.

We wish to thank all who made this conference possible, first of all, the authors for submitting papers and the three invited speakers for their excellent presentations and their contributions of papers to this volume.

We are indebted to all members of the program committee: Nader Bshouty (Technion, Israel), Satoshi Kobayashi (Tokyo Denki Univ., Japan), Gabor Lugosi (Pompeu Fabra Univ., Spain), Masayuki Numao (Tokyo Inst. of Tech., Japan), Robert Schapire (ATT Shannon Lab., USA), Arun Sharma (New South Wales, Australia), John Shawe-Taylor (Univ. of London, UK), Ayumi Shinohara (Kyushu Univ., Japan), Prasad Tadepalli (Oregon State Univ., USA), Jun-ichi Takeuchi (NEC C&C Media Research Lab., Japan), Akihiro Yamamoto (Hokkaido Univ., Japan), Rolf Wiehagen (Univ. Kaiserslautern, Germany), and Thomas Zeugmann (Kyushu Univ., Japan). They and the subreferees (listed sep-

arately) put a huge amount of work into reviewing the submissions and judging their importance and significance.

We also gratefully acknowledge the work of all those who did important jobs behind the scenes to make this volume as well as the conference possible. We thank Akira Maruoka for providing valuable suggestions, Shigeki Goto for the initial arrangement of a conference place, Naoki Abe for arranging an invited speaker, Shinichi Shimozono for producing the ALT99 logo, Isao Saito for drawing the ALT99 posters, and Springer-Verlag for their excellent support in preparing this volume.

Last but not least, we are very grateful to all the members of the local arrangement committee: Taisuke Sato (chair), Satoru Miyano, Ayumi Shinohara, without whose efforts this conference would not have been successful.

Tokyo, August 1999

Osamu Watanabe  
Takashi Yokomori

## List of Referees

Hiroki Arimura  
Sanghamitra Bandyopadhyay  
Jonathan Baxter  
Nicolo Cesa-Bianchi  
Nello Cristianini  
Stuart Flockton  
Ryutaro Ichise  
Kimihiro Ito  
Michael Kearns  
Pascal Koiran  
Eric Martin  
Llew Mason  
Ujjwal Maulik

Eric McCreath  
Andrew Mitchell  
Koichi Moriyama  
Atsuyoshi Nakamura  
Thomas R. Amoth  
Mark Reid  
Yasubumi Sakakibara  
Hiroshi Sakamoto  
Bernhard Schoelkopf  
Rich Sutton  
Noriyuki Tanida  
Chris Watkins  
Kenji Yamanishi  
Takashi Yokomori