A MOTIVATION-AWARE APPROACH FOR POINT OF INTEREST RECOMMENDATIONS

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POINT OF INTEREST RECOMMENDATIONS

In Point of Interests recommendations a ranked list of point of interests like tourists attractions in a city, restaurants, events etc. are presented to the user

CONTEXT IN RECOMMENDATIONS

Context is any information or conditions that can influence the perception of the usefulness of an item for a user

Ref: Adomavicius and Tuzhilin, 2011

CONTEXT IN POI RECOMMENDATIONS

- Location
- Time of the day
- Current weather
- Budget
- Means of transport
- Traffic
- Social Network data (Ex: presence of friends nearby)

Ref: J. Borràs, A. Moreno, and A. Valls, 2014

CONTEXT IN POI RECOMMENDATIONS :DATA

- Pure Check-in Data

- Distance of POIs from current location,
  availability of time, transport options, traffic
  condition, weather conditions

- Popularity of POIs among your connection in
  SNS.

- Time and sequence in which a POI is visited

OUR APPROACH : CONTEXT

User Motivation inferred from Checking-in Behavior

Types of User Motivation ?

USER MOTIVATIONS

Motivations for a user to share his location or check-in at a particular location can be classified into seven categories.

- Social Enhancement
- Informational Motivation
- Social Motivation
- Entertainment Value
- Gameful Experience
- Utilitarian
- Belongingness

Ref: R. Yavuz and A. Toker, 2014

USER MOTIVATIONS

Motivation	Characteristics
Social Enhancement	Impressing others Feeling Important To show off Extremely Popular location Night clubs High end restaurants Distinctive Identity or Intellectual Image Celebrity Status
Informational Motivation	Suggestions, Advices Information about event or news Location and arrival Important event Give and take recommendation

USER MOTIVATIONS

Motivation	Characteristics
Social Motivation	Meeting new people Socializing Observing others Meeting a Friend Flirting and relationships Emotional Feeling At Home or Office Know about friends and where they are
Entertainment Value	Playing Relaxing Passing Time Less Lonely Positive moments, emotional state Fight boredom Initiate chat Waiting

USER MOTIVATIONS

Motivation	Characteristics
Gameful Experience	To collect award Points Status in an app More in females Older age(not in youth aged 19-22) City spots(streets, square, roads, bridge, old town) Escape from reality, Virtual Possession
Utilitarian	Win promotions and discounts Check in of family business for marketing
Belongingness	Place with social group Nostalgia or ownership

OUR APPROACH :ALGORITHM

The two motivations are inferred
• Dominant explicit motivation
• Dominant perceived motivation

OUR APPROACH :ALGORITHM

Dominant explicit motivation :

For a user is derived from explicit data like comments and status messages after checking in at different POI.

OUR APPROACH :ALGORITHM

Dominant perceived motivation :
For a location is generated for a location through survey[experts].

OUR APPROACH : ALGORITHM

Suppose a user checks-in at a high end posh restaurant with a comment "Excellent coffee, Must try."

Though, the actual motivation of the user is Information Motivation but the characteristics of the place may make another user who sees this comment assume the motivation behind check-in was Social Enhancement Value.

OUR APPROACH :ALGORITHM

Step 1: Assigning dominant explicit motivations to users and locations

Step 2:   Assigning dominant perceived motivations to users and locations

Step 3: Recommendation Generation

step 4: Post filtering contextual approach to generate final recommendations

Post filtering contextual approach

- Refine the recommendation made by an algorithm that is designed for accuracy

- To improve the way final recommendations are explained to the user

Analysis of the approach

- Collected data for City of Indore in Foursquare.
- For 10 users who have at least checked in 10 times
- Locations :97
- No of comments :129

Analysis of the approach

Motivation	Per cent of comments
Social Enhancement Value	38
Informational Motivation	27
Social Motivation	7.7
Entertainment Value	10.0
Gameful experiences	3.8
Utilitarian Motivation	3.8
Belongingness	9.30

Dominant Motivation Users

Motivation	Per-cent
Social Enhancement Value	50
Informational Motivation	10
Social Enhancement Value and Informational Motivation	20
Social Motivation	10
Belongingness	10

Difference between actual and perceived motivation

Perceived & Actual Motivation	Places	Percentage
Equal	35	39.32584
Not Equal	43	48.31461
Not Determined	11	12.35955

CONCLUSION

- Proposed a new contextual variable : Motivation for checking in

- Proposed an algorithm for post contextual filtering of recommendation based on motivation.

- Our approach will add to the informativeness of the explanation [ongoing research].

Thank You
Questions ?