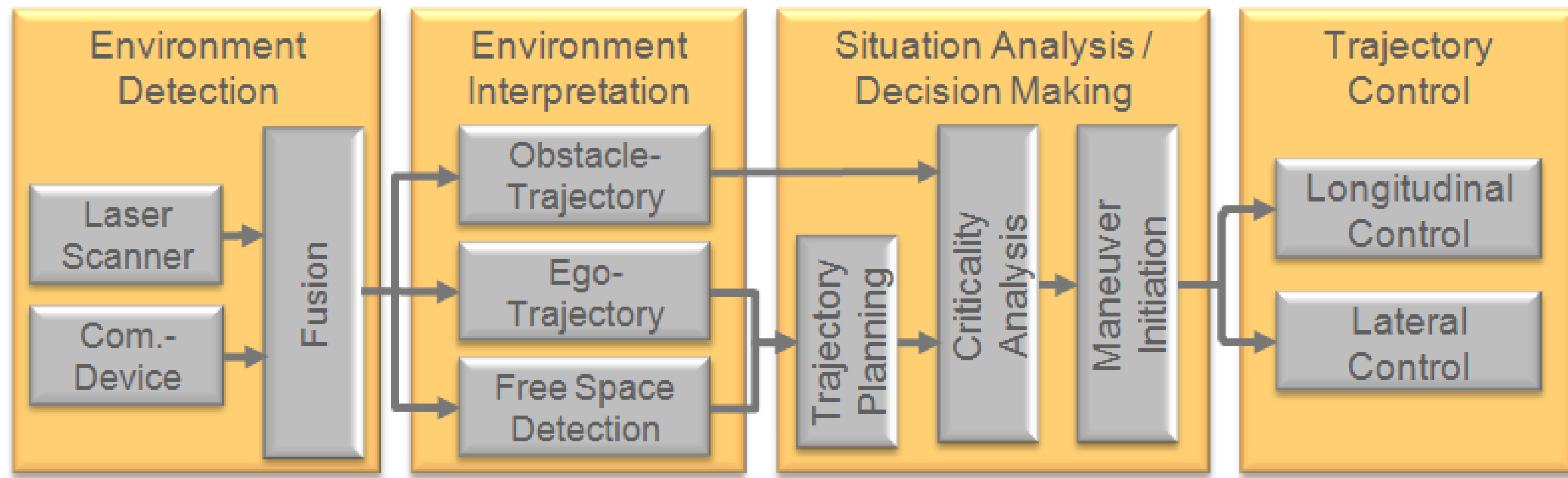


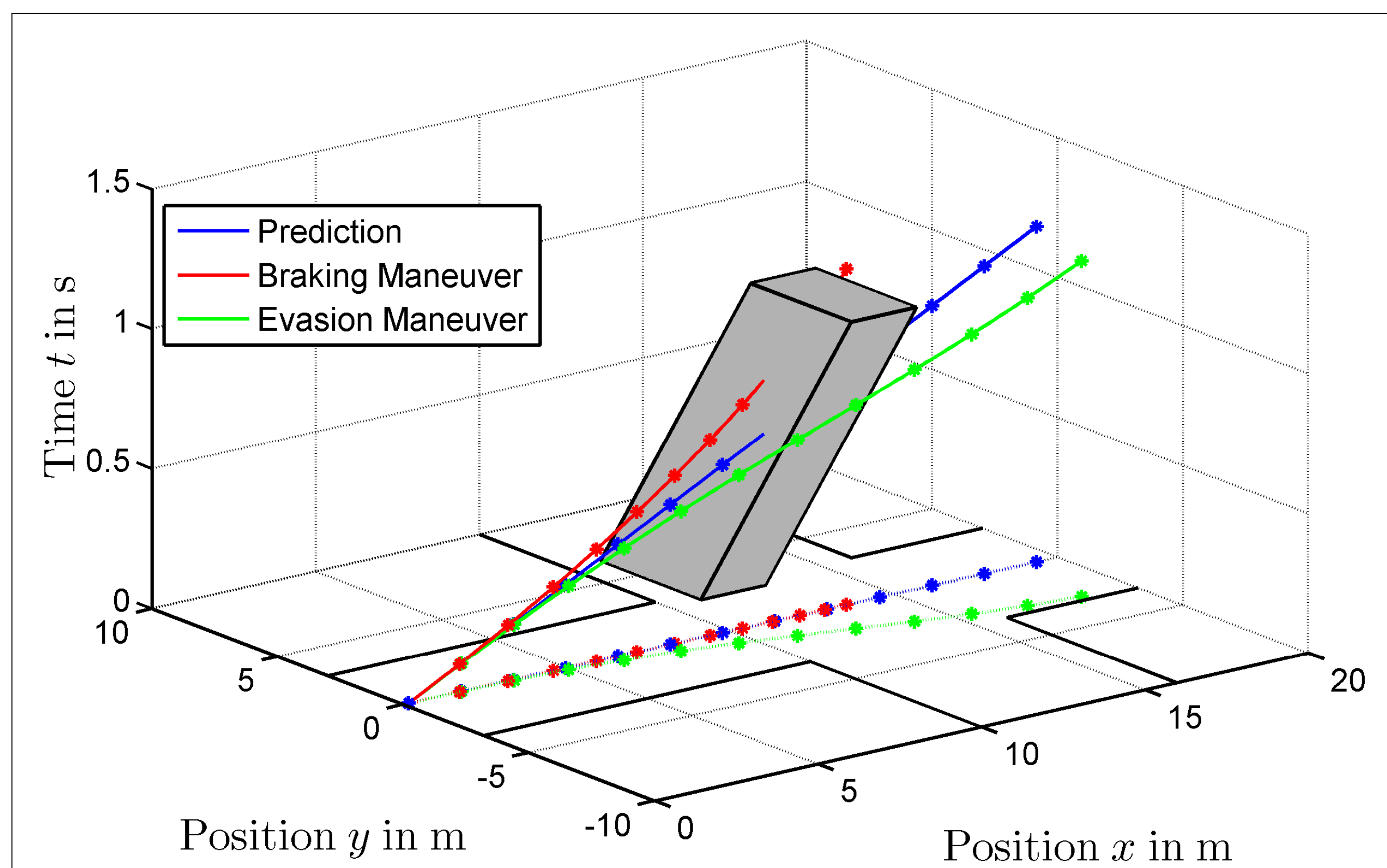
# Evasion Assist for Crossing Scenarios Algorithm and Use-Cases

