

Recommendation System for Tourist Attraction Information Service

Alexander Smirnov, <u>Alexey Kashevnik</u>, Andrew Ponomarev, Nikolay Shilov, Maksim Schekotov, Nikolay Teslya

St.Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (SPIIRAS)



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Motivation

- The tourist business has become more and more popular
- More and more tourists prefer to use Internet services to book hotels, buy flights, search attractions to see instead of booking complete tours
- Mechanisms for providing the user information are needed
- Tourist attraction information service
 - Finds attractions nearby the tourist
 - Provides descriptions of attractions acquired from different Internet Sources
 - Provides accessible in the Internet images of attractions





Tourist Attraction Information Service

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	Q <u>±</u>	🔯 Ближай	шие достопримечательности	Т	ais	
Vasyl'evsky Ostrov, StPeter	rsburg, Russia		Vasileostrovsky tram depot	m		
			Faculty of Law, Saint Petersb State University	urg Si	aint Andrew's Cathedral () was the last <u>Baroque</u> athedral built in <u>Saint Petersburg</u> , <u>Russia</u> .	
Страна Russia	 Q 		Saint Andrew's Cathedral (Sa Petersburg) ۱k	int th cl fa m <u>N</u>	he cathedral was conceived at the time of <u>Peter</u> <u>ne Great</u> as the chapter church of Russia's first hivalric order, <u>that of Saint Andrew</u> . The most amous architect of the Nordic countries, <u>licodemus Tessin the Younger</u> , was called upon	
Регион StPetersburg	 ◄ Q 	TAS	Russian State Hydrological Institute	tc B le m ts	o design a church resembling <u>Saint Peter's</u> <u>asilica</u> in <u>Rome</u> and exceeding 430 feet in ength. By the time Tessin submitted his designs, the sar had died and the costly project was	
Saint-Petersburg	• 9		Bolshaya Neva River	si ci cl cl cl cl P	suspended. Two years later, <u>Giuseppe Trezzini</u> , city architect to St. Petersburg, had the territory behind the building of the Twelve Colleges cleared from wood and built a modest timber church, which was consecrated by <u>Feofan</u> <u>Prokopovich</u> in the name of <u>Saint Andrew</u> on 8 October 1722. It was an excercise retional	

Tourist Attraction Recommendation System (TARS)

- https://play.google.com/store/apps/details?id=ru.nw.spiiras.tais

DEMO Section of FRUCT conference





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TARS Services Interaction based on Smart-M3 Platform



Inserting information to the smart space

-> Reading information from smart space (subscribe for information)

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Smart Space Communication

• Client KP

("alexey.kashevnik@gmail.com", "is_a", "tourist") ("alexey.kashevnik@gmail.com", "longitude", "60,12") ("alexey.kashevnik@gmail.com", "latitude", "30,24") ("alexey.kashevnik@gmail.com", "date_time", "2013-10-1812:53") ("alexey.kashevnik@gmail.com", "language", "English") ("alexey.kashevnik@gmail.com", "company", "alone") ("alexey.kashevnik@gmail.com", "role", "traveler")

• Context KP

("alexey.kashevnik@gmail.com", "weather", "Sunny")

• Attraction Information KP

("alexey.kashevnik@gmail.com", "near_by", ListOfAttractionsXML)

• Recommendation KP

("alexey.kashevnik@gmail.com", "recommended_attractions", RecommendedAttractionsXML)



Attractions Recommendation

• Collaborative filtering systems make recommendations based on users interests similarity.





Context for Attractions Recommendation

- Conditions in which a user rates an attraction (or gets recommendations) is called **context**.
 - Outside attractions will be rated better in sunny day then in rainy day
 - Zoological museum will be rated better if a user comes with children.
- The following context attributes have been identified for TARS:
 - Time
 - Weather
 - Company
- For taking context into account the **context generalization** method is used:





Example of Applying Context Generalization Method

Time: July 31, 2013 17:30 Company: With family Weather: Sunny

5	4		3
4	5		2
	3	3	5
	2	5	4

Context Generalization

Time: Summer Company: With family Weather: Any value

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5	4		3
4	5		2
	3	3	5
	2	5	4

Time: Any value Company: Any value Weather: Any value

5	4		3
4	5		2
	3	3	5
	2	5	4



Algorithm for Attractions Recommendation





Attraction Images and Descriptions Filtering

- Internet services provide a big amount of images
- The system allows users to estimate every image ("like", "dislike")
- It is reasonable to show the user only the best images of the selected attraction
 - Show images that have the best score
 - Show new images (images without score)
 - Show small amount of images that have negative score (to exclude mistakes)
- Internet services provide several text blocks for an attraction
- It is needed to show the user the best text block and range other
 - User estimations («Like» / «Dislike»)
 - Text block characteristics: size, variety of vocabulary
 - Degree of similarity of a text block with the last shown



Conclusion

- Recommendation Scenarios for tourist attraction information service have been successfully implemented in special Recommendation KP.
- At the moment the tourist attraction information service has 50+ downloads in Google Play.
- The smart space based tourist attraction recommendation service can be overviewed during the DEMO section (Thursday, November 14 from 18.00 till 21.00, Seminar Hall A116).



Thank you for Attention Questions are Welcome



St. Petersburg, Russia, E-mail: alexey@iias.spb.su