

# Perception & Prediction

Static  
Objects



Dynamic  
Objects

## Safety-Enhanced Trajectory Planning

### Spatio-Temporal Risk Map Building

Road Boundary

Lane Marking

Obstacle Vehicle

*Potential Field*

**Spatio-Temporal Risk Map (STRM)**

*Dynamic Programming*

*Risk Threshold*

### Dynamic Safety Corridor Generation

Reference  
Trajectory

Initial Rectangle  
Generation

Rectangle  
Expansion

Within-DSC  
Constraints

**Dynamic Safety Corridor (DSC)**

Trajectory

### Trajectory Optimization

Smoothness

Comfort

Collision Avoidance Constraints

System Kinematic Constraints

OCP

NLP

**Optimized Trajectory**

# Motion Control