## System Architecture



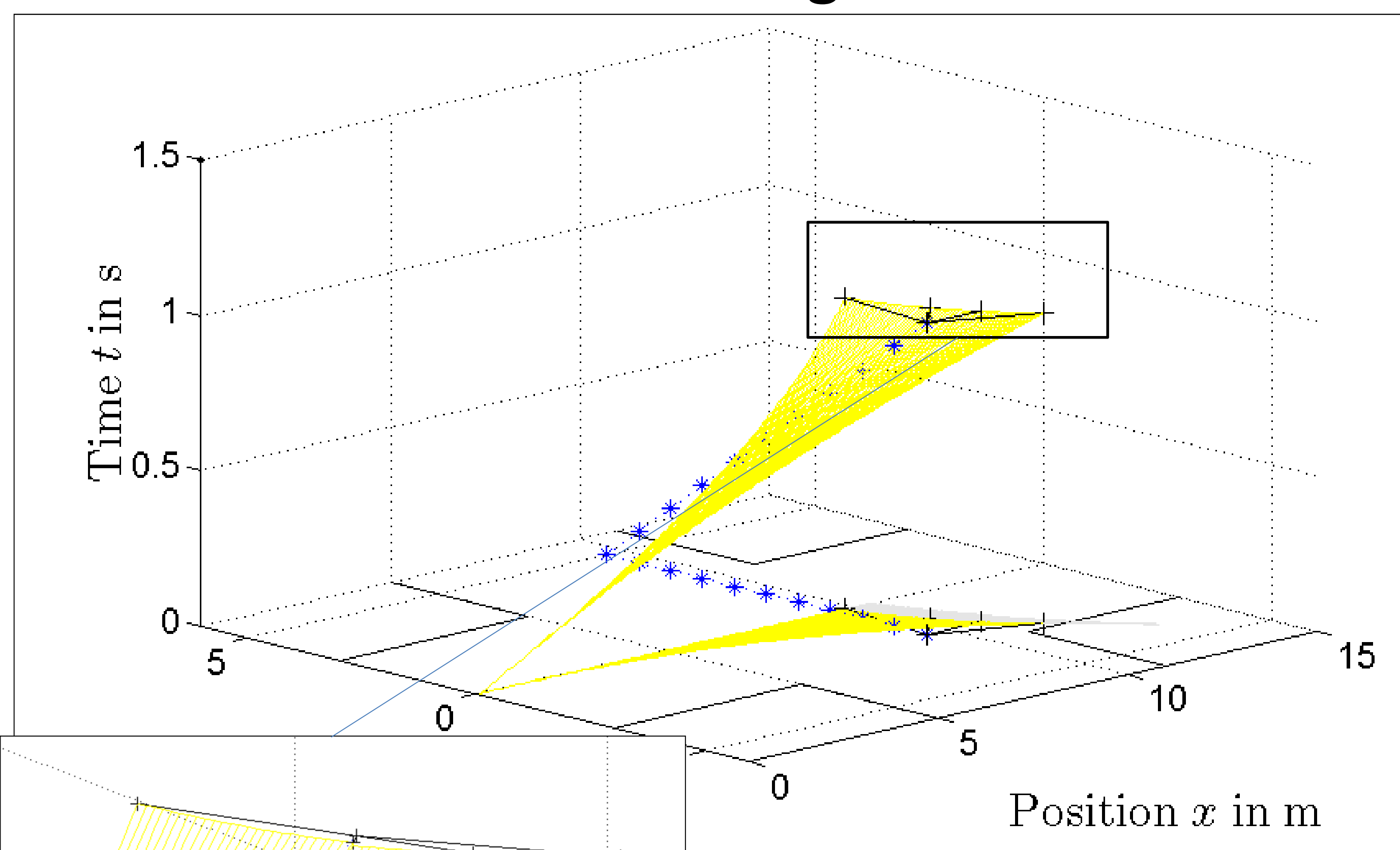
## Situation Analysis

### Collision Avoidance



- Comparison of host vehicle's max. reachable sets with predicted obstacle position while passing
  - coefficient of friction dependent lat. acceleration
  - environment dependent time of counter steering

