

Declaration of LLM use

Project Title: Positive-Sum Impact of Multistakeholder Recommender Systems for Urban Tourism Promotion and User Utility

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1. General statement on the use of LLMs

We declare that we made responsible and informed use of LLM tools such as (ChatGPT, Claude, NotebookLM) during this project. These tools were used mostly for coding assistance (Python), debugging complex errors, formatting (as a linguistic editor) the final report, helping using Overleaf and LaTeX, explaining complex model architectures and for brainstorming to get new ideas. All generated Python code was thoroughly reviewed, manually adapted to fit our specific Multi-Stakeholder Recommender System (MRS) requirements (such as the distance preferences and smart routing), and validated.

2. Use of Third-Party Code (GitHub)

Our project builds upon the foundational research of Merinov & Ricci (2024). We utilized the original authors' code as a baseline and significantly extended it with our improvements.

Original Paper Baseline Code:

<https://github.com/pashaPASHaa/recsys>

Our Project Code (Containing all improvements):

<https://github.com/ofir6bd/UrbanTourismMRS.git>

3. Examples the LLM Prompts were Used

Below is the list of some prompts utilized during the development, simulation, and writing phases of this project:

1. What is Haversine distance and how it been calculated?
2. How do I find the average starting location (centroid) for a user based on the first t items they visited? in Python
3. Based on my python packages, create a requirements.py content file

4. What is the difference between matrix factorization and WMF
5. Can you help me write a custom Hybrid KNN in Python? It needs to blend User-based and Item-based collaborative filtering using cosine similarity.
6. I need to test 25%/75%, 50%/50%, and 75%/25% weights for my hybrid model. What's the best way to parameterize this in Python so I don't have to copy-paste the function three times?
7. I need to filter my dataset for religious/spiritual POIs like churches and mosques. Based on my data can you create a list of those places?
8. Create python code for plotting the pk files to compare the win-win zone between models.
9. How do I normalize the total walking distance to a 0-1 scale? I need to subtract it from the utility score as a 'physical effort' penalty.
10. I'm writing the 'Evaluation' section in Overleaf. How do I create a nice table in LaTeX to compare the 'Base' vs 'Reduce Walking' results?
11. Please create a comprehensive POI description for the following POIs in Rome that includes historical context, architectural features, and cultural significance for LLM embedding generation.
12. My WMF LLM initialization using embeddings isn't improving the recommendations. Let's brainstorm and raise several approaches to improve it
13. Can you explain how the LLM initialization freezing mechanism works in matrix factorization?