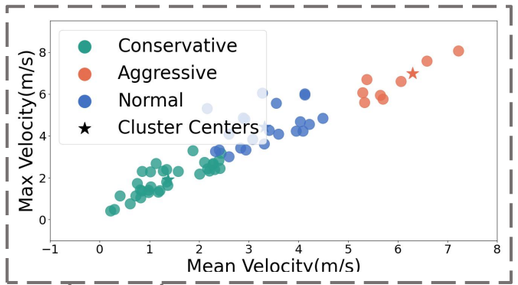
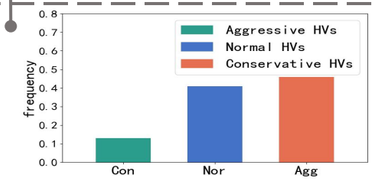
Naturalistic Human Driving Data

Data[31] Collection & Classfication



Driver type

Driver distribution



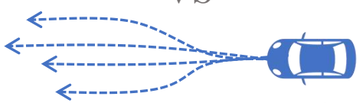
Prior Konwledge

Reproducing Heterogeneous HV Decisions

Inverse reinforcement learning

Expert demonstrations

VS



feasible strategies

Calibrate

Generate

Non-cooperative game

Decision-making preference θ^T

Safety

Efficiency

Comfort

Output

Nash Equlibrium Trajectory

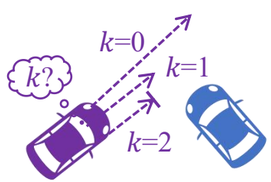
Coordinate

Compete

Cooperative Decision Making & Trajectory Planning for CAVs

Level-k game

$k \propto$ Right of way



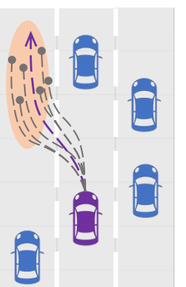
Cooperative game

Maximize system efficiency

enumerate

Best k-allocation

Lattice planner



Independent variable

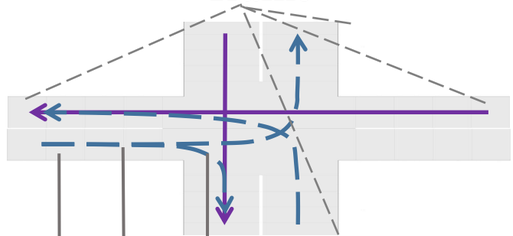
Input

Output

Optimal, Collision-free Trajectory

Simulation Environment

Heterogeneous Mixed Traffic



Control method comparison

Under different rates of penetration

With heterogeneous HV involved