

# Preface

With the increasing availability of data, it becomes more important to have automatic methods to manage data and retrieve information. Data processing, especially in the era of social media, is changing users' behaviors. Users are ever more interested in information rather than in mere raw data. Considering that the large amount of accessible data sources is growing, novel systems providing effective means of searching and retrieving information are required. Therefore, the fundamental goal is to make information exploitable by both humans and machines.

This volume focuses on new challenges and emerging ideas in distributed information filtering and retrieval. It collects invited chapters and extended research contributions from DART 2014 (the 8th International Workshop on Information Filtering and Retrieval), held in Pisa (Italy), on December 10, 2014, and co-located with the XIII AI\*IA Symposium on Artificial Intelligence.

The book is focused on new research challenges in intelligent information filtering and retrieval.

In Chapter "[Time Event Extraction to Boost an Information Retrieval System](#)", by Pierpaolo Basile, Annalina Caputo, Giovanni Semeraro, and Lucia Siciliani, an innovative information retrieval system able to manage temporal information is proposed. The system allows temporal constraints in a classical keyword-based search. Information about temporal events is automatically extracted from text at indexing time and stored in an ad hoc data structure exploited by the retrieval module for searching relevant documents.

Chapter "[Interactive Text Categorisation: The Geometry of Likelihood Spaces](#)", by Giorgio Maria Di Nunzio, presents a two-dimensional representation of probabilities called likelihood spaces. Particularly, the geometrical properties of Bayes' rule when projected into this two-dimensional space are showed, and this concept is extended to naïve Bayes classifiers. This geometrical interpretation is applied to a real machine learning problem of text categorization and a Web application that implements all the concepts on a standard text categorization benchmark is presented.

Chapter "[Mining Movement Data to Extract Personal Points of Interest: A Feature Based Approach](#)", by Marco Pavan, Stefano Mizzaro, and Ivan

Scagnetto, proposes a novel approach able to address the aspect of the identification of important locations, i.e., places where people spend a fair amount of time during their daily activities. The proposed method is organized in two phases: first, a set of candidate stay points is identified by exploiting some state-of-the-art algorithms to filter the GPS-logs; then, the candidate stay points are mapped onto a feature space having as dimensions the area underlying the stay point, its intensity (e.g., the time spent in a location), and its frequency (e.g., the number of total visits).

In Chapter “[SABRE: A Sentiment Aspect-Based Retrieval Engine](#)”, by Annalina Caputo, Pierpaolo Basile, Marco de Gemmis, Pasquale Lops, Giovanni Semeraro, and Gaetano Rossiello, SABRE, a two-stage sentiment aspect-based retrieval engine is proposed. SABRE retrieves opinions about an entity at two different levels of granularity, called aspect and sub-aspect. Such fine-grained opinion retrieval enables both an aspect-based sentiment classification of text fragments and an aspect-based filtering during the navigational exploration of the retrieved documents.

In Chapter “[Monitoring and Supporting People that Need Assistance: The BackHome Experience](#)”, by Xavier Rafael-Palou, Eloisa Vargiu, Stefan Dauwalder, and Felip Miralles, a sensor-based telemonitoring system is presented. People that need assistance, e.g., the elderly or disabled people, may be affected by a decline in daily functioning that usually involves the reduction and discontinuity in daily routines and a worsening in the overall quality of life. The proposed system addresses all that issues.

Chapter “[The Relevance of Providing Useful and Personalized Information to Therapists and Caregivers in Tele](#)”, by Juan Manuel Fernandez, Marc Solà, Alexander Steblin, Eloisa Vargiu, and Felip Miralles, presents a generic Tele\* (i.e., telemedicine, telerehabilitation, telemonitoring, telecare, and teleassistance) solution that, in principle, may be customized to whatever kind of real scenarios to give a continuous and efficient support to therapists and caregivers. The aim of the proposed solution is to be as flexible as possible in order to be able to provide telerehabilitation, telemonitoring, teleassistance or a conjunction of them, depending on the real situation. Three customizations of the generic platform are also presented.

The main focus of DART was to discuss and compare suitable novel solutions based on intelligent techniques and applied to real-world applications. The chapters of this book present a comprehensive review of related work and state-of-the-art techniques. The authors, both practitioners and researchers, shared their results in several topics such as “Information Retrieval”, “Text Categorization”, and “Data Mining”.

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