MY EXPERIENCE IN RESEARCH: Topics of Interest, Trends, and Quality Publications

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Outline

Part I:

TOPICS OF INTEREST IN SECABA Lab: TRENDS

Part II:

HOW TO GET QUALITY PUBLICATIONS

Topics of Interest in SECABA Lab

- Research Group:
  - SECABA Lab (secaba.ugr.es):
  - **Interdisciplinary** research group

- Around 18 members specialized in computer science, library science, telecommunications, communication, sociology, social work, physiotherapy, and mathematics.

Topics of Interest in SECABA Lab

- Fuzzy Linguistic Modelling and CWW
- Consensus Models in GDM
- Managing Incomplete Information in DM
- Fuzzy Linguistic Information Retrieval Systems
- Fuzzy Linguistic Recommender Systems
- Quality Evaluation Tools in the Web and in Digital Libraries
- Bibliometric Tools and Applications
- Big Data in Social Media

Fuzzy Linguistic Modelling and CWW

QUESTION: How to model and combine linguistic information in problems depending on experts or users using the concept of "linguistic variable" defined with Fuzzy Set Theory?

PROPOSALS:

Ordinal fuzzy linguistic approach, LOWA operator, LWA operator, Induced LOWA operators, linguistic choice functions, linguistic selection processes, multi-granular linguistic model, unbalanced linguistic model.

TRENDS: New tools to represent multi-granular and unbalanced linguistic information and linguistic expressions

S. Massanet, J. V. Riera, J. Torrens, E. Herrera-Viedma. A new linguistic computational model based on discrete fuzzy numbers for computing with words. Information Sciences, 258 (2014) 277-290. (**HIGHLY CITED PAPER**)

F.J. Cabrerizo, E. Herrera-Viedma, W. Pedrycz. A Method based on PSO and Granular Computing of Linguistic Information to Solve Group Decision Making Problems defined in Heterogeneous Contexts. European Journal of Operational Research 230:3 (2013) 624-633. (**HIGHLY CITED PAPER**)

Consensus Models in GDM

QUESTION: How to aid experts in GDM frameworks to achieve the máximum agreement degree on the final decisions?

PROPOSALS:

New consensus measures, proximity measures among experts, multi-granular consensus models, unbalanced consensus models, consensus models for different preference formats, feedback methods, automatic consensus models, consistent consensus models, trust based consensus models, dynamic consensus models.

TRENDS: New consensus models in heterogeneous contexts, Web contexts, Web 2.0, and Social Media

S. Alonso, I.J. Pérez, F.J. Cabrerizo, E. Herrera-Viedma, A Linguistic Consensus Model for Web 2.0 Communities. Applied Soft Computing, 13:1 (2013) 149-157. **(HIGHLY CITED PAPER)**

I.J. Pérez, F.J. Cabrerizo, S. Alonso, E. Herrera-Viedma, A New Consensus Model for Group Decision Making Problems with Non Homogeneous Experts. IEEE Trans. on Sys., Man, and Cyb.: Sys., 44(4) (2014) 494-498. **. (HIGHLY CITED PAPER)**

J. Wu, F. Chiclana, E. Herrera-Viedma. Trust Based Consensus Model for Social Network in an Incomplete Linguistic Information Context. Applied Soft Computing 35 (2015) 827-839. **. (HIGHLY CITED PAPER)**

Managing Incomplete Information in DM

QUESTION: How to deal with incomplete preferences provided by the experts in DM frameworks, specially if they use preference relations?

PROPOSALS:

Decision processes for incomplete information based on additive and multiplicative consistency, consensus models under incomplete information based on consistency, dynamic consensus models under incomplete information, decisión models under incomplete information based on consensus, decisión models for missing values.

