

# Trajectory Mining: A conceptual model proposal



Adolfo Urrutia Zambrana

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# 1. Introduction: Traffic understanding



Why Traffic jams occur?  
Where Traffic jams occur?  
When car accidents occur?



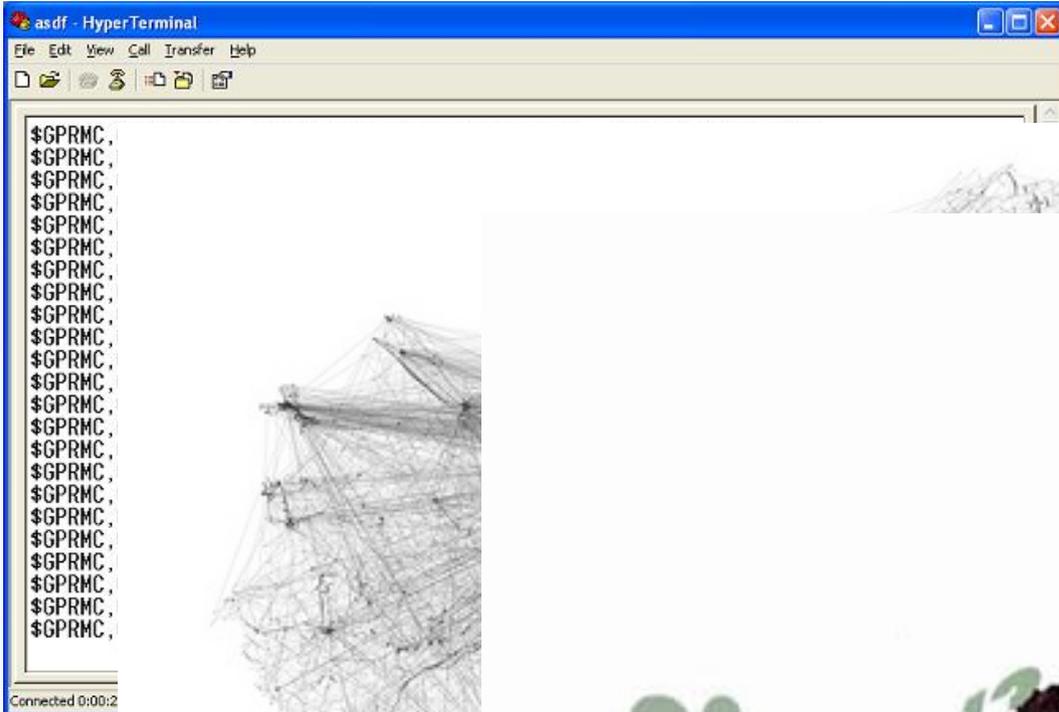
# Why is it important?

- Data sources and Practical applications

Public transportation tracking  
Human behavior analysis  
Cell phone user movement  
Car pooling policies  
Infrastructure planning  
Subatomic particle movement



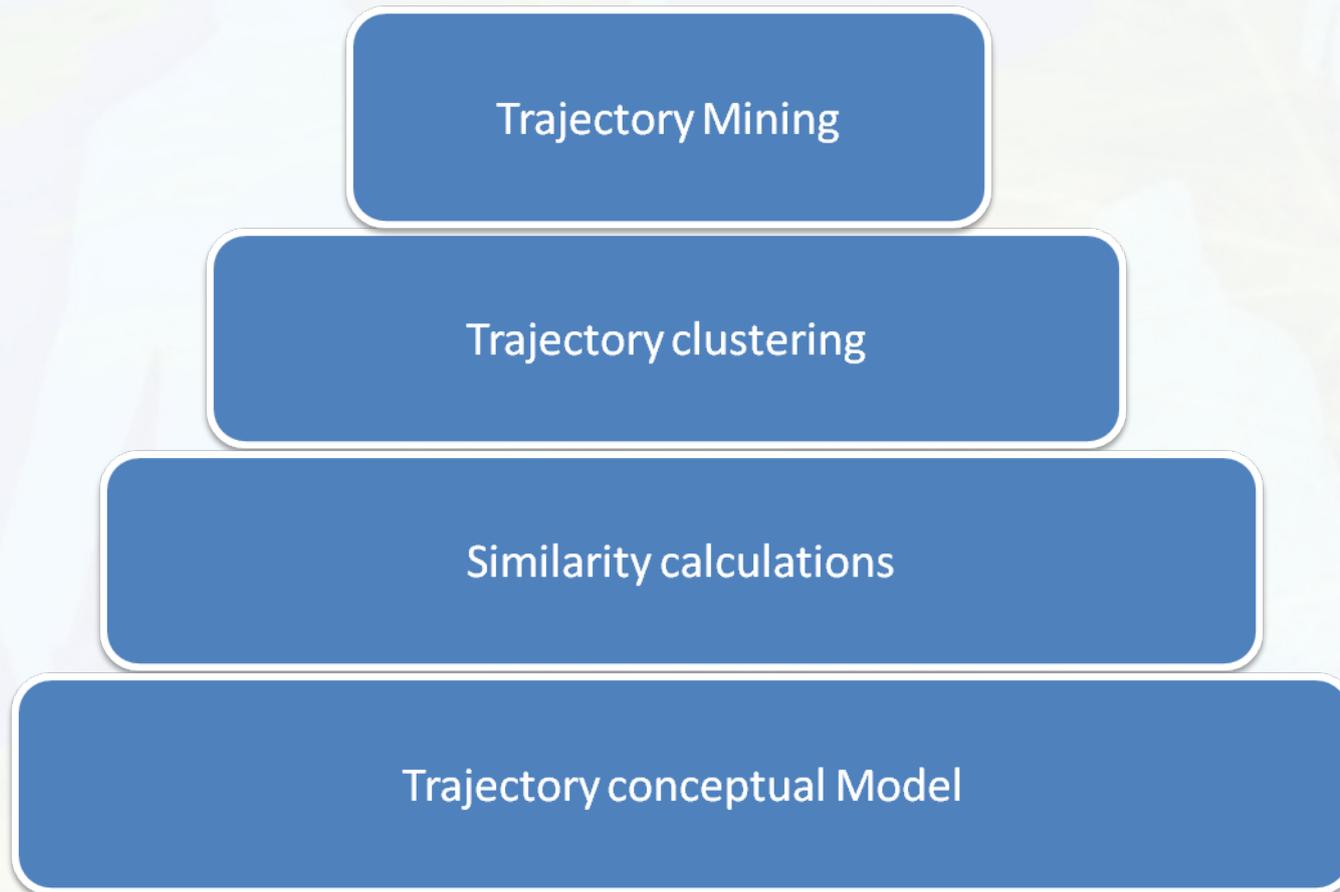
# What about trajectory mining?



