

First International Workshop on Automated Forensic Handwriting Analysis (AFHA) 2011

17-18 September 2011, Beijing, China



AFHA 2011

ONLINE PROCEEDINGS

PREFACE

Handwriting is considered as a representative of human behavior and characteristics since centuries. With the evolution of modern computing technologies, researchers have moved towards the automated analysis of handwriting. The shift towards automated analysis of handwriting has even fortified by the interest various industries have in this field. One of the most important applications of automated handwriting analysis systems is in forensic environments. Up till now, most of the forensic cases of handwriting analysis are solved without actual application of automated systems. This is because there is an ever increasing gap between the demands of Forensic Handwriting Experts (FHEs) and the computer science community. Actually the underlying issue is the incapability of most of the state of the art handwriting examination systems to be directly applicable to the forensic cases. This is because the computer science community in general has moved by considering the cases which are either trivial w.r.t. forensic situations or not considered the needs of FHEs. Thus there is a great demand to bring the forensic experts and the computer science experts under one roof. This purpose is fulfilled by the First International Workshop and Tutorial on Automated Forensic Handwriting Analysis (AFHA) 2011.

The AFHA 2011 takes place on 17-18 September 2011, in Beijing, China. It is a novel approach of bringing together researchers in the field of automated handwriting analysis and signature verification and experts from the forensic handwriting examination community. It is organized as a two-day combined workshop and tutorial.

On the first day, an introductory tutorial on forensic handwriting examination is given. This includes a description of the forensics point of view and examples of real casework as well as a summary of important approaches in the area of automated handwriting examination. The major topics include: how forensic experts make comparisons (similarities versus differences, subjectivity and bias), natural variation, line quality, quality versus quantity; what forensic experts need from the document analysis community; what the document analysis community needs to understand about FHEs work; existing systems and system problems; Quite some attention will be paid to the Bayesian approach to forensic evidence evaluation (i.e. using the Likelihood Ratios a measure of the strength of evidence), and reporting by means of a verbal conclusion scale.

On the second day, the AFHA workshop is organized. This volume contains the proceedings of AFHA workshop. Nine submissions were received and after a single-blind-peer review process, eight papers were accepted for this volume.

In particular, the paper entitled '*Non-English and Non-Latin Signature Verification Systems: A Survey*' is the first one in this volume as it provides a detailed survey of the field.

The second paper entitled '*The Effect of Training Data Selection and Sampling Time Intervals on Signature Verification*' considers the influence of various methods of training data selection and effect of data collection time intervals on the overall results of a signature verification system.

The third paper entitled '*Classification of Features into Strong and Weak Features for an Intelligent Online Signature Verification System*' outlines an efficient algorithm for classification of features for a signature verification system and provides improved results than some counterparts.

The fourth paper entitled '*Forensic vs. Computing Writing Features as Seen by Rex, the Intuitive Document Retriever*' describes the superficial matching between script features as understood by forensic experts and computer scientists and advocates the development of computational instruments tailored to fit the features traditionally used by FHEs.

The fifth paper entitled '*Automated Off-Line Writer Verification Using Short Sentences and Grid Features*' presents a feature extraction algorithm modeling the connected component distribution along predetermined curvature and line paths of a handwritten image.

The sixth paper entitled '*Evaluation of Local and Global Features for Offline Signature Verification*' compares local and global features. It shows that the system based on local features outperforms the system based on global features particularly in situations involving disguised signatures.

The seventh paper entitled '*Static Signature Verification by Optical Flow Analysis*' estimates local stability of signatures and performs signature verification using alternating decision trees exclusively by optical flow analysis.

Finally, the eighth paper entitled '*A Co-training based Framework for Writer Identification in Offline Handwriting*' proposes a co-training approach that overcomes the requirements of automated signature verification systems to have a large corpus of labeled dataset.

We would like to thank the authors for their paper submission, our program committee members for their reviews and active participation in various activities concerning tutorial and workshop, and the AFHA 2011 workshop chairs for their advice and guidance throughout the entire endeavor. We would also like to thank our sponsors: *Signature & Handwriting Forensics Pty. Ltd.*, *Netherlands Forensic Institute* and *German Research Center for Artificial Intelligence*.

The AFHA 2011 PC-chairs,
September 2011.

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