**Geospatial Analysis with Social & Web data**

# Basic Idea

The aim of this project will be to answer the following questions which are separated in 2 categories:

**Land**

* **What distinguishes a land?**
  + The most prominent aspect of the land.
  + What category does the land belong to (entertainment, rest, educational, business, …).
* **Who visited/mentioned a land?**
  + Locations of the people who mentioned a land (geo-tagged social data).
  + Ranking of the areas where people mentioned a land (by number of mentions).

**People**

* **Where do people like to go?**
  + Ranking of places people in an area like to go to (by number of mentions).
* **To what area these people belong to?**
  + Using geo-tagged social data to group people by their location.



Model

# Requirements

* **User Interface**
  + Easy to use user interface
  + Maps
  + Location Markers
  + Display Map/Locations Information
* **Data**
  + Social media data
  + Web data
  + Analysis of data
  + Categorization of data
  + Machine learning for clustering and classification
* **Development**
  + Dashboard with different statistical data and information
  + Data Extraction scripts
  + Web Application

# Possible Tools

* **Normal Web App**
  + Angular web framework for user interface
  + Some map libraries such as leaflit.js
  + Python Django for server backend
  + NoSQL database such as MongoDB
* **ArcGIS & ArcGIS Online Web App**
  + ArcGIS Pro
  + Web App Builder
  + Geodatabase
  + Python Scripts
* **Data Extraction App**
  + Scrapping libraries for data extraction like (selenium, …)

# Similar Aspect Applications

* **Google Maps**
  + **Provides**
    - Maps
    - Location Data Visualization
    - Location Information
    - Location Search
  + **Lacks**
    - Geospatial Analysis
* **Google Places**
  + **Provides**
    - Detailed Location Information
    - Location Attributes (photos, reviews, ..)
    - Location Search
  + **Lacks**
    - Geospatial Analysis
* **Human Behavior On Social Media (By Human Dynamics For Mobile Age - HDMA)**
  + **Project**
    - Determine urban land-use patterns in **Beijing**, **China** using 9.5 million geotagged social media messages from social media platform **Sina-Weibo** for six months in the urban core areas of **Beijing** and compared them with 385,792 commercial points of interests (POI) from **Datatang**, a Chinese digital data content provider. To estimate urban land-use types and patterns, the team created a grid measuring 400 x 400 meters to divide the urban core areas into 18,492 cells.
    - The team used Clustering techniques, Text Mining, Word Clouds, and the Distribution analysis of POI to identify seven types of land-use clusters in Beijing: residential areas, university dormitories, commercial areas, work areas, transportation hubs, and two types of mixed land-use areas.
    - Several computer programs to automatically or semi-automatically collect social media data from Twitter, Sina-Weibo, Google Places, and Reddit. They then saved it in MongoDB, a NoSQL Database
    - The center has also created two software toolsets to analyze and display the data it collects from social media platforms. A SMART Dashboard and a GeoViewer to manage and display their results.
  + **Reference**
    - <https://www.esri.com/about/newsroom/arcnews/human-behavior-on-social-media-is-big-data-and-gis-makes-it-actionable/>

# Title