



Seminar announcement:

Biological Sensing

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Description

In recent years autonomous robotics became an important technology with a very rapid growth. Unfortunately, this was mainly driven by military applications like cruise missiles and drones, but was also applied to unmanned ground vehicles. The latter application is very much related to the area of autonomous driving, which is pushed by various car manufacturers. The problems encountered are first of all related to the sensor systems used and the way incoming data are processed. Meanwhile people involved in the development start to think that safe autonomous driving only will be possible with a visual system similar to our own. Along this line of thinking more and more people become aware that Nature has developed in more than 500 Million years a vast reservoir of sensors. Nature also developed necessary data processing to extract the information for survival. The ingredients for autonomous robotics therefore can be found in Nature, which then have to be understood and transferred to human technology.

The seminar on Biological Sensing is aimed to provide the information for a basic understanding of human senses including basic Cell Biology to relate molecular structures and their functions. Furthermore, some insight into non-equilibrium thermodynamic aspects of chemical reaction kinetics used in cellular organisms for power supply. And finally introducing some measurement and information theoretical concepts to be able to compare natural systems with artificial ones. The main part will summarize the actual knowledge on tasting, smelling, touching, hearing and seeing and compare it to up-to-date artificial systems, with respect to data acquisition, transfer and processing. The latter with special emphasis on the use of artificial intelligence.