

学术报告会

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The next generation of intelligent machines – embodied intelligence, soft robotics, and “Deep Neural Networks”

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Abstract:

If the robots of the future are (a) to share their living space with humans and (b) should be truly useful, they will need sensory-motor functionality that goes beyond what current “social robots” are capable of doing, i.e. talking, smiling, and shaking hands. This can be achieved by employing the concepts of embodiment, soft robotics and scaffolding. Embodiment captures the idea that natural forms of intelligence always emerge in the interaction of an entire organism with its physical and social environment. The term soft robotics designates a new generation of robots capitalizing, just like human beings, on “soft” designs (e.g. flexible skin, soft tissue, smooth interaction). The concept of scaffolding implies that we exploit constraints from shape, materials, and environment, which often reduces the design complexity to a fraction of what it was originally. I will also argue that there is a Robotics/AI hype, which largely concerns so-called “deep neural networks”, or deep learning, as exemplified by AlphaGo’s spectacular wins over the world champion Lee Sedol in 2016. Will we soon be faced with super-intelligent creatures that are going to enslave mankind? I will explain why we are nowhere near an “age of Terminators”, so to speak. Finally, I will introduce the Robolounge project which points to the future of how we will live with intelligent machines.

Biography:

Rolf Pfeifer is currently “Visiting Chair Professor”, at Shanghai Jiao Tong University, China, and he is a scientific coordinator at “Living with Robots” Ltd. Moreover, he is co-founder of the National Robotics Center in Switzerland. Rolf Pfeifer is a pioneer of the fields of “embodied intelligence” and “soft robotics” which are now rapidly gaining importance and have already had a decisive impact on the fields of artificial intelligence and robotics. His book “How the body shapes the way we think – a new view of intelligence” (co-authored with Josh Bongard) has been published in English, Chinese, Japanese, Arabic, and French, and is now considered a classic. He developed the humanoid robot “Roboy”, designed specifically for social interaction, which has attracted world-wide media attention, and he is presently pursuing the “ROBOLOUNGE” project, a venue where robots will take care of the well-being of the customers and where people can experience the future – i.e. they can feel what it will be like to interact very closely with robots in a public space.