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

17-18 September 2011, Beijing, China

Workshop Report: **AFHA 2011**

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Online proceedings available @ **http://ceur-ws.org/Vol-768**
The slides of the tutorial sessions are available @ **http://www.dfki.de/~liwicki/sigTutorial2011/**

The 1st International Workshop on Automated Forensic Handwriting Analysis was held as a satellite workshop of the ICDAR 2011 in Beijing, China during September 17-18, 2011. The aim of the AFHA 2011 was bringing together researchers in the field of automated handwriting analysis and signature verification and experts from the forensic handwriting examination community. It was organized as a two-day combined workshop and tutorial where the participants from the two communities were provided with an open opportunity to interact directly with each other and try to understand the demands of each other with reference to forensic handwriting analysis. The response from the two communities was very encouraging and there were more than thirty registrations. About ten Forensic Handwriting Examiners (FHEs) from Argentina, Australia, Canada, China, Greece, Hungary, South Africa, and the Netherlands participated in the event. Remaining participants included experts and students from pattern recognition (PR) community of different countries including Australia, China, France, Germany, India, Italy, Pakistan, Philippines, Qatar, Tunisia, and USA.

On the first day, an introductory tutorial on forensic handwriting examination was given. There were three sessions in all dedicated for FHEs, PR experts and plenary discussions. In the first session, Bryan Found (Australia), Charles Berger (the Netherlands), and Reinoud Stoel (the Netherlands) being FHEs themselves brought forward their viewpoint. They explicitly outlined the demands the FHEs have from automated systems. They also described various complexities involved in forensic cases and why the output generated by automated handwriting analysis systems so far is not acceptable for the court of law. The FHEs specifically mentioned various types of genuine and forged handwritings they have to deal with in real forensic scenarios. To give PR community a clear idea about their work the FHEs provided various examples of their real caseworks and PR people were involved in practically solving them.

The view point of PR community and how handwriting is approached in general by PR people was put forward by Marcus Liwicki (Germany) and Michael Blumenstein (Australia) in the second session. Their talks gave an overview of the field, historical perspectives, and various approaches used in computer science to perform automated handwriting analysis. The results of some recent signature verification competitions containing data from FHEs were also presented and discussed.

The last session of the day was an initial plenary discussion session. It was an ice breaker as to allow people from the two communities in general to discuss their ideas. Here participants commented about what they thought of current research on handwriting analysis with respect to their particular background (FHE, PR expert or student). It was suggested that FHEs should encourage the use of more and more automated systems in their real caseworks at the same time PR people should explicitly focus on demands of FHEs so that automated systems developed by them should fulfill real casework needs of FHEs.

The AFHA 2011 participants had an opportunity to socialize on the dinner given by Marcus Liwicki at the end of the first day. This was important as it allowed people from the two communities to be more understanding towards each other and discuss certain related issues in a much candid environment.

The second day was dedicated for a workshop about recent research activities. It had two sessions. First, participants with accepted report papers got the opportunity to talk about their research. Subsequently, in a panel discussion session, all participants were able to state their points of view and discuss together about selected topics of the two communities.

The first session focusing paper submissions about emerging approaches was divided into three sections namely, General Aspects, Features and Automatic Verification respectively. Eight papers were accepted for presentation. In the first section chaired by Marcus Liwicki two papers surveying the general aspects of signature verification and effects of data selection and sampling on signature verification were presented. The second section chaired by Muhammad Imran Malik focused the classification of features into strong and weak commodities for signature verification and comparison of forensic and computing features for document retrieval. The third section chaired by Michael Blumenstein contained four papers that presented different approaches for automatic identification and verification of handwriting.

The second session of the day was plenary discussion session. It was one of the most important sessions of the entire two days activity. Here major findings of the interaction between two communities, i.e., forensic document examination community and pattern recognition community were summarized. Various terms for specifying different types of handwriting forgeries were suggested and finalized as per suggestions from the two communities. It was also agreed that computer science/ pattern recognition and forensic science people will use the definitions of terms agreed here. Various important issues regarding future of AFHA were also discussed. A detailed report about this plenary session will appear in the next IAPR newsletter. In summary it was agreed to conduct the tutorial session every year along with the ICFHR conference and combined tutorial plus workshop every two years as a satellite workshop of ICDAR.

This two day combined workshop and tutorial session was a success according to the participants from both FHE and PR communities. The FHEs found the event much better than expected. It was a good opportunity for them to have a look under the hood of various automated handwriting analysis systems. They appreciated the non-mathematical explanations of different automated systems especially by Marcus Liwicki and Michael Blumenstein. The PR experts expressed that now they feel themselves in a better position to work in-line with the FHEs expectations. Both were of the view point that they now felt less hesitant to use each other's experiences for possible future research and joint funding of projects.

This unique combination of tutorial and workshop was very beneficial for newcomers in the field, as well as for persons who had interesting ongoing research results and wanted to discuss about them and other topics in a broad group consisting of experts from the document analysis field as well as experts from the forensic handwriting examination community.

Since this was the first workshop of this series, yet the response is enormous, we hope to organize even better workshops in future where we try to further widen the scope of our topics and invite more FHEs and PR experts from different countries.