

Einladung zum ZeSOB Kolloquium

Am Montag, 16. Januar 2023, um 16:30 s.t. spricht Herr

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über

Grasping Causality for the Explanation of Criticality for Automated Driving

Demonstrating the safety of fully automated driving systems is a multi-faceted challenge for which classical statistical considerations based on driving distance become infeasible. As critical situations in road traffic are rather rare, the driving task is uneventful most of the time and thus it might be advantageous to center the development process around those concise temporal sequences (traffic scenarios) that are safety-relevant. Therefore, contemporary approaches suggest a decomposition into scenario classes with subsequent statistical analyses, particularly regarding the emergence of criticality. Unfortunately, these associational approaches may yield spurious inferences, or worse, fail to recognize the causalities leading to critical scenarios, which are, in turn, prerequisite for the development and safeguarding of automated driving systems. As to incorporate causal knowledge within these processes, we aim at a formalization of causal queries whose answers facilitate a causal understanding of safety-relevant influencing factors for automated driving. Based on Judea Pearl's causal theory, we define a causal relation as a causal structure together with a context, both related to a domain ontology, where the focus lies on modeling the effect of such influencing factors on criticality as measured by a suitable function. As to assess modeling quality of causal relations, we suggest various quantities and evaluate them on a small example. Since availability and quality of data are imperative for validly estimating answers to the causal queries, we also discuss requirements on real-world and synthetic data acquisition. In general, establishing causal considerations at the heart of safety processes is paramount in order to ensure the safe operation of automated driving systems.

Der Vortrag findet am Montag, 16. Januar 2023, um 16:30 Uhr s.t. im Raum W01 0-015 am Campus Wechloy der Universität Oldenburg, Carl-von-Ossietzky-Straße 9-11, 26129 Oldenburg statt. Parallel streamen wir den Vortrag über BBB unter <https://meeting.uol.de/b/pet-ihv-p2z-min>

Alle Interessierten sind herzlich willkommen!

(Einladungsvorschlag von Prof. Dr. Peter Ruckdeschel)