RECOGNIZING DRIVING IN HASTE

One can often hear people discussing the reasons why a road accident has happened: “She had to pick up her kids in the school before four o'clock and she was driving in haste and careless”, “He was stressed, he wanted to reach the beginning of the football match, tried to drive faster and didn't appreciate the red light”. In each of these statements, a single cause is identified: a driver in a haste situation and in a danger.

What driving in haste mainly influences are reduced risk perception and careless decision-making. These two factors play an important role in many accidents ending with injuries and damages. The perception of risk in a particular situation typically turns to be inaccurate and the fast and superficial decision making may lead to dangerous happenings. But, is there any solution to reduce the risk in driving in haste? Can we make steps towards a driver assistant system that reduces the chance of misbehaving and fatal accidents? These were the general research questions that stimulated us to gain a better insight in this domain of interest and to make the first steps towards the development of a smart driver assistant system.

The overall objective of this PhD research was to identify indicators with sufficient discriminative power for the recognition of driving in haste that could eventually be used in the development of algorithms for the detection of this state in real driving conditions. Promising distinguishable differences between driving in haste and driving under normal condition were recognized on physiological activity, driver interaction with the controls of the vehicle and driving performance. Though, these differences were mainly evident when analyzed per individual participant and were seldom observable for the combined data set of all participants. This refutes the initial belief that there existed at least one indicator that was completely insensitive to differences between drivers and, on the contrary, supports the idea that indicators should be studied within individual drivers rather than for combined groups of people.

Furthermore, not only the within and between driver variability affects the interpretation of results, but driving situations (e.g. car following, overtaking with and without traffic on the opposing lane, intersections with and without traffic and cruising) also reveal different effects in terms of separation between data distributions. These results similarly disproof the initial belief that there existed at least one indicator that was completely independent of the driving context.