AUTOMOTIVE
ARTIFICIAL
INTELLIGENCE
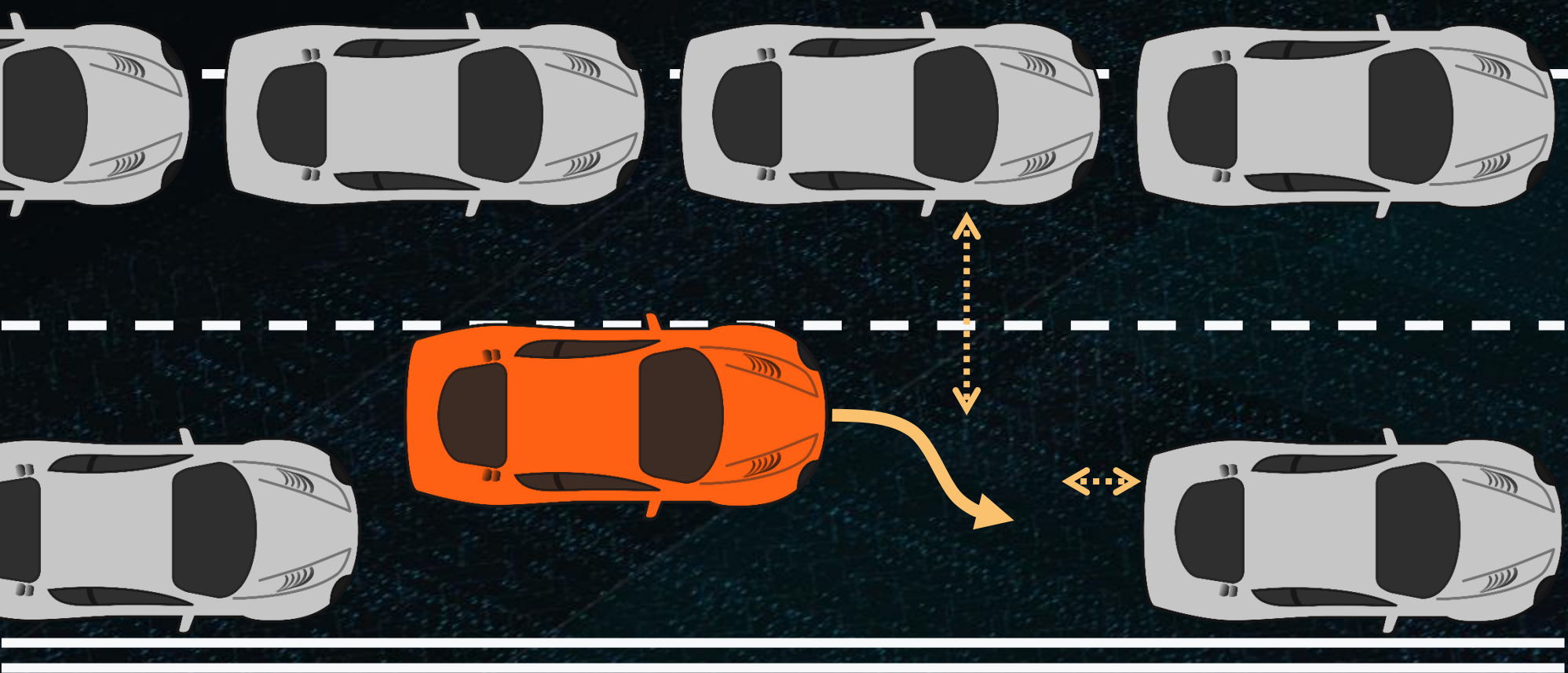
To create a replica of the world

Requirements for OpenSCENARIO

17.09.2018

About Us

- Automotive Artificial Intelligence GmbH (**AAI**) is a software development Startup located in Berlin, founded in 2017

- Our core business is in the development of a **simulation environment** for validating autonomous driving software

- Specialized on developing **intelligent traffic** and **scenario generation** to challenge autonomous driving software.

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Success Criteria

- Success Criteria are potentially complex

- Evaluated e.g. after execution (on recording)

- **Idea**: include success criteria in OSC template

Example: Building of a rescue lane

Potential categories:
Primitives
- Distance (front/back/left/right)
  to next (lane boundary, moveable objects, …)
- Contact
- Status (position/speed/accel/…)
- Custom signals from Ego? (Eg. Brake warning)