Raw data  
Too many trajectories  
Data mining applied to trajectories



# Trajectory Mining components



# Trajectory Clustering

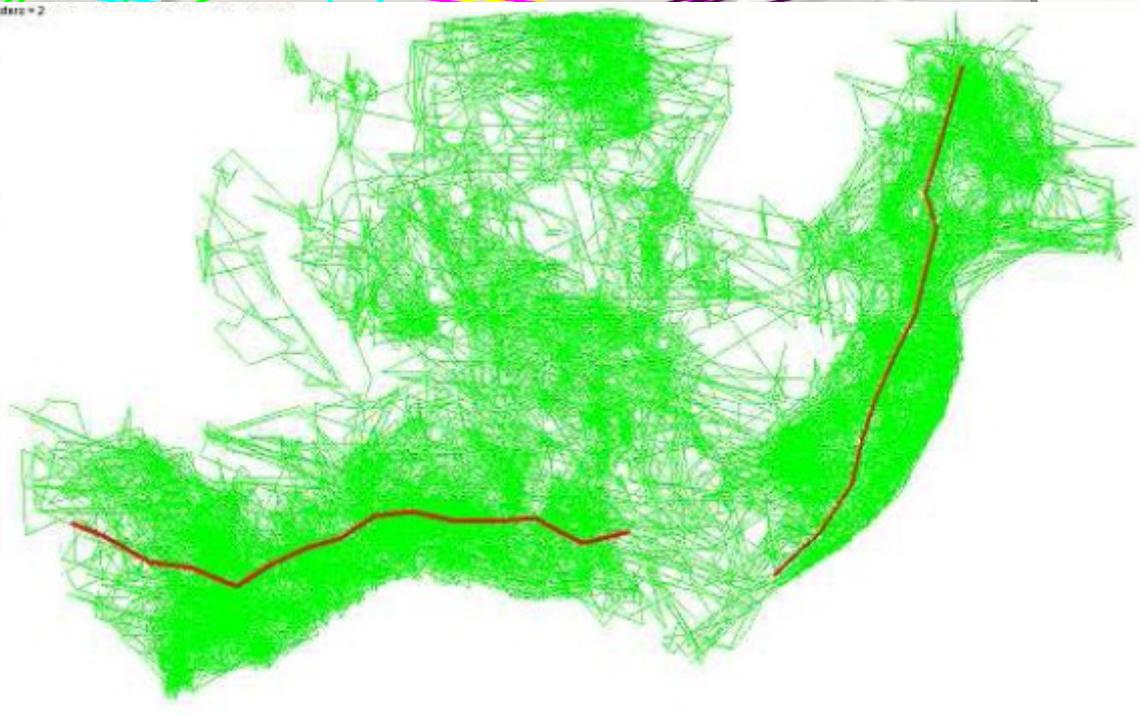
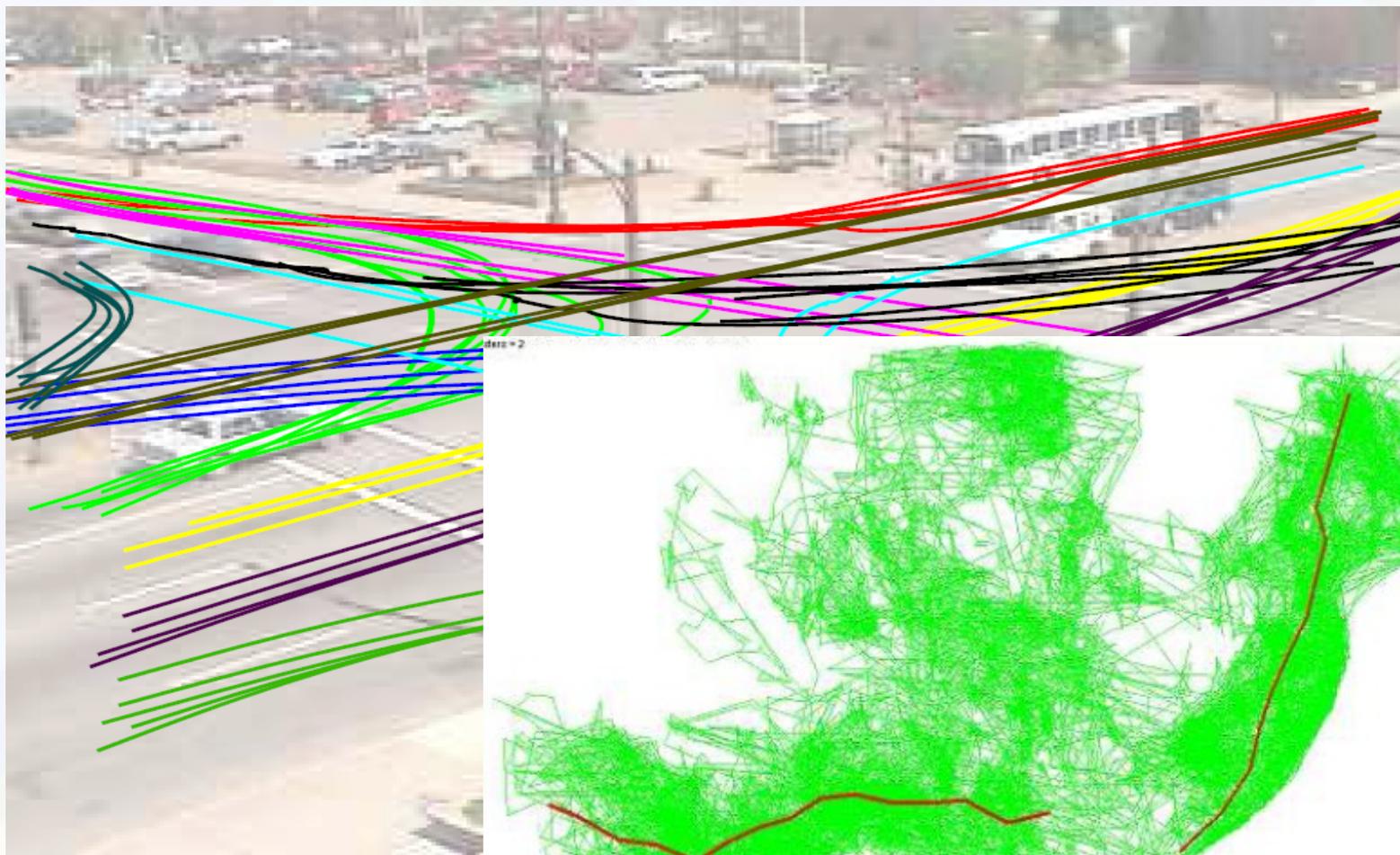
Trajectory Mining

