

Preface

This book addresses the issue of processing online handwritten notes acquired from an electronic whiteboard. Notes written on a whiteboard is a new modality in handwriting recognition research that has received relatively little attention in the past. The main motivation for this book is smart meeting room applications, where not only speech and video data of a meeting are recorded, but also notes written on a whiteboard are captured. The aim of a smart meeting room is to automate standard tasks usually performed by humans in a meeting. In order to allow for retrieval of the meeting data by means of a browser, semantic information needs to be extracted from the raw sensory data.

The main achievements of this book can be summarized as follows. A new online handwritten database has been compiled, and four handwriting recognition systems have been developed. These are an offline and an online recognition system, a system combining offline and online data, and a writer-dependent recognition system. The online recognition system includes novel preprocessing and normalization strategies which have been developed especially for whiteboard notes. A novel classification strategy based on bidirectional long short-term memory networks has been applied for the first time in the field of handwriting recognition. In the combination experiments both the offline and online system were integrated into a single recognizer. To the best of the authors' knowledge these are the first experiments in the field of online sentence recognition combining systems based on offline and online features. Furthermore, external recognition systems were included in the combination experiments. The experimental results on the test set show a highly significant improvement of the recognition performance over the individual systems. The optimal combination achieved a word level accuracy of more than 86%, implying a

relative error reduction of about 26%, compared to the best individual classifier.

The first author would like to thank many colleagues of the Institute of Computer Science and Applied Mathematics at the University of Bern, Switzerland, who have made inestimable contributions to this work. Roman Bertolami, Dr. Simon Günther, Christoph Hofer, Dr. Christophe Irriger, Vivian Kilchherr, Dr. Michel Neuhaus, Mathias Scherz, Barbara Spillmann, Dr. Tamás Varga, and Dr. Mathias Zimmermann – thank you very much. Special thanks go to Dr. Alex Graves and Dr. Andreas Schlapbach for their contributions to Sections 2.2 and 2.3, respectively, and other parts of this book. Thanks to Gemma for proofreading the manuscript. Furthermore, the authors owe many thanks to persons of other institutions for useful discussions and contributions. These are Samy Bengio, Maël Guillemot, Stefan Knerr, Johnny Mariéthoz, Darren More, Jay Pittman, Jonas Richiardi, Markus Schenkel, Pierre Wellner, and all volunteers who took the time for participating in the recordings for the IAM-OnDB. Part of the work described in this book is based on the first authors’s PhD thesis. Many thanks are due to Prof. Hanspeter Bieri for chairing the PhD defence and to Prof. Ching Y. Suen for being an external reviewer. Additional thanks go to Joachim Schenk, who re-implemented the HMM-based system and validated the recognition results. Last but not least the first author thanks his parents who supported him in the beginning of his stay in Switzerland. Finally, special thanks to Nicole who accompanies him in the ups and downs of life.

Furthermore, the authors would like to acknowledge partial funding by the Swiss National Science Foundation NCCR program *Interactive Multimodal Information Management IM2* in the individual project *Visual/Video Processing*.

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May 2008