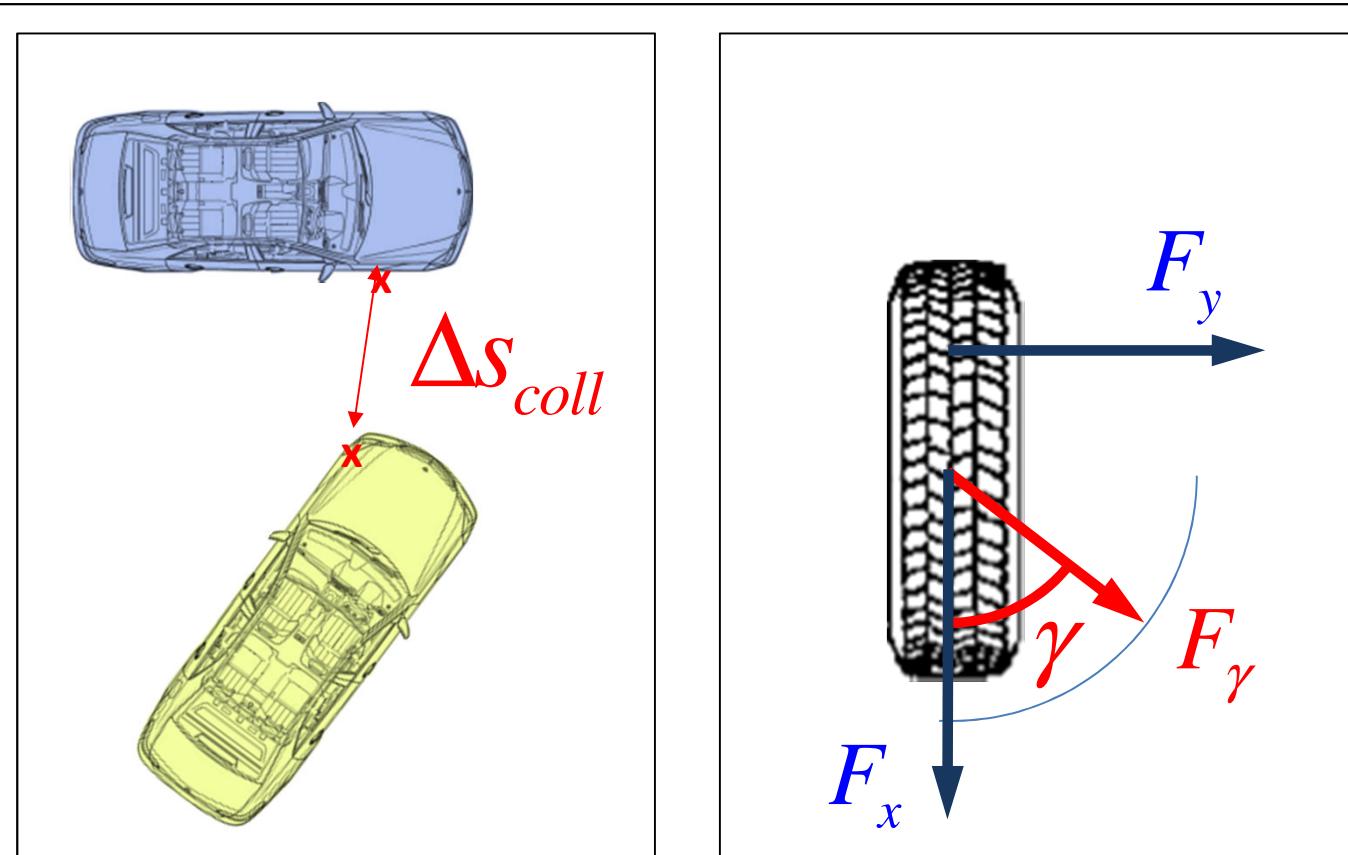
### Collision Mitigation



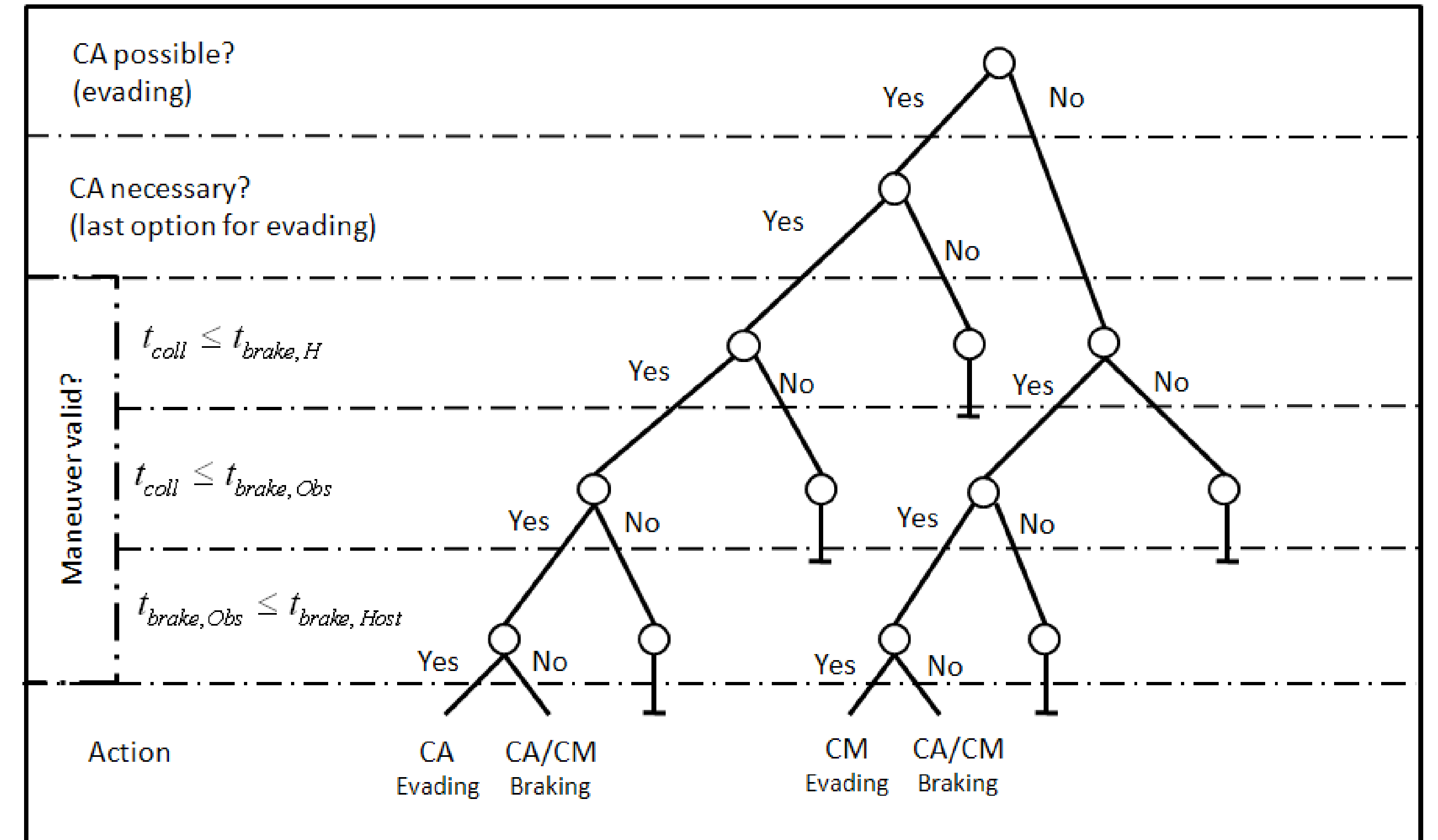
$$\Delta s_{ij, i=1, \dots, n, j=1, \dots, m} = |p_{Coll, j} - p_{ij}|$$