Trajectory clustering

Similarity calculations

Trajectory conceptual Model

# Trajectory Clustering



# Similarity calculations

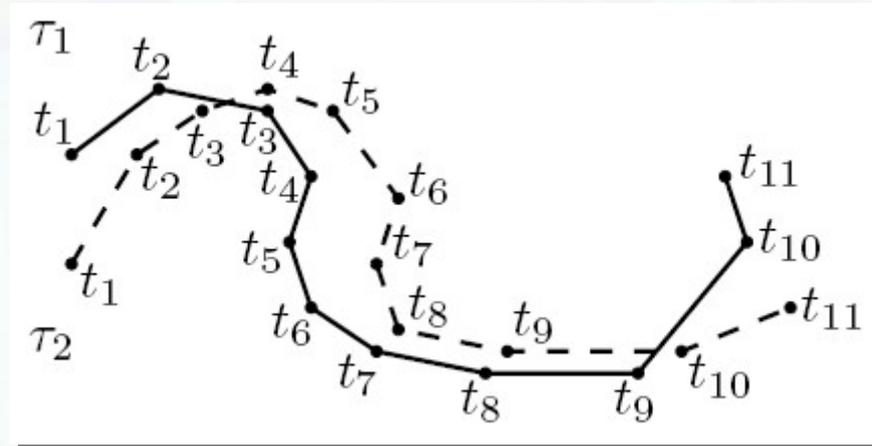
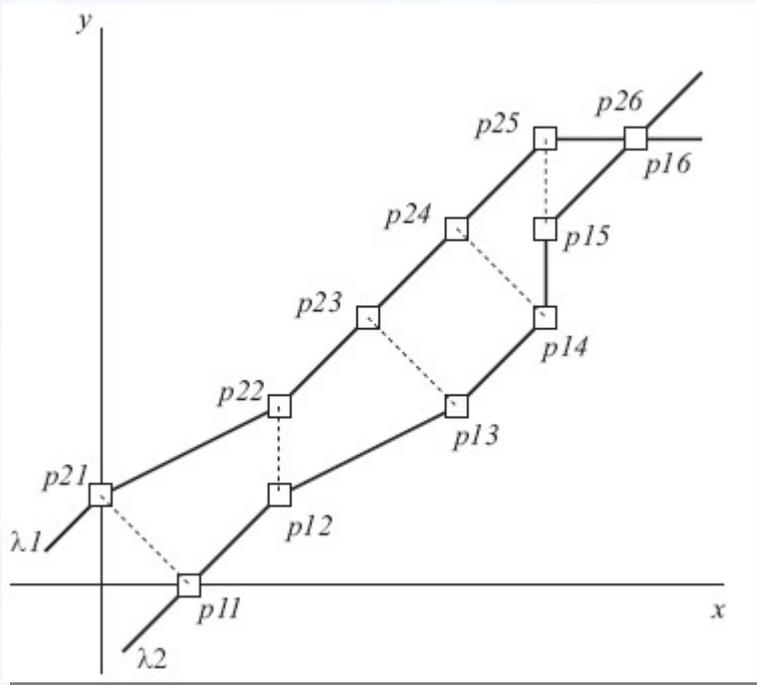
Trajectory Mining

