Emulation system of driver’s own driving

Team: SDL

Background

Research Content

Performance evaluation of an automatic driving

Evaluation Method

Analyzing the over-riding* of the driver who took the automatic driving car to reproduce own driving

＊over-ride：Revision operation such as brakes or the steering by the driver at the time of riding an automatic driving car

We used UC-win/Road and Driving Simulator(DS), and made experiment environment to evaluate the above.

Why do we use UC-win/Road and DS

On experiment…

Use Real vehicle on real road

- High cost
- Danger
- No reproducibility
- etc.

Use DS and UC-win/Road

- Low cost
- Safety
- Reproducibility
- etc.

Driving Simulator

Restart problem

<u>Problem by the over-riding</u>

- If once the driver overrode the autonomous driving, the automobile would more or less stray off the trajectory that the automobile must emulate.

- This causes the problem how to restart the autonomous driving when the automobile's position is off the trajectory (Fig. 1).

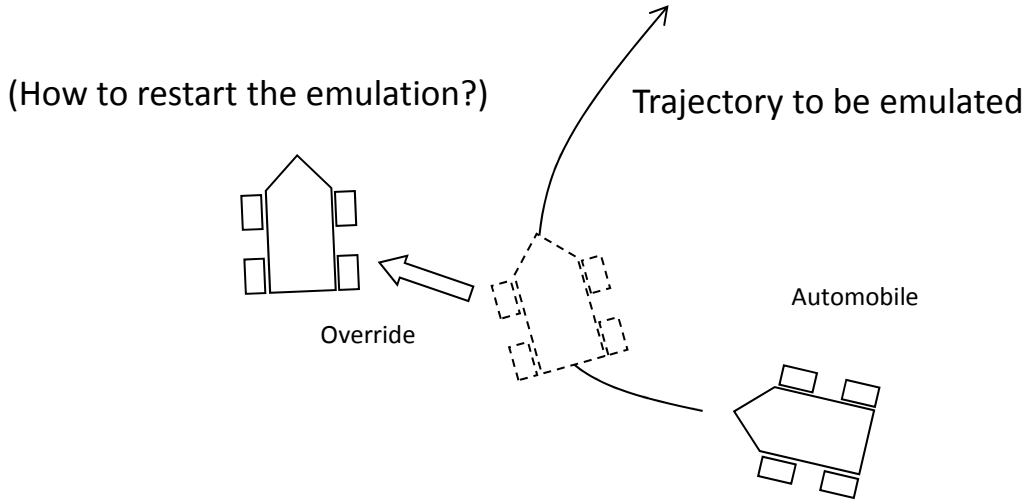

Fig. 1. Restart problem caused by driver's override

Program concept

Settlement Method of the Restart Problem

- We develop a system for logging the data of the driver's own driving (position, velocity, etc.) and emulating it.

- When the position of the automobile is off the target trajectory, the system interpolates the data that is to be emulated so that the automobile will ``approximately'' emulates the driver's own driving.

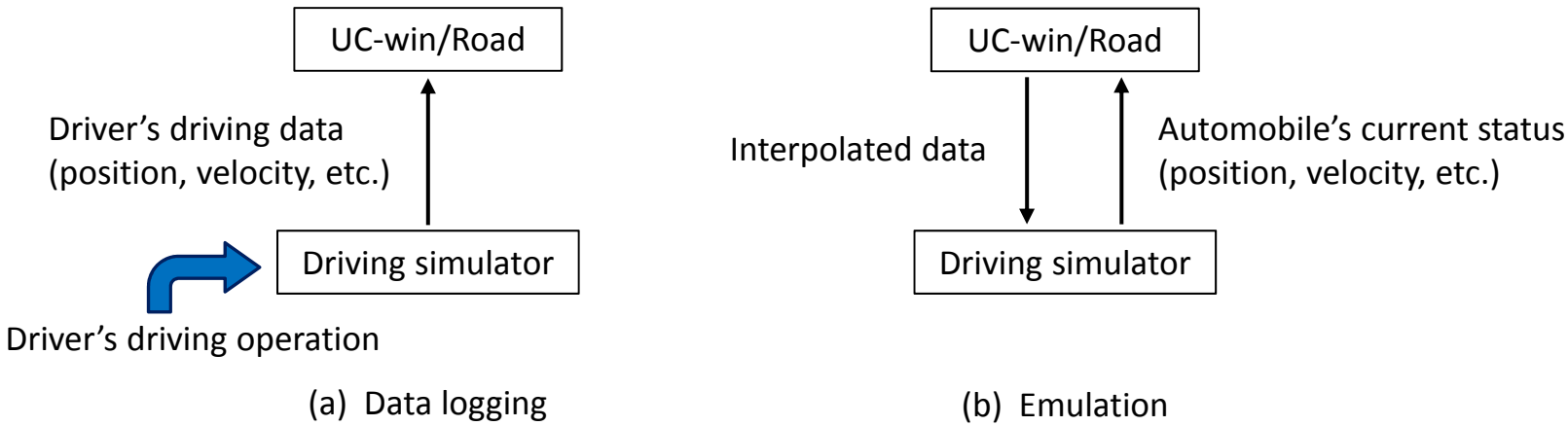

Fig. 2. Sketch of the proposed system

Future work

- The automatic driving by the program that we made this time could not completely reproduce manual driving, and errors have occurred. It is necessary to elucidate the cause of errors.

- Performing an over-riding inspection experiment and deepen consideration as soon as a design of the automatic driving not to include an error is over.

We analyze the characteristic of the driver who took automatic driving by repeating inspection and aim at the realization of the automatic driving that it becomes burden reduction.