# Joint Glossary of Forensic Document Examination and Pattern Recognition

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Abstract—In this paper we introduce an open, scientific glossary which uses MediaWiki engine to the forensic examiner and pattern recognition scientific communities. Besides our aim to find editors from these communities who contribute to extend the glossary and make it as complete as possible, we would like to translate the terms from English to other languages, e.g. Portuguese, German, Chinese, Japanese, Arabian. The contribution can be started with translating the existing words at the glossary. The second part of our work when the glossary become be more completed, will consist into create the very understanding and useful glossary.

## I. Introduction

In the last few years there were more and more communication and joint research between the forensic examiners and pattern recognition scientists. These two communities can efficiently work together, if they understand the terms from both sciences. We have seen and heard on meetings, conferences, workshops, and during discussions it is a necessity to have a useful, extendable glossary, and dictionary which helps the common work.

Our aim is to create a glossary and a dictionary with the important terms of the forensic science for the forensic document examiners and pattern recognition experts in different languages. We are considering even the different expressions among countries who share the same language in order to obtain a better understanding into our fields no matter where we are from. Thinking and hoping this work will be a useful tool for both: the forensic and pattern recognition communities.

The long name of the glossary is *Glossary of Forensic Document Examination and Pattern Recognition* and the short name is GoFDER. The site is availabe on the http://projects.dfki.uni-kl.de/gofder/index.php URL. Figure 1 shows the logo of the glossary which depicts an important tool of the forensic scientist.

# A. Related work

An offline glossary from 1999 is [2] which integrates first time in publishing terms from forensic science. The Forensic Science Central is a great contribution with links and forum, but its own glossary [3] contains only a small portion of definition, there is no dictionary and it is not extendible. Similar holds for the website of ThinkQuest [4], in addition there are less terms and the terms there were not described by experties,

the reference marked on the page is only Google search. The multilingua lexicon of European Network of Forensic Science Institutes (ENFSI) is a great contribution created by several forensic institute, founded in 1999. It contains several words in many languages, but it is only a dictionary, without explanation, descriptions.

## B. Authors

The first author Inés Rosa Baldatti is a forensic document examiner, analyst of Payment Systems at the Central Bank of Argentina Republic. The second author Erika Griechisch is a PhD student at the University of Szeged (Institute of Informatics), her topic is online signature verification. Further authors are every colleague who would like to contribute.

- 1) Beginning: The authors met at First International Workshop on Automated Forensic Handwriting Analysis (AFHA) in 2011, Beijing, China. In that opportunity it was clear the necessity to get a good understanding and a fluid contact among professionals worldwide. So, we decide to make this work, that takes a long time and dedication, and responsibility.
- 2) Creating: We read papers and books and websites, and extract the terms from them keeping the meaning.

# II. TECHNICAL BACKGROUND

Nowadays a glossary or dictionary which is available only in printed version is not really useful. An online glossary is more useful than a printed one and it can be easily printed if it is necessary. Several criteria should meet, which are feasible only if the glossary is an online one.



Fig. 1. The logo of the project

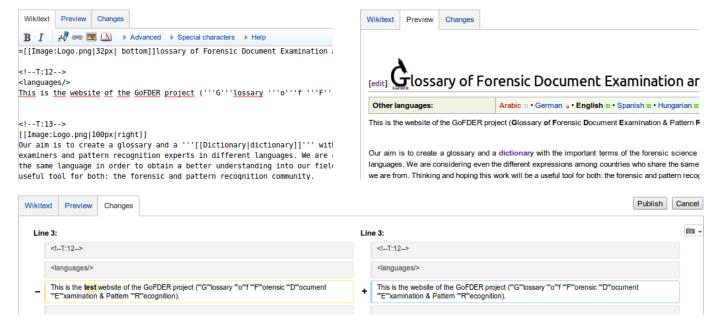


Fig. 2. WikiEditor: WikiText and Preview (above), Changes (below)

The most important criterion is the expandability of the glossary. There will be always terms which can be added, not necessary because there incompleteness of the glossary itself rather the expension of the scientist. Regarding the expansion, it is much easier to correct errors in an existing online website than a book.

Other consideration was the possibility of localization of the glossary. We know for the translation part it is necessary to be clean and easy otherwise we can expect only few translators.

In this section we introduce and describe the MediaWiki package and its extensions which were most suitable for our purposes.

# A. MediaWiki

MediaWiki (MW) is a versatile package, written in PHP and originally developed for use on Wikipedia since 2002. It is very widespread, well-documented, can handle any kind of media easily (links, images, videos, etc), moreover it is open-source which makes it easier to discover and fix any kind of bugs. The MediaWiki package quite flexible and further functionalities can be easily integrated to a basic MediaWiki website.

MediaWiki uses a markup language called *wikitext* to use basic formatting so the users without knowledge of HTML can edit the pages easily. We added the WikiEditor extension to the GoFDER website, which allows the users to see 3 different view during the editing. The first one is the plain wikitext, the second is a preview, the third one shows the differences between the previous version of the page and the current (edited) version. Thus if someone is new in wikitext markup language, s/he can simply check the Preview before submission, see Figure 2.

In order to achieve our goals, to create a multilingual

glossary with dictionary, a basic MediaWiki is not sufficient. Thus we added other extension to improve the efficiency. In the following we describe each of them.