Trajectory clustering

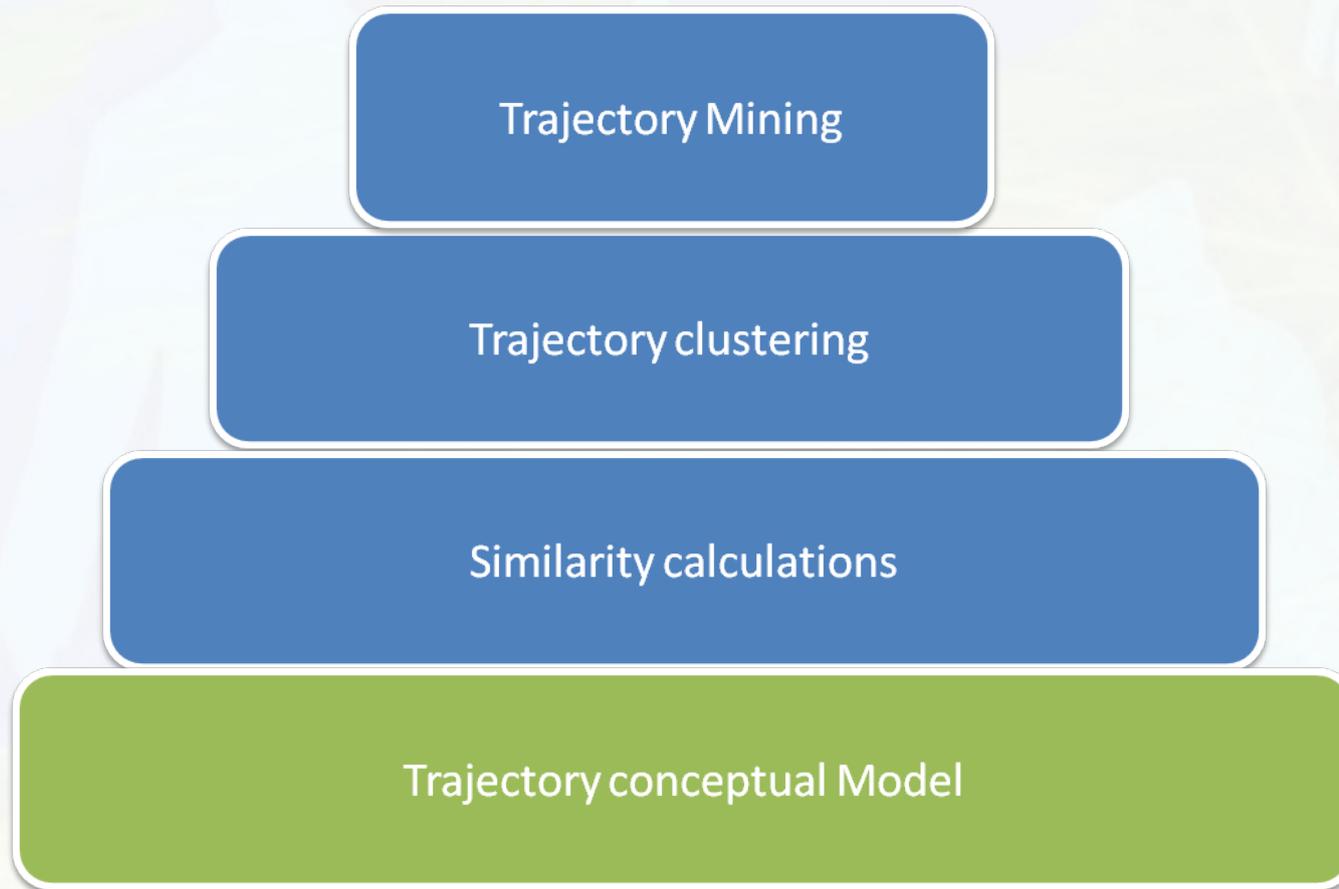
Similarity calculations

Trajectory conceptual Model

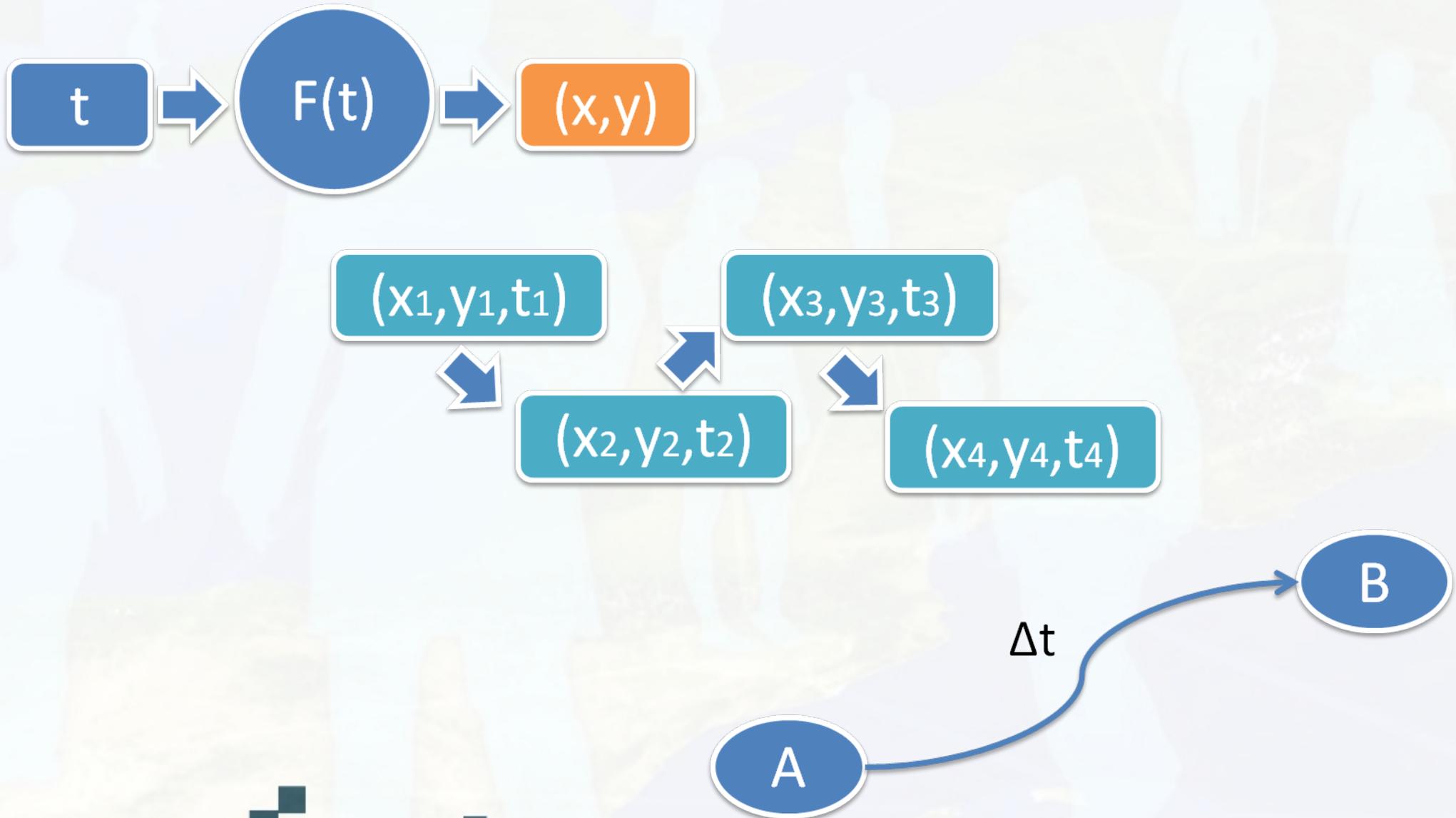
# Similarity Calculations



# Trajectory Conceptual Model



# Trajectory Conceptual Model



# Objectives

**General objective:** Design and