

A Workshop on "Automatic Pattern Recognition and Historical Handwriting Analysis"
20th International SAOT Workshop
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Digital Humanities have shown recent growth during the last five to ten years. There is also significant growth in the development of computerized tools for supporting the analysis of such documents. Thus, a SAOT workshop on "Automatic Pattern Recognition and Historical Analysis" was conducted on the 14th and 15th June, 2013 under the auspices of the Erlangen Graduate School in Advanced Optical Technologies (SAOT)¹ to bring together the world's leading experts. The workshop was organised by Friedrich-Alexander-University Erlangen-Nürnberg working on BMBF funded project "Scripts and Signs - Computer based Analysis of High Medieval Papal Charters: A key to Europe's Cultural History"² in which they will develop tools to analyse and compare medieval papal charters.

In Session 1, mainly topics related to traditional palaeography were discussed by Martin Wagendorfer from Ludwig-Maximilians-University Munich stating that the traditional palaeography pursues goals like imparting the ability to read and decipher ancient times, to enable localization, dating of scripts and to identify the hands of scribes. Gudrun Bromm from Mannheim Laboratory for Script and Document Analysis covered the analysis of handwritten products to prove their validity, identify the author and determine the conditions for their emergence. The main components of documental procedures as well as the methods of handwriting examination were shown by taking the example of the model of "graphical basic components" and outline the similarities and differences to palaeography.

Session 2 mainly concentrated on Writer Identification where Werner Maleczek from University of Vienna shared some examples of the privileges as the remarkable signatures of the prominent cardinals of the right hand of the Pope. Sargur Srihari from University at Buffalo and his group had developed tools for automatic forensic document examination for determining whether a given handwriting can be attributed to a known writing. A well-known Lindbergh Kidnapping was considered as an example with new hypothesis. Lambert Schomaker from University of Groningen is working both in terms of identification and retrieval of keywords for the development of large scale "European Google" for search in petabyte of material i.e. MONK³.

Session 3 threw some light on Digital Palaeography where Thomas Frenz discussed about the evolution of Handwriting in the papal curia of the 15th century.

¹<http://www.aot.uni-erlangen.de/saot/home.html>.

²<http://www5.cs.fau.de/puhma/home/>.

³<http://www.ai.rug.nl/~lambert/monk-collections-english.html>.

Peter Strokes from King's College London discussed that pattern recognition methods have the potential to transform the way and work with historical documents. Dominique Stutzmann from French National Centre for Scientific Research showed the results of experiments to analyse the medieval scripts were undertaken in the Graphem⁴ project with the aim to understand the graphical evolution of historical science.

In Session 4, Robert Sablantik from Vienna University of Technology works on "Multispectral Image Acquisition and Analysis for Manuscript Research" which has gained significant interest in recent years with the main goal of image acquisition.

In Session 5, the focus was mainly on the Automatic Handwriting Recognition and Analysis in order to support the transcription. Björn Gottfried, Matthias Lawo presented Diptychon⁵ which is a transcription assistant system for the separation of glyphs in medieval manuscripts texts. It is the automatic analysis method for user who can edit and analyse the layout to find the text lines, segment the text lines to words and to characters. "Searching Handwritten Manuscripts" was elaborated by Raghavan Manmatha is used for retrieving text from the George Washington's Manuscripts. Lior Wolf presented "Automatic Tools for Historical Manuscript Analysis" for investigating handwritten historical manuscripts like join tool that, given a fragment, retrieves and ranks the other fragments that are most likely to be written in the same handwriting. A clustering tool that aggregates joined pairs into multi-page joins.

Thus, eHumanities projects are undertaken to provide services and system that support various historic disciplines.

⁴<http://liris.cnrs.fr/graphem/>.

⁵<http://www.tzi.de/~bjoerng/Diptychon.htm>.