TRENDS: New decisión models for incomplete information in Web contexts, Web 2.0, and Social Media, and new criteria to manage incomplete decision situations (Trust)

M.R. Ureña, F. Chiclana, J.A. Morente-Molinera, E. Herrera-Viedma. Managing Incomplete Preference Relations in Decision Making: A Review and Future Trends. Information Sciences 302:1 (2015) 14-32. **. (HIGHLY CITED PAPER)**

Fuzzy Linguistic Information Retrieval Systems

QUESTION: How to model user query language based on fuzzy linguistic approaches?

PROPOSALS:

New information retrieval systems based on linguistic multi-weighted query languages, multi-granular information retrieval models, unbalanced information retrieval models, multi-agent web retrieval systems.

TRENDS: To model the behaviour of operators used to process the query languages in order to increase the precisión of the output.

- **To use weights to control the behaviour** of the operators in the process of the term based queries (CHALLENGE)

Fuzzy Linguistic Recommender Systems

QUESTIONS: How to improve the performance of the recommender systems using the fuzzy linguistic approach?

How to apply the recommender systems in health contexts, tourism, e-commerce and libraries?

PROPOSALS:

Recommender systems based on multi-granular linguistic information, recommender systems to aid in the collaboration among research groups, recommender systems to recommender research projects, recommender systems to disseminate information in the digital libraries, recommender systems to aid in teaching and learning.

TRENDS: Recomender systems based on quality, trust, and social information

Tejeda-Lorente, C. Porcel, E. Peis, R. Sanz, E. Herrera-Viedma. A quality based recommender system to disseminate information in a University Digital Library. Information Sciences, 261 (2014) 52–69 **. (HIGHLY CITED PAPER)**

A. Tejeda-Lorente, J. Bernabé-Moreno, C. Porcel, E. Herrera-Viedma. REFORE: A recommender system for researchers based on bibliometrics. Applied Soft Computing 30 (2015) 778-791.

IMPORTANT TOPIC WITH MANY REAL APPLICATIONS

Quality Evaluation Tools in the Web and in Digital Libraries

QUESTION: How to evaluate quality in Web sites and digital libraries from user satisfaction using fuzzy linguistic tools?

PROPOSALS:

Quality evaluation model for web sites that provide information based on CWW, quality evaluation model for health web sites, linguistic quality evaluation model for libraries based on Libqual model.

TRENDS: New quality evaluation models for tourism web sites, for Libraries 2.0, and for Web services.

R. Heradio, F.J. Cabrerizo, D. Fernandez-Amoros, M. Herrera, E. Herrera-Viedma, A Fuzzy Linguistic Model to Evaluate the Quality of Library 2.0 Functionalities. Int. J. of Information Management, 33:4 (2013) 642-654.

F.J. Cabrerizo, J.A. Morente-Molinera, I.J. Pérez, J. López-Gijón, E. Herrera-Viedma. A decision support system to develop a quality management in academic digital libraries. Information Sciences 323 (2015) 48-58.

E. Herrera-Viedma, J. López-Gijón, Libraries' Social Role in the Information Age. Science 339:6126 (2013) pp. 1382

Bibliometrics Tools and Applications

QUESTION: How to evaluate the quality and content of the research output using bibliometrics tools?

PROPOSALS:

New indexes to evaluate the quality of the researchers' output: index q2 and hg, and the implementation of SciMAT that is a new Science Mapping Analysis Software Tool.

TRENDS: Apply SciMAT to analyze the content and conceptual evolution of scientific fields, improving SciMAT with new visualization tools, and developing new procedures to identify "highly cited papers" or "literary classics"

M.A. Martínez-Sánchez, M.J. Cobo, M. Herrera, E. Herrera-Viedma. Analyzing the Scientific Evolution of Social Work Discipline Using Science Mapping. Research on Social Work Practice 5:2 (2015) 257-277.

M.A. Martínez, M. Herrera, E. Contreras, A.A. Ruíz, E. Herrera-Viedma. Characterizing Highly Cited Papers in Social Work Through H-Classics. Scientometrics 102 (2015) 1713-1729.

