FOREWORD

Special Section on Large Scale Algorithms for Learning and Optimization

In these days, it has been easy to collect massively large dataset such as web contents on the internet and genome data in bioinformatics, and the role of datamining that extracts relevant information from such a huge dataset is getting important. In the field of machine learning, various kinds of learning and optimization techniques such as support vector machines, boosting, and particle filters have been developed. However, those algorithms cannot be applied directly to practical applications, because they are based on the large amount of freedoms which yields unacceptable computational cost for large-scale data. Recently, many algorithms that approximate state-of-art learning algorithms in a reasonable computational cost have been developed on a case-by-case basis. Thus, the IEICE (Institute of Electronics, Information and Communication Engineers) Transactions on Information and Systems organized a Special Section on Large Scale Algorithms for Learning and Optimization to establish the theoretical foundation of the algorithms, to develop new algorithms and to open up new applications by sharing the problems from the viewpoint of large-scale algorithms.

We received 19 papers in response to the call for papers for this special section. Out of these papers, 2 invited papers related to kernel methods and particle swarm optimization methods, 4 papers and 1 letter were selected by the careful and impartial review of the editorial committee.

All the members of the editorial committee would like to express their sincere appreciation to all the authors for their valuable contributions and to all reviewers for their cooperation in completing the review process under the tight schedule. This special section would not exist without all their voluntary efforts.

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Takio Kurita, Guest Editor-in-Chief

Takio Kurita *(Member)* received the B.Eng. degree from Nagoya Institute of Technology and the Dr. Eng. degree from the University of Tsukuba, in 1981 and in 1993, respectively. He joined the Electrotechnical Laboratory, AIST, MITI in 1981. From 1990 to 1991 he was a visiting research scientist at Institute for Information Technology, NRC, Ottawa, Canada. He is currently a deputy director of Nueroscience Research Institute, National Institute of Advanced Industrial Science and Technology (AIST). His current research interests include statistical pattern recognition and its applications to image recognition. He is a member of the IEEE Computer Sociery, the IPSJ, and the Japanese Neural Network Society.