implement a Trajectory mining tool prototype in gvSIG.

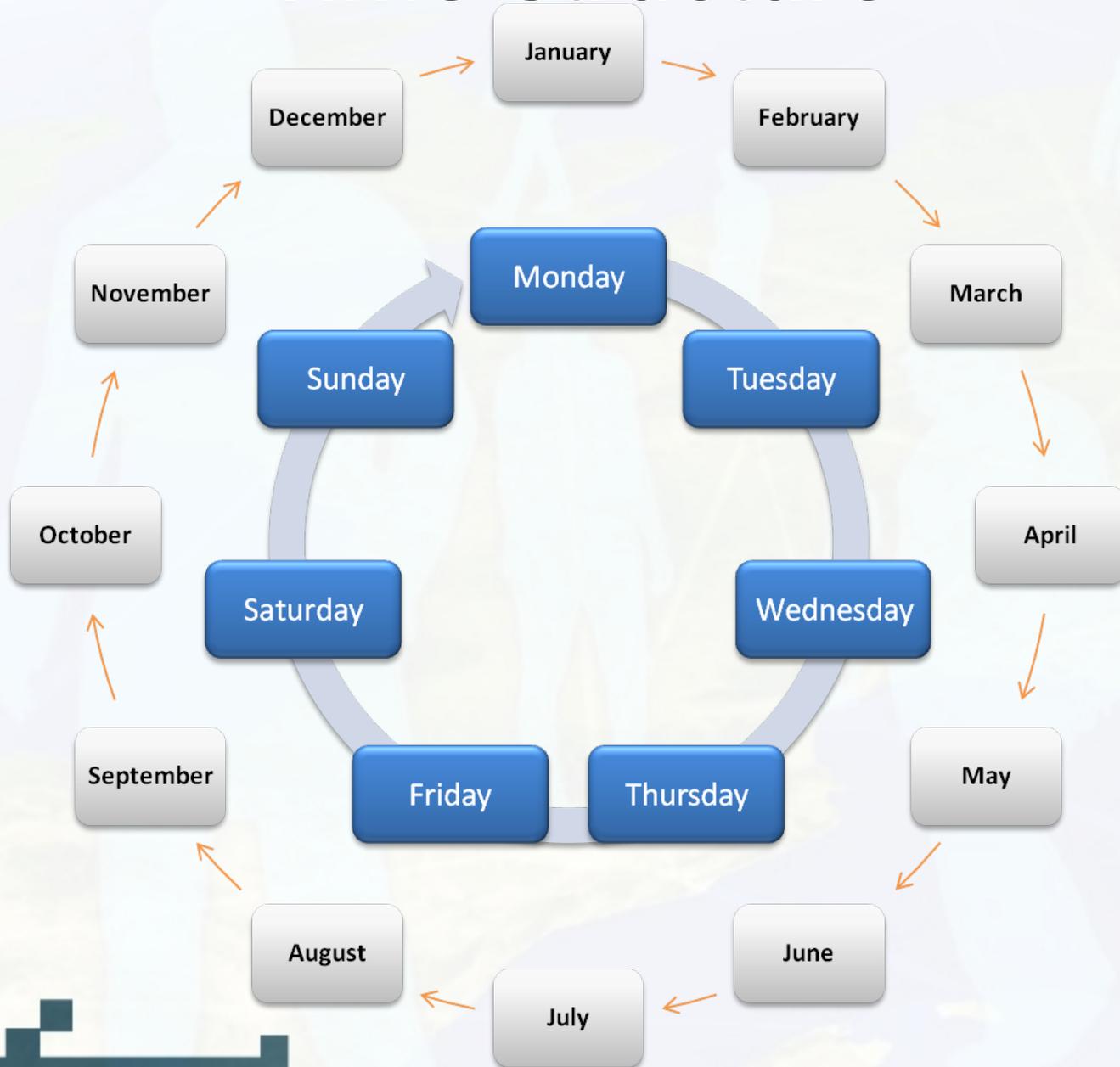
**Specific objectives:**

- Review of proposed trajectory models.
- Improve or proposed a trajectory model
- Propose a method of similarity calculation
- Propose a clustering algorithm using evolutionary computing

