

Driver Heterogeneity in Rubbernecking Behaviour at an Incident Site

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ABSTRACT

Incidents can affect the flow in non-incident direction due to rubbernecking. To this date, only homogeneous rubbernecking behaviour has been assessed. This study provides insights into inter-driver heterogeneity in rubbernecking behaviour while passing an incident site. We use empirical trajectory data obtained from a helicopter-mounted video camera. The length of study section is approximately 220 meters, starting at 125 meters upstream of the incident site.

Results show that the variations in speed in the upstream of incident location are substantially higher within passenger car drivers than within the truck drivers. The passenger cars in the median lane reduce the speed further upstream, mostly with sharp deceleration while passenger cars in the shoulder lane reduce the speed closer to the incident scene. Some drivers did not exhibit rubbernecking behavior, passing the incident with a steady speed. The results provide a better understanding of rubbernecking behaviour and can be used to establish determinant factors to measure the rubbernecking effects.

BACKGROUND

Rubbernecking

- Describe the tendency of vehicles reduce the speed to view the scene of an incident
- Assumption: if there is an acceleration changes while approaching the incident scene, then the drivers exhibit a rubbernecking behavior, due to driver attention shift to the incident.

Heterogeneity

- Difference in individual driver behaviour over distance when passing an incident.
- Differentiate between three driver groups: passenger cars in the median lane, passenger cars in the shoulder lane and trucks drivers.

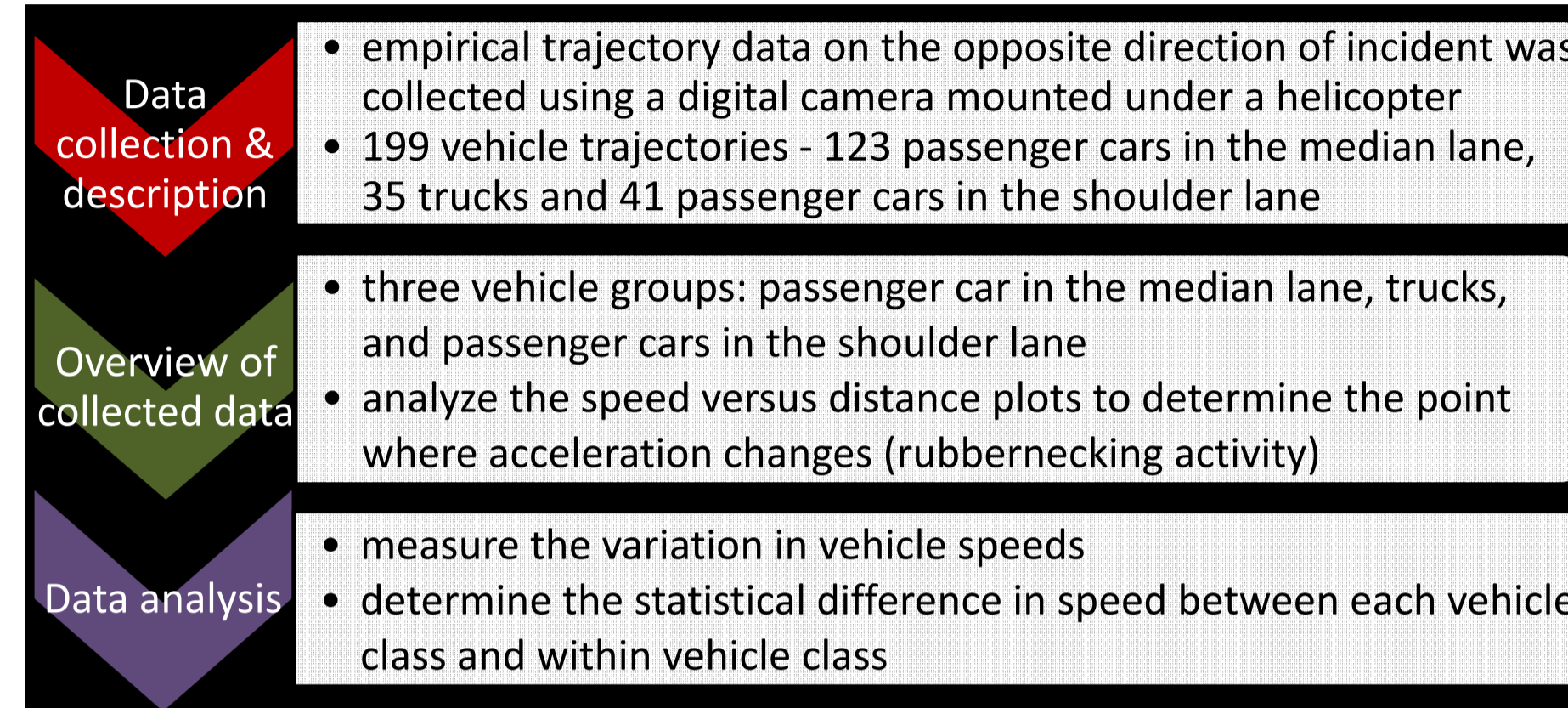
Problem statement

- average rubbernecking behaviour has been analyzed previously, however the change of driver behaviour due to rubbernecking may vary between the types of vehicles, the incident types and also between lanes.

OBJECTIVES

To identify differences in speed changes between passenger car and trucks while passing an incident site

METHODS



DISCUSSION AND CONCLUSIONS

- High variation in speed profiles between individual vehicles. Within vehicle group, the variation in speed is higher in the upstream of incident location whereas between each vehicle group, the speed difference in the upstream is lower.
- Passenger cars in the median lane show a much higher variation in speed than the vehicles in shoulder lane.
- Being closer to the incident, passenger cars in the median lane are significantly affected by the incident.
- Rubbernecking behaviour is influenced by vehicle types, incident visibility, and type of driver (based on occupying lane).

RESULTS

