

## **Neurocognitive Robotics: A New Era for Neuroscience?**

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In this talk I will discuss my new ventures into robotics. In contrast to many more traditional approaches to robotics, my motivation is mainly to understand brain processes. Neuroscience has made much progress in recording techniques, and several theories of specific brain functions are starting to emerge in recent years. I can see robots as an ideal tool to test if those theories are indeed able to solve real world problems and to illuminate gaps and possible solutions in our understanding of brain style information processing.

I will specifically discuss neural field theory and some examples of their applications to robotics. Neural fields have been quite successful in capturing specific brain processes such as motor control (e.g. eye and arm movements), hippocampal functions of spatial representations, and neural correlates of decision processes. I will review three examples of using neural fields in robotics. I will also outline the relation of dynamical neural fields to noisy state estimation and Bayes filters.