PARIS LODRON UNIVERSITÄT SALZBURG

Is **Geoparsing** solved yet ?

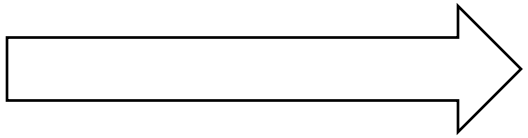
What is **Geoparsing** ?

Geoparsing is concerned with the extraction and disambiguation of location descriptions from texts.

1. Location Description Extraction:

- Location Description Extraction from the text.
- Geotagging

Paris is a beautiful city and the capital of *France.*



2. Location Description Disambiguation:

- Disambiguation and Georeferencing to Coordinates.
- Geocoding

1. **Paris, France**
2. Paris, Texas, USA
3. Paris, Tennessee, USA
4. …

In which **Context** is Geoparsing relevant?

Geoparsing is a critical component in disaster management systems.

- Number of recorded disasters has increased fivefold over the past 50 years
- Could Rise to an average of 1.5 disasters per day by 2030
- Emergency management becomes increasingly crucial to reduce the impact of disasters and minimize the loss of life and property

Which **Problems** concerning Geoparsing do I address?

Current methods for extracting location descriptions from disaster-related texts ***often fail to capture complete location descriptions, identify their location categories*** *and* ***geocode them accurately****.*

- Full location descriptions are crucial for **directing aid accurately**.
- Understanding the location category can **enhance visualization**
- Understanding location categories and spatial relations can **enhance geocoding**

Keppler-Street 33, Graz, Austria
Keppler-Street 33, Graz, Austria
Intersection Keppler-Street and Marien-Street

Which **Methods** do I use to address these challenges?

*I intend to explore the capabilities of **LLMs** and **KGs** to address the **two research objectives.***

1. Use **LLMs** to extract complete location descriptions from unstructured texts.

2. Use **LLMs** and **KGs** to accurately geocode the extracted location descriptions.

Which **other Issues** need to be addressed?

*There are other **persisting issues and biases in Geoparsing**.*

- Geographic Biases (Datasets focused on regions)
- Language Biases (Datasets limited to languages)
- Ethical issues of exposing rescue messages to online GPT-Models
- Sustainability issues through resource consumption of GPT-Models

PARIS LODRON UNIVERSITÄT SALZBURG

LLMs & KGs to address persisting issues in Geoparsing

Franz Welscher

27.11.2024