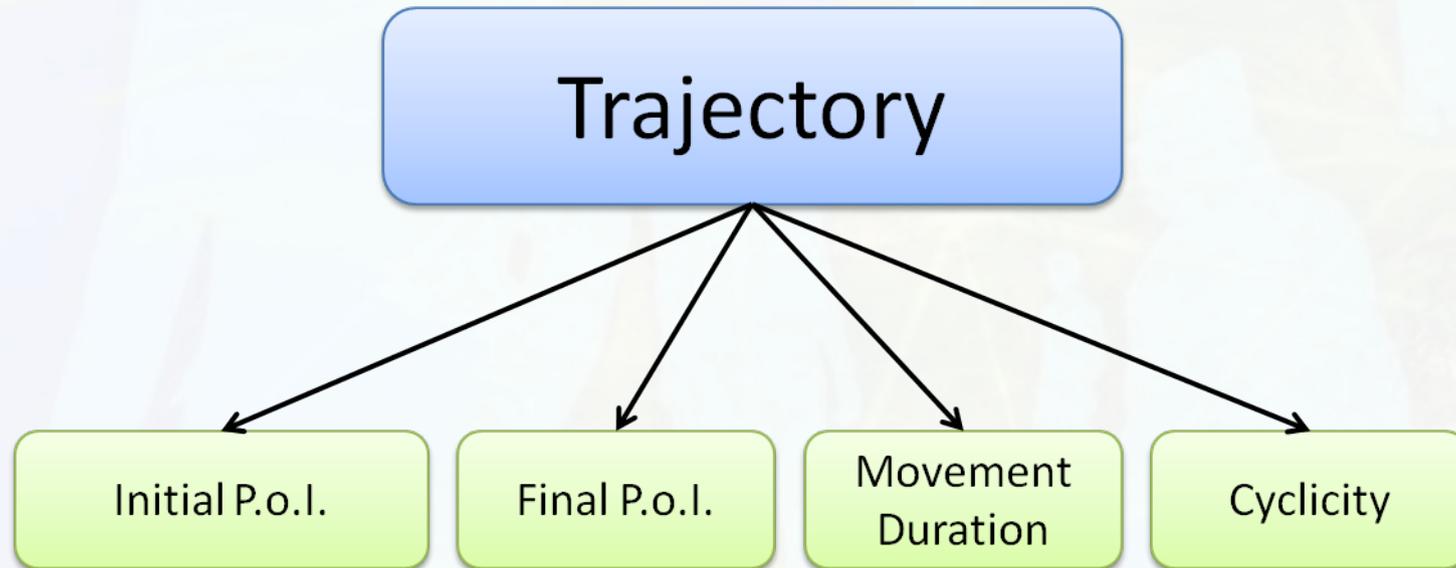
# Cyclic trajectories



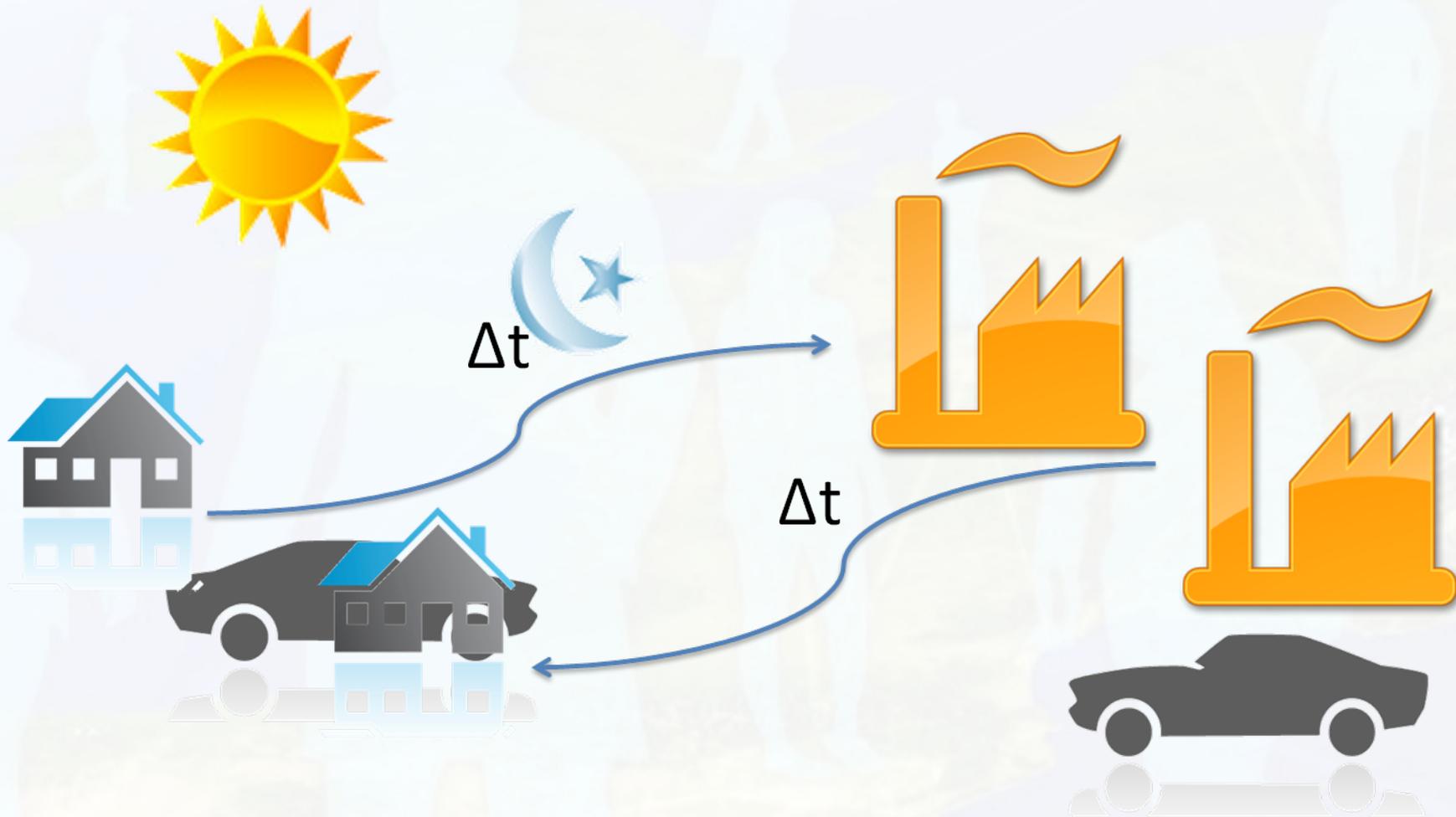
# Time structure



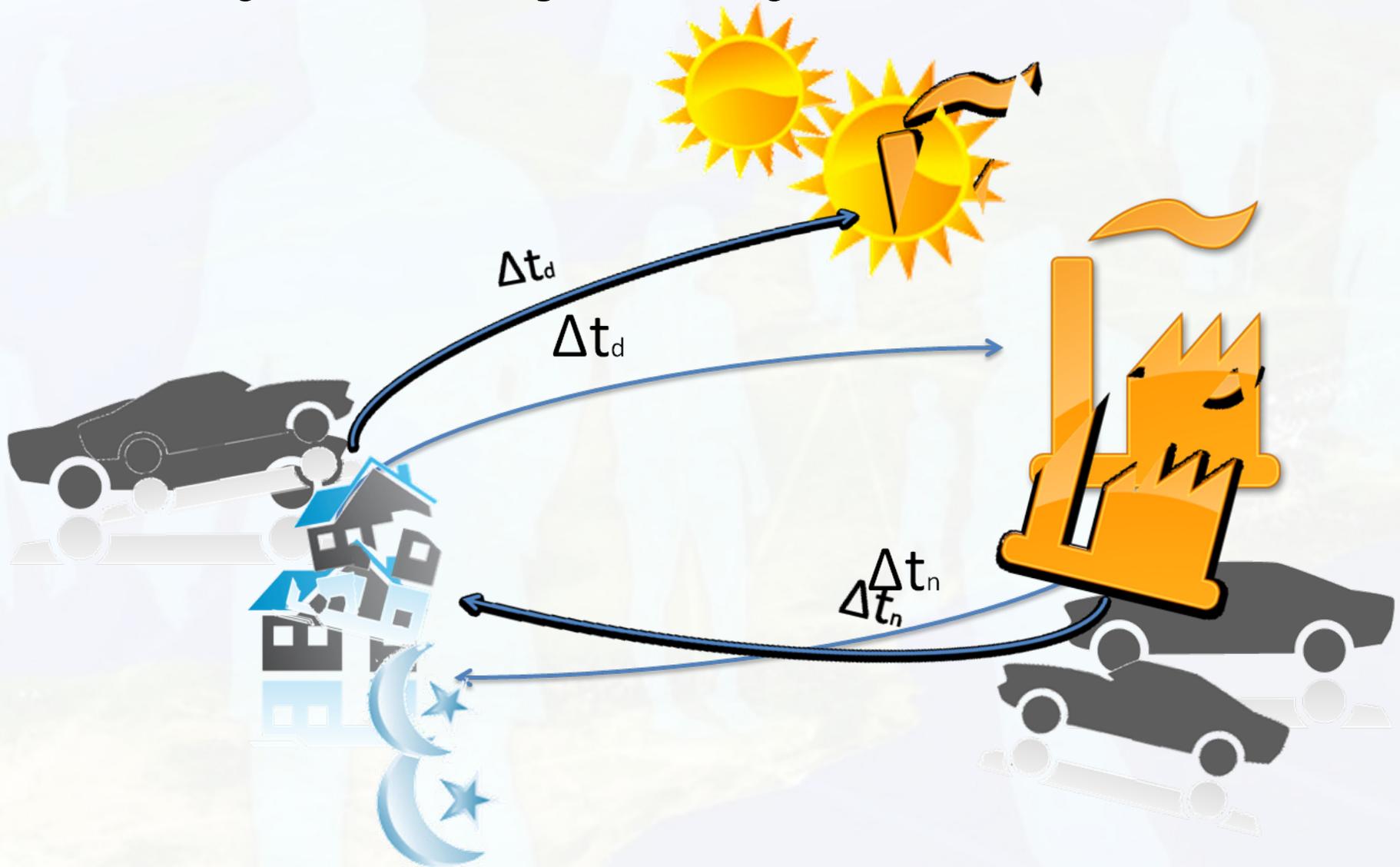
# Model proposal



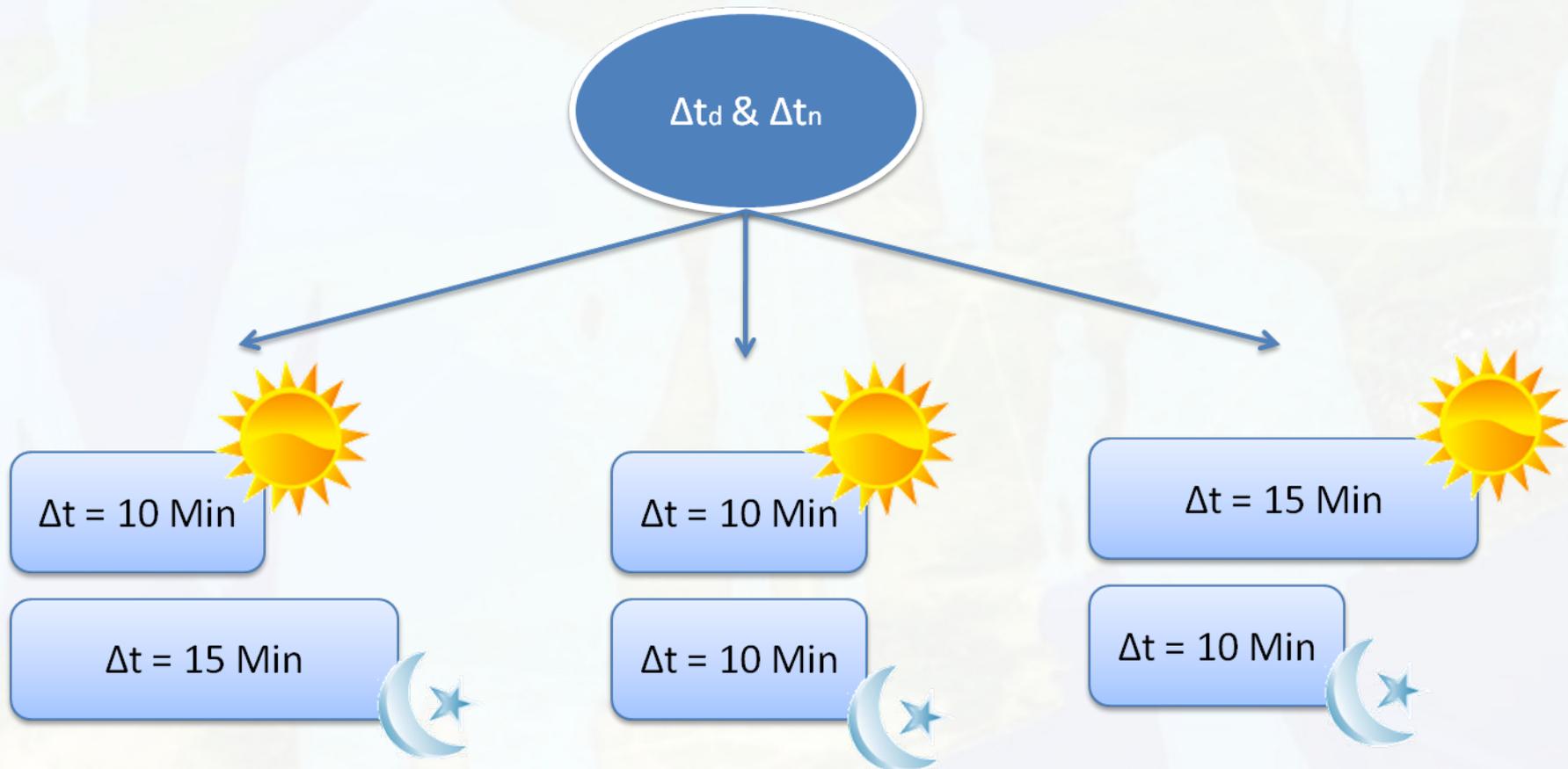
