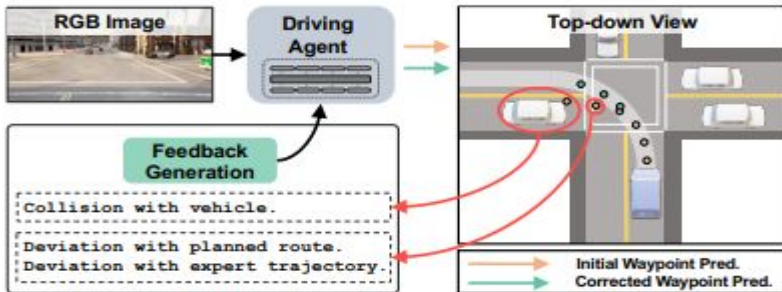


Feedback-Guided Autonomous Driving

What is the problem?

Self-driving cars often fail in complex driving tasks because they only learn by imitating expert drivers without understanding why mistakes happen. This lack of feedback limits their ability to handle new, challenging situations



What has been done earlier?

Autonomous driving models mostly relied on behavior cloning, where cars imitate expert drivers without understanding mistakes.

Some approaches used imitation learning and multi-modal inputs (like LIDAR and cameras) to improve driving performance.

Existing models attempted to use reward-based feedback but lacked detailed explanations for errors, limiting their effectiveness.

Feedback-Guided Autonomous Driving

What are the remaining challenges?

Autonomous driving models struggle with generalizing to unfamiliar or complex driving scenarios.

There is no clear, structured feedback to explain *why* certain driving actions fail, making it difficult for the models to improve.

Slow feedback generation and processing limit the use of many models in real-time driving.

What novel solution proposed by the authors to solve the problem?

The authors propose FeD, a framework that uses large language models (LLMs) to provide detailed, language-based feedback on driving mistakes.

FeD trains the model with corrective feedback, explaining why errors occurred and how to improve predictions.

It introduces an efficient, end-to-end training process that enables faster and more accurate decision-making suitable for real-time driving