M. de la Flor, P. Galindo-Moreno, E. Sánchez-Fernandez, A. Piatteli, M.J. Cobo, E. Herrera-Viedma. H-classic: A new method to identify classic articles in implant dentistry, periodontics, and oral surgery. Clinical Oral Implants Research (2016), in press. doi: 10.1111/clr.12749

J.A. Moral-Muñoz, M.J. Cobo, F. Chiclana, A. Collop, E. Herrera-Viedma. Analyzing highly cited papers in Intelligent Transportation Systems. IEEE Transactions on Intelligent Transportation Systems, in press. doi: 10.1109/TITS.2015.2494533

M.A. Martínez, M. Herrera, J. López-Gijón, E. Herrera-Viedma. H-Classics: Characterizing the Concept of Citation Classics Through H-index. Scientometrics, 98 (2014) 1971-1983. **. (HIGHLY CITED PAPER)**

Big Data in Social Media

QUESTION: How to discover information and knowledge from the information (big data) provided by the users in social networks and in particular localizations?

PROPOSALS/TRENDS: How to quantify the impact of a topic on a defined geographical location during a given period of time from social network (Twiter) in order to assess, for example, marketing policies.

J. Bernabé-Moreno, A. Tejeda-Lorente, C. Porcel, E. Herrera-Viedma. A new model to quantify the impact of a topic in a location over time with Social Media. Expert Systems with Applications 7:1 (2015) 3381-3395.

J. Bernabé-Moreno, A. Tejeda-Lorente, C. Porcel, H.Fujita, E. Herrera-Viedma. CARESOME: A System to Enrich Marketing Customers Acquisition and Retention Campaigns Using Social Media. Knowledge-Based Systems 80 (2015) 163-179.

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Outline

Part I:

TOPICS OF INTEREST IN SECABA Lab: TRENDS

You are invited to collaborate with us in SECABA Lab

Part II:

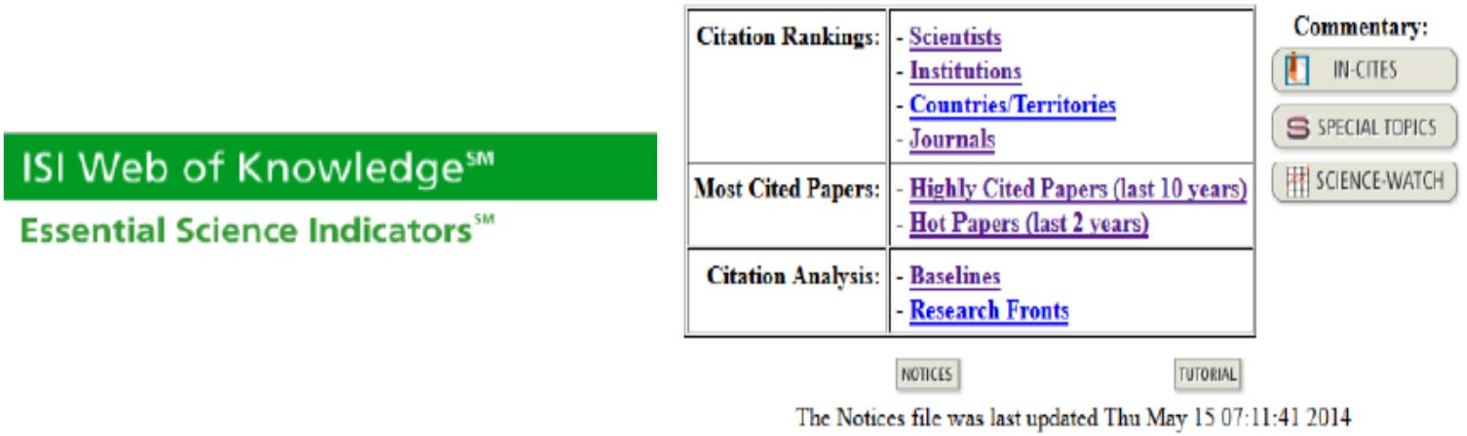
HOW TO GET QUALITY PUBLICATIONS

How to Get Quality Publications

- Choose “hot or emergent topics”
- Use a good style to write research papers
- Look for international collaborations

