

Data-Driven Destination Recommender Systems

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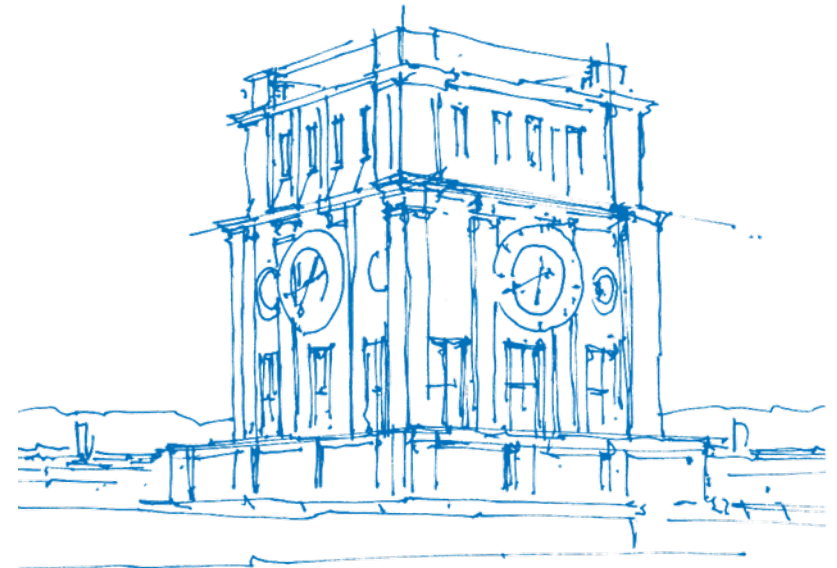
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UMAP'18, Singapore

July 10, 2018



TUM Uhrenturm

Introduction

Problem

Recommend **composite** trips of **global travel destinations**

"I want to travel to South-East Asia for six weeks in summer to experience culture, good food and go hiking in the mountains. I have a budget of \$1500."

Motivation

Independent travel planning is **complex**, information is **scattered, outdated**, and of **uncertain quality**

Challenges

- Find distinct touristic regions
- Classification of tourist destinations
- User modeling with little user effort
- Recommendation algorithm



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Data Mining & Domain Modeling

Recommendation items: set of **travel regions**

Combination of **heterogeneous** data sources

Item discovery

Mismatch between **political regions** and **tourist destinations!**

Employ **hierarchical region tree**

Make the **granularity** of destinations dependent on the query area

Item characterization

What are the **characteristics**, **attractions**, and **activities** of a destination?

Aggregation based on single points of interests

What is the typical **duration of stay** at a destination?

Analyze tourist **mobility patterns** for domain understanding

Evaluation: Offline comparison with **crowdsourcing** and **expert knowledge**

Contribution: **framework** for data-driven recommender systems

User Modeling

Preference elicitation

Which activities are **best suited** for a traveler?

How can **traveling preferences** be elicited **effectively** with **little effort**?

Traveler clustering

What are the **relevant features** to characterize **travelers**?

What distinct **types of travelers** are there?

How can the **pace** of the travel itinerary be **personalized** based on past trips?

Evaluation: Controlled lab experiments

Contribution: Novel approaches for domain-specific user modeling

Recommendation Algorithms

Content-based recommendation under **constraints**. **Knapsack problem!**

Personalize item **consumption durations**

Ensure sufficient **diversity** within a trip

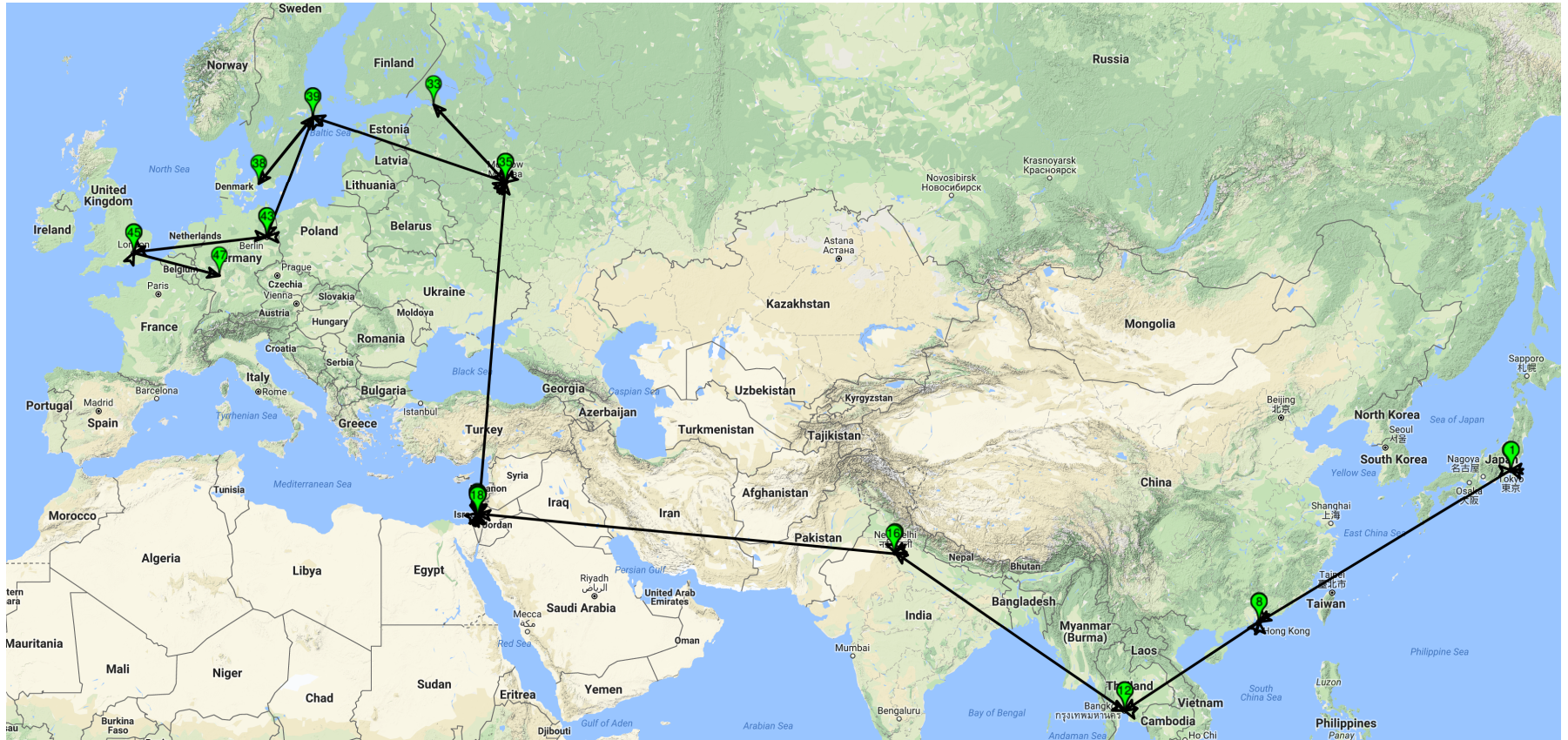
Measure the benefits of **explaining** recommendations and **critiquing**

Evaluation: Measure **user satisfaction** in an **online field study**

Contribution: Constraint-based algorithms for composite trips

Current Progress

Investigated traveler mobility patterns



Current Progress

Preliminary investigation of durations of stay

