When is it beneficial to perform a lane change?

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Motivation:

Unsafe lane changes are one of top causes of car accidents;\(^1\)

Description:

Set a target position and a cost function (e.g. penalize the number of lane changes, jerk);
Based on the current traffic scenario, decide if a lane change should be performed or not (e.g. rule-based, utility-based, probability-based algorithms);
Provide driving decisions compliant with the traffic rules (e.g. when possible, drive on the right-most lane).

\(^1\)https://seriousaccidents.com/legal-advice/top-causes-of-car-accidents/unsafe-lane-changes/
Motivation

Tasks:

- Literature survey;

- Determine whether a lane change is desirable or not;

- Determine the inter-vehicle traffic gap and time to start the manoeuvre;

- Implement, test, and compare the algorithm with the human-driving behavior.
Interested? Contact me!
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References

