

# System theoretic modeling of human interaction with respect to rule-based driving interactions

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**Abstract:** Modeling of human interactions allows to map the different human interactions qualities also to Cognitive Technical Systems (CTS). Here formalized solutions can be used and integrated to the supervision of the Human-Machine-Interaction by Cognitive Interfaces. The proposed modeling approach can be used to model the human interactions to the considered part of the real world with a variety types of descriptions, such as mathematical equations, graphical networks, and algorithms. The contribution introduces the Situation-Operator-Modeling (SOM) approach theoretically and details on the representations of the approach with a rule-based algorithm with respect to driver interactions. The interaction between the human driver and the vehicle can be illustrated with a cyclic loop. Within the rule-based knowledge representation approach driver-specific variables can be defined and identified during the interaction.

**Keywords:** Situation-Operator-Modeling, Human-Machine-Interaction, Driver interaction, Cognitive supervision.

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