$$S_{TC} = \min(\Delta s_{ij, i=1, \dots, n, j=1, \dots, m})$$

- Comparison of target collision position with predicted positions for different  $\gamma$

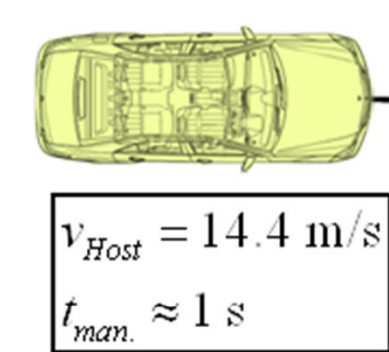
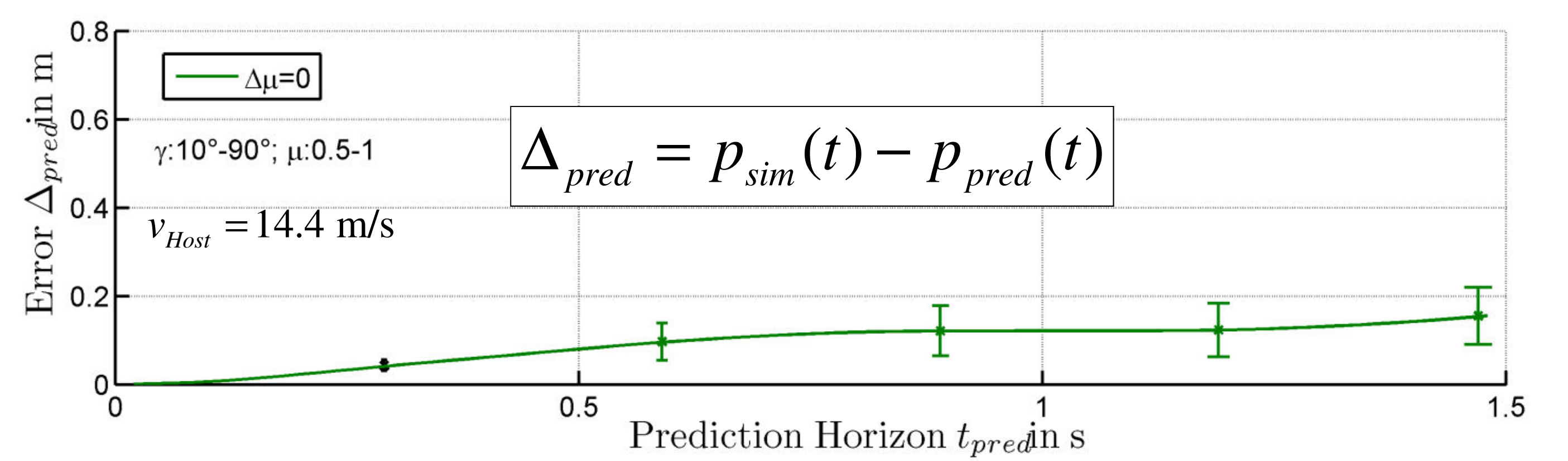


