

Preface

This volume contains all the papers presented at the First International Conference on Discovery Science (DS'98), held at the Hotel Uminonakamichi, Fukuoka, Japan, during December 14–16, 1998.

This conference was organized as a part of activities of the Discovery Science Project sponsored by Grant-in-Aid for Scientific Research on Priority Area from the Ministry of Education, Science, Sports and Culture (MESSC) of Japan. This is a three-year project starting from 1998 that aims to (1) develop new methods for knowledge discovery, (2) install network environments for knowledge discovery, and (3) establish Discovery Science as a new area of computer science.

The DS'98 program committee selected 28 papers and 34 posters/demos from 76 submissions. Additionally, five invited talks by Pat Langley of the Institute for the Study of Learning & Expertise, Heikki Mannila of University of Helsinki, Shinichi Morishita of University of Tokyo, Stephen Muggleton of University of York, and Keiichi Noe of Tohoku University were featured at the conference.

DS'98 series provide an open forum for intensive discussions and interchange of new information, be it academic or business, among researchers working in the new area of Discovery Science. It focuses on all areas related to discovery including, but not limited to, the following areas: logic for/of knowledge discovery, knowledge discovery by inferences, knowledge discovery by learning algorithms, knowledge discovery by heuristic search, scientific discovery, knowledge discovery in databases, data mining, knowledge discovery in network environments, inductive logic programming, abductive reasoning, machine learning, constructive programming as discovery, intelligent network agents, knowledge discovery from unstructured and multimedia data, statistical methods for knowledge discovery, data and knowledge visualization, knowledge discovery and human interaction, and human factors in knowledge discovery.

Continuation of the DS series is supervised by its Steering Committee consisting of Setsuo Arikawa (Chair, Kyushu Univ.), Yasumasa Kanada (Univ. of Tokyo), Akira Maruoka (Tohoku Univ.), Satoru Miyano (Univ. of Tokyo), Masahiko Sato (Kyoto Univ.), and Taisuke Sato (Tokyo Inst. of Tech.).

DS'98 was chaired by Setsuo Arikawa (Kyushu Univ.), and assisted by the Local Arrangement Committee: Takeshi Shinohara (Chair, Kyushu Inst. of Tech.), Hiroki Arimura (Kyushu Univ.) and Ayumi Shinohara (Kyushu Univ.), It was cooperated by SIG of Data Mining, Japan Society for Software Science and Technology.

We would like to express our immense gratitude to all the members of the Program Committee, which consists of:

Hiroshi Motoda (Chair, Osaka Univ., Japan)
 Peter Flach (Univ. of Bristol, UK)
 Koichi Furukawa (Keio Univ., Japan)
 Randy Goebel (Univ. of Alberta, Canada)
 Ross King (Univ. of Wales, UK)
 Yves Kodratoff (Univ. de Paris-Sud, France)
 Nada Lavrac (Jozef Stefan Inst., Slovenia)
 Wolfgang Maass (Tech. Univ. of Graz, Austria)
 Katharina Morik (Univ. of Dortmund, Germany)
 Shinichi Morishita (Univ. of Tokyo, Japan)
 Koichi Nijima (Kyushu Univ., Japan)
 Toyoaki Nishida (Naist, Japan)
 Hiroakira Ono (Jaist, Japan)
 Claude Sammut (Univ. of NSW, Australia)
 Carl Smith (Univ. of Maryland, USA)
 Yuzuru Tanaka (Hokkaido Univ., Japan)
 Esko Ukkonen (Univ. of Helsinki, Finland)
 Raul Valdes-Perez (CMU, USA)
 Thomas Zeugmann (Kyushu Univ., Japan)

The program committee members, the steering committee members, the local arrangement members, and subreferees enlisted by them all put a huge amount of work into reviewing the submissions and judging their importance and significance, ensuring that the conference had high technical quality. We would like to express our sincere gratitude to the following subreferees.

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Juha Karkkainen	Satoshi Matsumoto	Tetsuhiro Miyahara
Paul Munteanu	Teigo Nakamura	Claire Nedellec
Masayuki Numao	Seishi Okamoto	Celine Rouveinol
Hiroshi Sakamoto	Michele Sebag	Shinichi Shimoazono
Noriko Sugimoto	Masayuki Takeda	Izumi Takeuchi
Shusaku Tsumoto	Tomoyuki Uchida	Takashi Washio
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Fukuoka, December 1998
 Osaka, December 1998

Setsuo Arikawa
 Hiroshi Motoda