

George Mason University

Office of Technology Transfer, MSN 5G5
4400 University Drive
Fairfax, VA 22030

Phone: (703) 993-2985
Fax: (703) 993-8871
email: jmurphy@gmu.edu

DISCLOSURE NO.	
DATE RECEIVED.	
(for OTT office use only)	

Intellectual Property Disclosure Form

- George Mason University Intellectual property disclosures are treated as confidential information. Except for individuals engaged in the evaluation and approval process, the information provided shall not be divulged to others without the permission of the inventor(s), except as required by law.
 - This form must be accompanied by an "Inventor/Creator form" completed by each Inventor/Creator. *(Please note that spaces on the electronic version of this form expand as needed).*
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SECTION I: General Disclosure Information

1. Descriptive Title:

A multi-modal system tool for aiding autonomous discovery

2. Name of Individual Completing this form:

Edward J. Wegman

3. Type of Intellectual Property: *(Check more than one if applicable)*

- | | |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Invention | <input type="checkbox"/> Video |
| <input type="checkbox"/> Software | <input type="checkbox"/> Audio |
| <input type="checkbox"/> Book | <input type="checkbox"/> Database |
| <input type="checkbox"/> Article | |
| <input type="checkbox"/> Other, please describe: | |

4. Summary of the Intellectual Property *(please attached any papers, drawings, and or support materials)*:

1. System for retrieval of relevant documents from a mixed languages (such as English, Arabic, Korean) database using words and bigrams as metadata. Words/bigrams only are translated. System does not attempt to translate documents.
2. Use of bigram-document matrix to capture semantic content.
3. Method of clustering documents using two-mode social network analysis on term-document and bigram-document matrices. Convert two-mode network to one mode network and use allegiance criterion to cluster documents relative to the document database.
4. Using said method listed in 3 as a means of synonym generation.
5. Using an efficient $O(n)$ algorithm on lexicon vectors to cluster documents.
6. System for querying files (text, images, videos) to determine geospatial location. System for querying geospatial locations for finding relevant files (text, image, videos).
7. System for geolocating emails by IP addresses.
8. System for geolocating other files (text, images, videos) by using cross-corpus discovery techniques to associate documents with geolocated emails.
9. Use of streaming data techniques on 1-8.

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10. Use of text data mining techniques such as cross corpus discovery, clustering, author identification to authenticate religious texts including Qur'an, Hadiths, Bible, Book of Mormon, and apocryphal books and scrolls.
11. Use of these techniques in Arabic, Aramaic and Greek.
12. Using two-mode social network analysis on religious texts to discover relationship between concepts or persons within a sacred text.

5. List any Grants, Gifts or Contracts which supported the work leading to this Intellectual Property: *(Include the name of the Principal Investigator (PI), Agency, Grant Number, and/or OSP Index/Account Org Number).*

Edward J. Wegman, Army Research Laboratory, W911NF-07-1-0059

6. Has this work been disclosed to anyone outside the University community or is a disclosure planned? Yes No
If yes, please provide details including to whom, dates and whether there is a confidentiality agreement.

1 and 6 briefed to Army Sponsors on May 7, 2007.

1 through 9 briefed to Army Sponsors on October 23, 2007.

10 through 12 briefed to potential sponsors in Saudi Arabia in April, August, October and November, 2007; There have been no US disclosures of 10 through 12.

SECTION II: Marketing Questionnaire

1. What are the possible uses for this discovery? *(hypothetical products and services)*

We see this as an analyst tool for understanding a multimedia database. It could be used for military applications, but also by the corporate sector trying to understand, integrate, and make accessible a large multimodal database. We believe that this could potentially handle millions of multimedia documents and files.

2. Does this discovery 1) solve a problem; 2) add a new feature/functionality to an existing product/service; 3) improve on a process; 4) create a new product/service *(elaborate on all areas that apply)*

This invention addresses 1 and 4. Large multimedia databases are difficult to understand and cross correlate. This tool would allow the user to extract a much smaller subset that would not be accessible by conventional means. It allows exploration and clustering of a multi-lingual and multimedia database. When implemented in a system, it would provide a new product.

3. List competing products/services you can think of which essentially meet the same goals as your discovery. Please provide company names, brochures, or descriptions.

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We know of nothing exactly like we are proposing. Google has some of the features, but not our implementation.

4. Has there been any commercial interest in this intellectual property? Yes No
If yes, please provide details including dates.

Not yet!

5. Is there a working demonstration or prototype of this work? If not, please estimate the time and cost to develop a prototype or simulation.

One year.

6. List the names of companies that you think might be interested in your discovery. Please provide contact names and telephone numbers if you have them. (*We will speak with you first before calling your contacts*)

SECTION III: Rights and Royalties

1. Based on your understanding of the GMU Intellectual Property Policy as described at <http://www.gmu.edu/research/osp/patpol.html>, indicate whom you consider to have ownership rights to this Intellectual Property:

- a. GMU (with royalty sharing as per Intellectual Property Policy)
 b. GMU Equivalent (Inventor/Creators own, but wish to have the intellectual property handled as if owned by GMU)

2. If the Intellectual Property is commercialized by the University, the inventor(s) share of the revenues received from that commercialization shall be distributed as follows among the inventors/creators.

(Note: The inventor(s) may choose to leave this question blank initially and draft a distribution agreement ("Distribution Agreement") prior to licensing the technology that allocates shares. If

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there is no Distribution Agreement in place by the date of each license agreement that is signed for this intellectual property then all inventor/creators will share equally)

Edward J. Wegman	_____	percent
Yasmin H. Said	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
_____	_____	percent
Distribution of inventors/creators share (total)	100	percent

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3. Certifications and Signatures of Inventors/Creators: *(please add lines as needed)*.

I/We acknowledge that all statements in this disclosure document are true. We agree that we will execute all necessary assignments as requested George Mason University (“the University”), its successors and assigns to facilitate the filing of patent applications or copyright registrations. We agree to render any assistance which is requested to aid in the preparation of such applications. We understand that patent applications will be prosecuted by licensed patent practitioners who represent the interests of the University, its successors and assigns.

I/We understand that the University may assign its rights, title, and interest in and to the Intellectual Property to George Mason Intellectual Properties, Inc. (GMIP).

All royalties, rents, payments, or any cash receipts from the sale, assignment, transfer, licensing or use of the Intellectual Property shall be distributed according to the provisions of the Intellectual Property Policies current at the time of signature of this Intellectual Property Disclosure Form.

I/We hereby warrant that prior to the execution of this Intellectual Property Disclosure Form, I/we have neither granted the right or license to make, use, or sell the Intellectual Property to anyone except the University, nor otherwise encumbered my/our rights, title, and interest in the Intellectual Property. I/We agree I/we shall not execute any instrument in conflict with this Intellectual Property Disclosure Form.

Print Name

Signature

Date

Print Name

Signature

Date

Print Name

Signature

Date

Print Name

Signature

Date

2. Provide name and signature of Principal Investigator (if sponsored project funding was involved in development of work). Please type or print name and title.

To the best of my knowledge, the information disclosed in this document is true.

Print Name

Title

Signature

Date

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3. Name of Department Head or School/College Dean of the inventors or creators.

+

Print Name

Title