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PITAGORA: Recommending Users and Local Experts in an Airport Social Network

A. Ferracani, D. Pezzatini, Andrea Benericetti, Marco Guiducci, Alberto
Del Bimbo



<http://www.micc.unifi.it>

PITAGORA is a mobile web contextual social network designed to be used in the check-in area of an airport. It provides recommendation of potential friends, local experts.

Your profile

Name: **John Dore**

12 minutes left to gate close

Airline:	Ryanair (Ireland)
Flight Number:	9325
Origin:	Pisa, Italy - Galileo Galilei (PSA)
Destination:	Valencia, Spain (VLC)
Scheduled Departure Time:	18 Nov 2014 - 15:00
Estimated Departure Time:	18 Nov 2014 - 15:00

Meet people

Interests | People

Books

John Dore On your flight

Interests in common: Roberto Saviano | J.K. Rowling

Things you may both like: The Day of the Owl

Bonnie Dore

Professional

Eddie Punchclock On your flight

You both live in **Prato Area, Italy**

You both work as **Waiter** at **Burger King Corporation**

People in common: Bonnie Dore

Interests in common: Facebook | Burger King Corporation

Jane Dore On your flight

Bonnie Dore On your flight

Users are profiled analysing **data** extracted from **Facebook** and **LinkedIn** accounts. When the user logs into the system the following data are extracted:

- a) demographic infos, connections, level of education, job history (Facebook and LinkedIn);
- b) page 'likes', photo albums (Facebook)
- c) groups and companies followed (LinkedIn).

Profiles are described as vectors of pages on which users have expressed a 'like' and groups or companies followed.

A co-occurrence matrix is used to infer additional possible resources of interests.

Users' recommendation is then achieved with a standard **user-based algorithm** considering the distribution of user's interests and computing a nearest-N users' neighbourhood with the Euclidean distance.

User travel experience per city is computed considering:

- count of city visits is used to compute users travel experience,
- social media analysis (demographic infos and Facebook photo albums);
- user activity in the social network (flights search)
- cities' correlation (based on visiting people and distance)

Valencia, Spain



Valencia
(Spanish: [ba
'lenθja]), or
València
(Valencian: [va
'lensia]), is the

capital of the autonomous community of Valencia and the third largest city in Spain after Madrid and Barcelona, with around 800,000 inhabitants in the administrative centre. Its urban area extends beyond the administrative city limits with a population of around 1.5 million people. Valencia is Spain's third largest metropolitan area, with a population ranging from 1.7 to 2.5 million. The city has global city status. The Port of Valencia is the 5th busiest container port in Europe and busiest container port on the Mediterranean Sea.

[View more...](#)

Valencia experts



John Dore

has visited Valencia



On your flight



Pitagora Meet people Chat

Your profile Leisure Meet people **Retails** Professional Chat Search flights

Interests Leisure

Music Sports Books Organizations Cause Magazines and News

Eddie Punch
Jane Dore
John Dore
John Smith

Hi, how are you? 12:15

I'm fine thank you, and you? 12:16

Very well, thanks! 12:16

:) 12:16

Let's meet at Giunti al punto! We both like Books 12:18

To evaluate the relevance of user recommendations the normalised Cumulative Discounted Gain (nDCG) measure has been used.

Relevance scores are computed comparing the list of recommended users with the ideal list given by the user.

The ground truth has been collected asking **150 users** to express a relevance score (on a 0 to 3 scale) for the first J people suggested by the system. In this experiment, a logarithm with base 2 is used to ensure all positions are discounted.

The nDCG for the top-J item results in values of **0.767** with $j=5$ and **0.872** for $j=10$.

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