A HYBRID RECOMMENDATION SYSTEM BASED ON HUMAN CURIOSITY

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Prediction of Human Curiosity (CERI 2016) [4]

Architecture (RecSys 2015) [3]

KBS Article/Artificial Intelligence

Technique development using Diversity/Serendipity

*Developing

Final version of thesis

Q Jan 2014

Concepts

Current days

Review*

Dez, 2017

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Goal

"Combining the theoretical psychological models and computational techniques of recommendation, our main goal is to develop a **recommendation system** of touristic points in South America, based on the degree of curiosity of users.

JNIVERSITAT

POLITÉCNICA

de valència

Curiosity

- Why some people tend to always travel to the same places while others do not?

- What makes people curious?

- Does the curiosity affect the degree of satisfaction in relation to the recommendation?

Definition of Curiosity

"Curiosity is defined as a desire for acquiring new knowledge and new sensory experience which motivates exploratory behaviour" [1].

Predicting the Human Curiosity

The data extracted and classified in labels, are able to predict the curiosity (*pearson < 0.05*). Thus, we can consider *i.e.: For* individuals of both genders, who visited more than 3 states and more than 35 different places, they tend to be Extremely Curious.

Survey Test - CEI-II [2]

Cur Instr they rate you	uriosity and Exploration Inventory (CEI-II) <i>astructions;</i> Rate the statements below for how accurately ney reflect the wat you generally feel and behave. Do not ate what you think you should do, or wish you do, or things ou no longer do. Please be as honest as possible.				Quite a Bit	Extremely
1.	I actively seek as much information as I can in new situations.	1	2	3	4	5
2.	I am the type of person who really enjoys the uncertainty of everyday life.	1	2	3	4	5
3.	I am at my best when doing something that is complex or challenging.	1	2	З	4	5
4.	Everywhere I go, I am out looking for new things or experiences.	1	2	З	4	5
5.	I view challenging situations as an opportunity to grow and learn.	1	2	З	4	5
6.	I like to do things that are a little frightening.	1	2	З	4	5
7.	I am always looking for experiences that challenge how I think about myself and the world.	1	2	З	4	5
8.	I prefer jobs that are excitingly unpredictable.	1	2	З	4	5
9.	I frequently seek out opportunities to challenge myself and grow as a person.	1	2	З	4	5
10.	I am the kind of person who embraces unfamiliar people, events, and places.	1	2	3	4	5



Users

105 Brazilian volunteers participated in our project.



Results of Predicting the Human Curiosity

We observed some linear trends, such as the relationship between curiosity vs total countries visited and curiosity vs total education. We also found relation between technology and curiosity, where we interpret that individual with more than 30 "likes" related to technology are extremely curious.

Curiosity vs Total Education



It is possible to **measure** the degree of curiosity of the individual, without the forms,

using only social networks.

However, more tests

are necessary.



Update Status

Aashable

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Wessage

Photos

Browse

E) Photos;

F) Friends;

Survey

Develop a survey with a general approach about the use of social networks in projects of recommendation system to tourism area.

Results and Evaluation General Result



Previous Conclusion

In these experiments, we could **prove** human curiosity aids recommendation systems to be **more efficient**. It is evident the relation between the content accessed through social

Little Interesting

Architecture of Curiosity-Based Recommendation

Evaluation Output to the users

They received a recommendation of sites of South America through photos, allowing us to meet two objectives: analyzing the level of the satisfaction of volunteers regarding the recommendation and comparing possible gains of the hybrid system we developed to traditional recommendation systems.

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	Little Interesting	Little Interesting	Little Interesting

Curiosity + Diversity Analysis of how curiosity is related to diversity.

References

[1] Litman, J. A., & Spielberger, C. D. (2003). Measuring epistemic curiosity and its diversive and specific components. Journal of personality assessment, 80(1), 75-86.

[2] C. Peterson and M. E. P. Seligman. Character Strengths and Virtues: A Handbook and Classification. American Psychological Association, 750 First St., NE, Washington, DC 20002-4242, 2004. [3] Menk, Alan dos Santos. A Hybrid Recommendation System Based on Human Curiosity. RecSys '15 Proceedings of the 9th ACM Conference on Recommender Systems. ACM New York, 367-370, 2015 [4] Menk, Alan dos Santos and Sebastiá, Laura. Predicting the Human Curiosity from Social Networks. CERI, 2016.

networks and the **curiosity degree**.

Curiosity + Serendipity

Analysis of how curiosity is related to serendipity

Acknowledgments



Moderately Interesting

Moderately Interesting
Moderately Interesting Extremely Interesting

Extremely Interesting
Extremely Interesting

Next

Technique development

Develop a new technique of recommendation considering serendipity and/or diversity with human curiosity.