Logical Operations
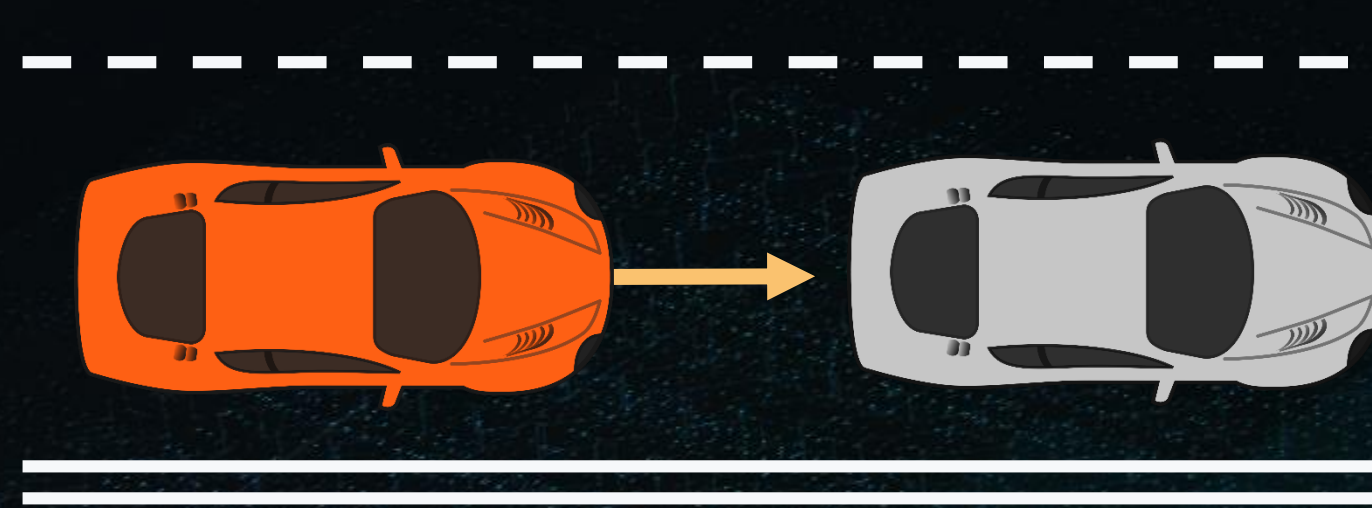- And/Or/Not/…

Timing
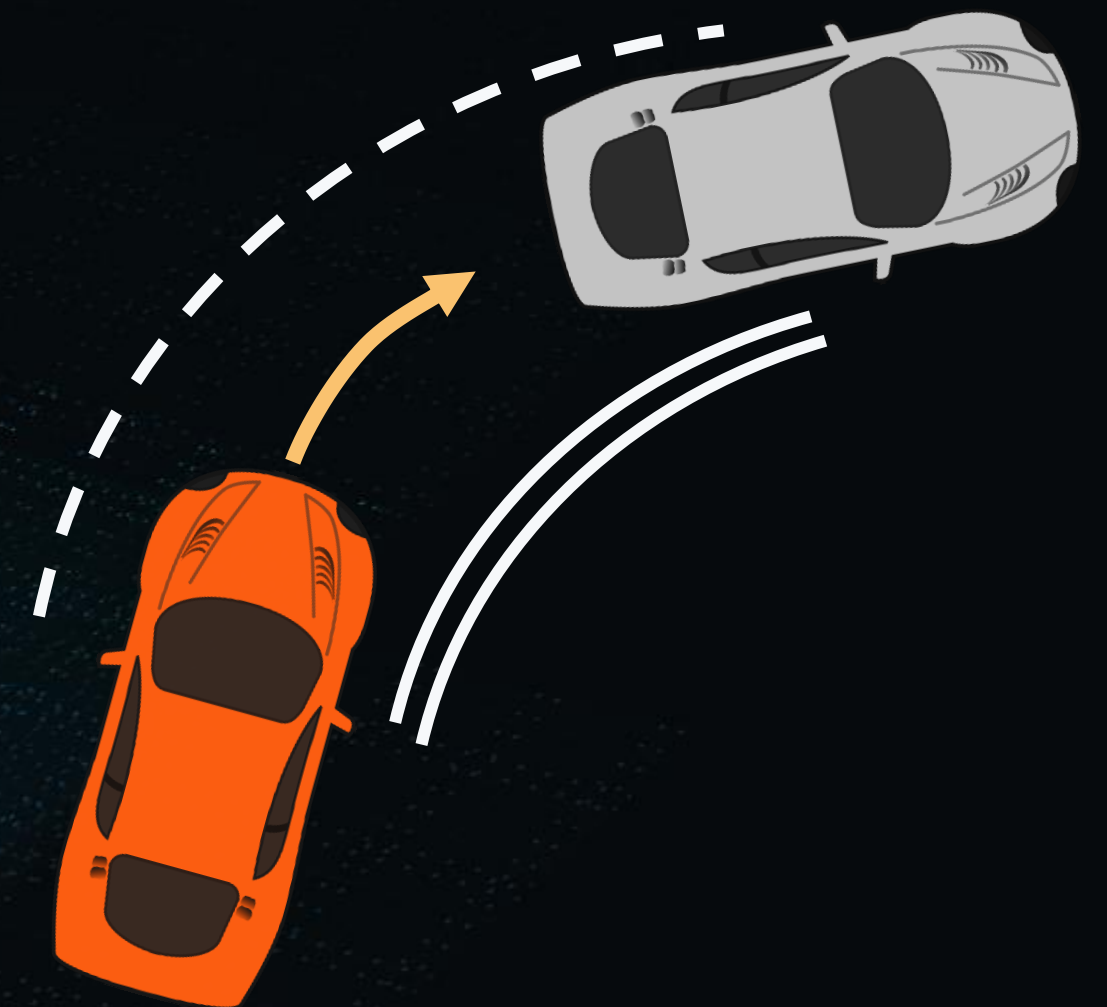- All frames / periodically / at end

Map Independence

Some Scenarios are applicable to many maps

Automatic Emergency Brake

Automatic Emergency Brake

Potential Approaches:
- Named reference points in map? (ODR can't ☹)
- S-Value positioning?
- Abstract constraints to map?
- Other ideas?

Maneuver hints & Metadata

Control of Ego car can be useful

Maneouver hints
- Suggest to change lane
- Ask to follow a trajectory (as long as possible)
- Accelerate/Decelerate/Keep a given speed
- Also: Initial acceleration / control status

Metadata
- Risk
- Category / Tags
- Expected execution time
- Constraints to Ego vehicle
    - Max acceleration / speed
- Features (eg. supported ADAS functionalities)

Testing Lane Keep Assist