# B. Semantical MediaWiki

Semantical MediaWiki (often noted by SMW) is an extension of MediaWiki that helps to search, organise, tag, browse, evaluate and share the wiki's content [8] since 2005.

While a traditional Wikipedia site contains text which is useful and can be processed easily by humans, it is not easy to understand or evaluate for a computers. The Semantical MediaWiki helps to extend a capability of a Wiki site by adding annotations, which makes wiki a collaborative database.

Semantical MediaWiki itself has several extension too, we added the Semantic Glossary to our website, which helps to describe terms with the Terminology page of the wiki. The reader of a page just point to a word with the mouse and if the Terminology page contains that word, it's description will appear in a small box below the word.

# C. Translate extension

The Translate extension makes MediaWiki a powerful tool to translate every kind of text. [7]

It runs inside MediaWiki and has many features for translators, however its usage is very simple. After a page is marked with the <translation> tag, the extension automatically splits the text between the translation tag to translation units. The arrangment of the translation units can be approved or redefined if it is necessary. According to the default settings each translation unit is one paragraph. After the arrangement of the translation units are saved, the page can be translated via a translation tool. Figure 3 and 4 show two view of a translation page, translators can use which are more convinient for them.

Fig. 4. Translate a page: Proofread view

Hide your translations

Users can choose the language they intend to translate from a list. On the GoFDER website there is a predefined list on the top of all the translatable webpages which shows the languages we primarily intend to find translators (the first author of this paper is responsible mainly for Spanish translations, the second is about Hungarian). Nevertheless there is no language restrictions, contributors are welcome to translate to any language.

If an original English wikipage (which is marked for translation) has any changes, on the top of the page there will be a note about that and each unit which is effected will be marked as outdated translation.

## III. CONTRIBUTION

Recently (end of May, 2013) the glossary has 20 pages (terms), the dictionary has 561 English words with Spanish translation and some Hungarian translation as well.

# A. New terms

We encourage forensic document examiners to extend the glossary and the dictionary as well, comment the recent terms on the discussion pages, ask if something is not clear or complete. We want to keep our glossary professional, so on our wiki site it is not possible to edit or modify pages without registration. After registration and login, users can modify the pages.

## B. Translation

List

We would like to translate the terms from English primarily to Spanish, German and Hungarian. In the same way to increase the dictionary, we plan to add new languages as well. We hope to attain contributors who can create the Portuguese, Chinese, Japanese, Arabian, etc translation.

**≡** Page

✓ Proofread

The translations are available for a page if it is marked for translation. Every registered user can translate sites, but only translation administrators can mark pages for translation and confirm completed translations. If a user creates a page and s/he is member of the Translation group, s/he can mark it for translation. if s/he is not member of this group, she can ask someone from the Translation group.

More details about editing and translating are available on the *Contribution* page of the website.

## IV. CONCLUSION

Here we presented the conception and initation of our work. The technical background of the glossary have been prepared. However we are still open for suggestions and ideas to improve the website. From now on the main part of the project is to add new terms, specify and extend the existing ones, add examples and explanation as many as possible.

We expect as an outcome of our common effort with the contributors that we can provide a useful, up-to-date and beneficial glossary for the scientific community.

## ACKNOWLEDGEMENT

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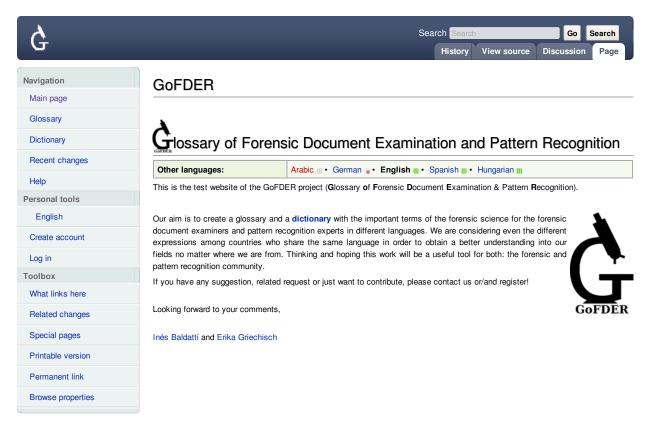


Fig. 5. Main page

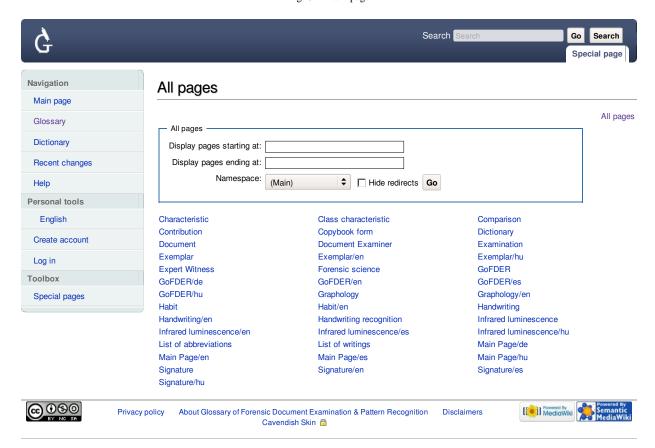


Fig. 6. Glossary - All pages