## Decision Making

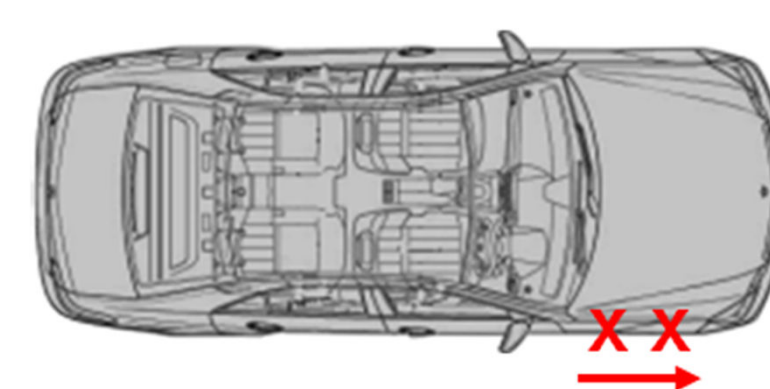


Decision Tree for Maneuver Initiation

## Validation of Trajectory Prediction

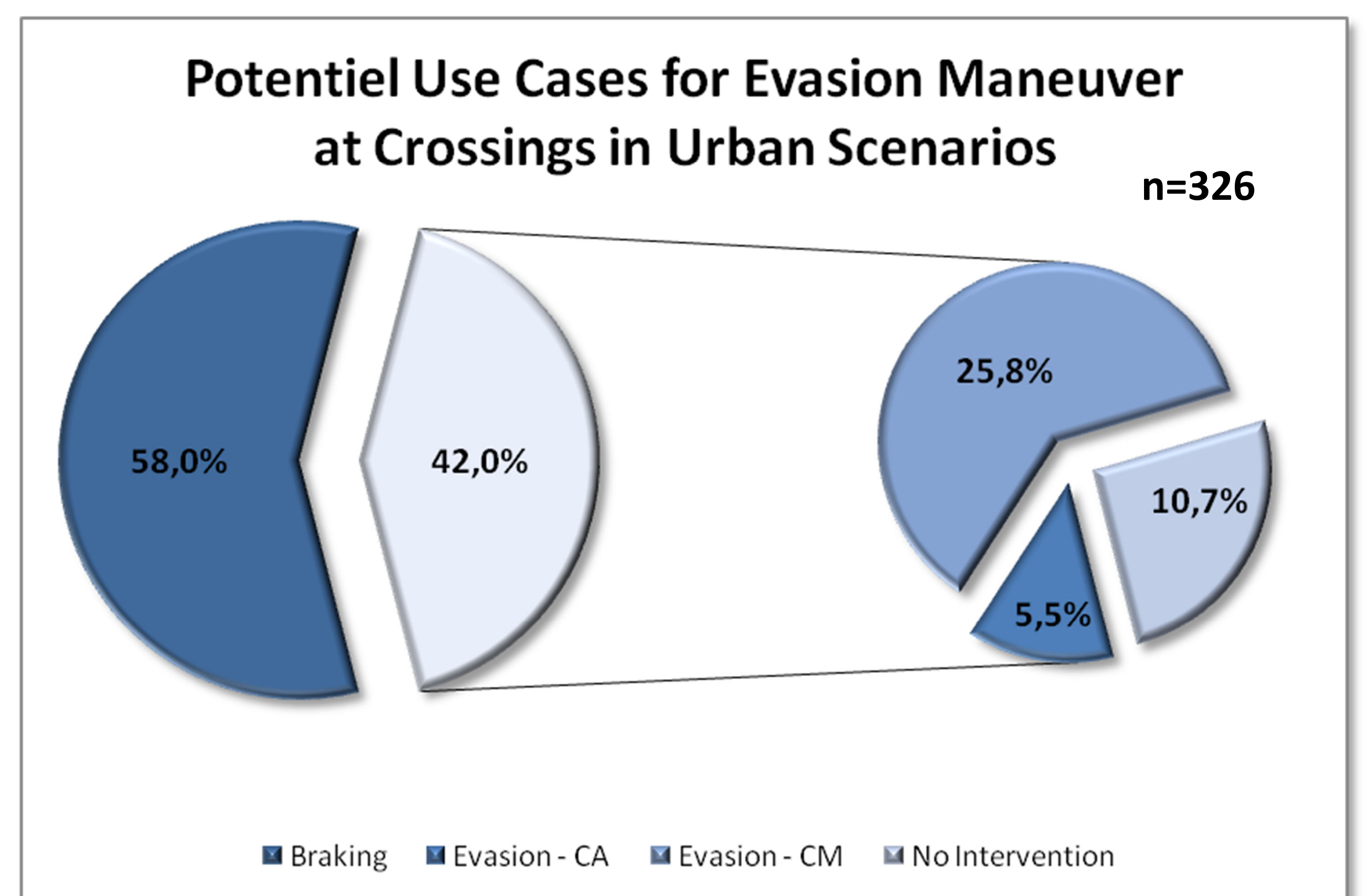


$\Delta\mu$	Error in m
0.1	< 0.2 m ( $v_{Obs} > 3$ m/s)
0.2	< 0.3 m ( $v_{Obs} > 4.5$ m/s)



Shifting of target collision point more to the front of the obstacle

## Use-Cases



Supported by:



on the basis of a decision by the German Bundestag