How to choose “hot or emergent topics”. Some ideas I

- Search papers in important journals of the topic: *IEEE TFS, Fuzzy Sets and Systems, Information Science, Eur. J. of Operational Research, Applied Soft Computing, Soft Computing, Fuzzy Opt. And Decision Making, ect.*
- Read the last papers of reputed authors: H. Prade, W. Pedrycz, J. Mendel, D. Dubois, R. Yager, ect.
- Search research fronts in the database Essential Science Indicators provided by Thomson Reuters



How to choose “hot or emergent topics”. Some ideas II

- Write a review on the choosen topic:

J.A Morente-Molinera, I.J. Perez, R. Ureña, E. Herrera-Viedma. On multi-granular fuzzy linguistic modelling in group decision making problems: a systematic review and future trends Knowledge Based Systems, 74 (2015) 49-60. **. (HIGHLY CITED PAPER)**

M.R. Ureña, F. Chiclana, J.A. Morente-Molinera, E. Herrera-Viedma. Managing Incomplete Preference Relations in Decision Making: A Review and Future Trends. Information Sciences 302:1 (2015) 14-32. **. (HIGHLY CITED PAPER)**

E. Herrera-Viedma, F.J. Cabrerizo, J. Kacprzyk, W. Pedrycz, A Review of Soft Consensus Models in a Fuzzy Environment. Information Fusion 17 (2014) 4-13. **. (HIGHLY CITED PAPER)**

J. Serrano-Guerrero, J.A. Olivas, F.P. Romero, E. Herrera-Viedma. Sentiment Analysis: A Review and Comparative Analysis of Web Service. Information Science 311 (2015) 18-38.

F.J. Cabrerizo, F. Chiclana, ***R. Al-Hmouz, A. Morfeq, A.S. Balamash****, E. Herrera-Viedma. Fuzzy decision making and consensus: challenges. Journal of Intelligent & Fuzzy Systems 29:3 (2015) 1109-1118.*

How to get a good style to write research papers

- Measure the value and novelty of the content of the paper (low, medium, high)*: To compare with other papers published on the topic*
- Choose the adequate journal and know its style: *It is good to read quality papers published in that journal.*

- Good writing possesses follow the rule of three “C”s:
  - Clarity
  - Concissenes
  - Correctness (accuracy)

The key is to be as brief and specific as possible without omitting essential details.

How to get a good style to write research papers

- Typical structure of a paper:

  - **Abstract**
  - **Introduction**
  - **Preliminaries: The problem, background**
  - **My idea**
  - **The details**
  - **Experimental framework**
  - **Results**
  - **Analysis of results (including discussion)**
  - **Conclusions and future work**

How to get a good style to write research papers

- ABSTRACT:

Abstract: A summary of the research problem, your claim, and the evidence.

We usually write the abstract last.

How to get a good style to write research papers

- INTRODUCTION: Motivation, a re-statement of the abstract information, formulate the problem and the hypotheses to be tested, significance, an outline of the rest of the paper.

1. Describe the problem
2. State your contributions
...and that is all **ONE PAGE AND NO MORE THAN TWO!**

The introduction should survey the whole paper.

It is not meant to be an exhaustive review.

It is important to have good connection between paragraphs making it attractive to read.

How to get a good style to write research papers

- BACKGROUNG: Provide the necessary background information to put your work into context.
- DISCUSSION: It should present the overall significance of your work and show how it agrees or disagrees with previous models or allows disparate observations to be drawn together. It is often very helpful to have a Figure of new model that is based on your findings. Discuss the limitations of the study.
- CONCLUSIONS: A summary of the research contribution, a discussion on its significance, and a mention of future work.

Look for International Collaborations

- In bibliometrics is shown that the international collaboration increase the impact of the output:

  - Organize workshops
  - Invite speakers to give a talk
  - Develop stays in relevant research centers
  - Achieve collaboration agreements


Thanks!!!