# Cyclic trajectory: Example



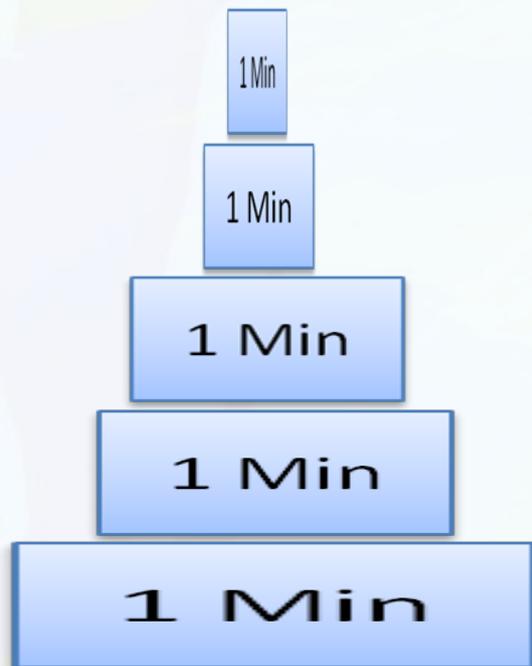
# Cyclic trajectory: Problem



# Temporal differences



# Temporal elasticity



$\Delta t = 10 \text{ Min}$

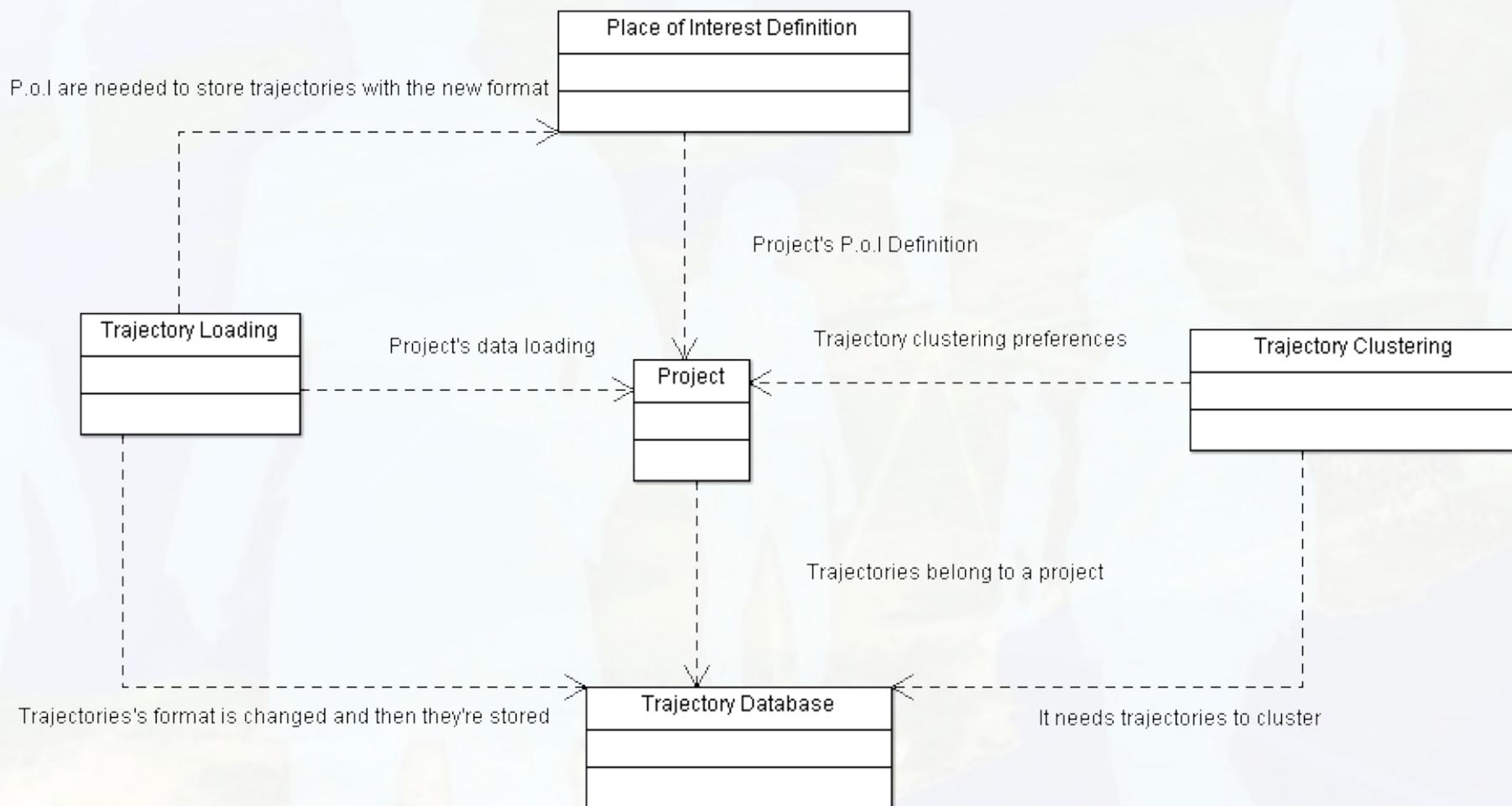


$\Delta t = 15 \text{ Min}$

# Temporal elasticity



# Future works



# Thank you



Adolfo Urrutia Zambrana  
[adolfo.urrutia@topografia.upm.es](mailto:adolfo.urrutia@topografia.upm.es)

# Reference

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