

Preface

This book provides a thorough description of a selection of results achieved within SIMBAD, an EU FP7 project which represents the first systematic attempt at bringing to full maturation a paradigm shift that is just emerging within the pattern recognition and machine learning domains, where researchers are becoming increasingly aware of the importance of similarity information *per se*, as opposed to the classical (feature-based) approach.

SIMBAD started in April 2008 and ended in September 2011, and involved the following six partners:

- University of Venice, Italy (*scientific coordinator*)
- University of York, UK
- Delft University of Technology, The Netherlands
- Instituto Superior Tecnico, Lisbon, Portugal
- ETH Zurich, Switzerland
- University of Verona, Italy.

The very end of the project marked also the launch of the SIMBAD workshop series <http://www.dsi.unive.it/~simbad>

whose first edition was held in Venice, in September 2011, in conjunction with the project's final review meeting. These biennial workshops aim to consolidate and promote research efforts in this area and to provide an informal discussion forum for researchers and practitioners.

Within the SIMBAD project we undertook a thorough study of several aspects of purely similarity-based pattern analysis and recognition methods, from the theoretical, computational, and applicative perspective. We covered a wide range of problems and perspectives. We considered both supervised and unsupervised learning paradigms, generative and discriminative models, and our interest ranged from purely theoretical problems to real-world practical applications. The chapters collected in this book aim to provide a coherent overview of our main achievements and to serve as a starting point for graduate students and researchers interested in

this important, yet diverse subject. More details on the project's activities can be found on our website

<http://simbad-fp7.eu>

and in the published papers referenced in this book.

A project like SIMBAD could not have been done without the help and support of many people and institutions, and it is a pleasure to take this opportunity to express my gratitude to them. In the first place, I'd like to acknowledge the Future and Emerging Technology (FET) Programme of the 7th Framework Programme for Research of the European Commission which funded the SIMBAD project, and I am very grateful to our project officer, Teresa De Martino, and to the reviewers, Georgios Sakas, Christoph Schnörr and John Shawe-Taylor, whose insightful suggestions and constant encouragement have been instrumental to make SIMBAD a better project.

It has been my good fortune to collaborate for almost four years with a fantastic group of people, whose genuine enthusiasm and exceptional professional competence made SIMBAD a unique, intellectually stimulating experience. In particular, I'm grateful to my fellow principal investigators who coordinated the activities of the various research units: Joachim Buhmann, Bob Duin, Mario Figueiredo, Edwin Hancock, and Vittorio Murino; to their deputies: Manuele Bicego, Umberto Castellani, Ana Fred, Marco Loog, Volker Roth, and Richard Wilson; and to all PhD students and postdocs who have worked within the project.

In Venice, I've been helped by many people in my group, and I'd like to thank them all for their support. In particular, I wish to thank Andrea Torsello for the assistance he gave me at various stages of the project, and Veronica Giove for her valuable work concerning all administrative aspects. Special thanks are due to Samuel Rota Bulò for his constant support throughout the project and for helping me assemble this book.

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My deepest gratitude, however, goes to my wife, Rosanna, and my children, Claudia and Valerio, without whose endless patience and understanding the SIMBAD project, and hence this book, would have not seen the light.

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