

Active discovery of threatening situations by dream-like simulations

This talk outlines some of the aspects of the dream-like simulations to be developed within the H2020 Dreams4Cars research project (a Research and Innovation Action funded under the EU Robotics banner).

In this project one aim is to create dream-like simulations, which consists of reconstructions and recombinations of the cars previous experiences into novel situations from which the car gains new knowledge. While dreams in this project are not an exact equivalent of the dreams of biological agents, there are some crucial aspects of “biological dreams” that will be drawn upon in this project: (1) dreams and other kinds of mental simulations are off-line, i.e., they are active but are not interacting with the controlled entity, the extra-neural body in biological agents, in particular (2) dreams reactivate the control system as if it were interacting with the controlled entity. (3) Dreams enable the biological agent to think about previous and future situations to (4) increase its ability to handle situations in the waking state (Svensson, Thill & Ziemke, 2013; Svensson & Thill, 2016).

The talk presents some of the background on biological dreaming and simulation as well as outlines the type of “dreams” that will be used in the project and some more specific details on how we aim to implement the “dreams”.