Perceptual Robots

The Future of Robotics

Re-writing Robotics

New robotics research overturns decades of AI thinking

A radical way of understanding the behaviour of living systems promises to revolutionise how Robotics and AI systems are built in the future, paving the way for psychologically advanced robots.

This new theory, of **Perceptual Control**, shows that the standard stimulus-response or predictive model view of behaviour is fundamentally misconceived. The assumption that stimuli cause a response in people is a behavioural illusion. Rather, people vary action in order to maintain the way they perceive the world as they want. This radically changes the understanding of the functional architecture of the nervous system and will open up new avenues of scientific research and knowledge not seen since the discovery of Natural Selection.

For example, catching a baseball is not about the computation of trajectories and intercept points, but merely about keeping the speed of the ball on the retina constant.

Demonstrating that complex internal models of the world are not required and that perception is the goal of behaviour rather than actions has profound implications not only for robotics, and behavioural sciences, but also for our understanding of ourselves as human beings.

One of the main insights of this approach is that, at the heart of behaviour, there is a simple, adaptive, autonomous process which is universal to all types and levels of behaviour. This has significant implications for any behavioural system. For psychology it shows that the root of psychological problems is conflict between perceptual control systems, resulting in much simpler treatment methodology.

For robotics the benefits are significant, resulting in much simpler systems that are inherently adaptive and autonomous, infinitely scalable and avoid the complexity of the conventional computational and modelling approach.

The current research was carried out by **Dr Rupert Young**, an independent researcher with **Perceptual Robots**. The work applies to robotics a behavioural theory of how living systems operate, originally developed by the American engineer and physicist, William T. Powers.

“Nothing makes sense in behaviour
except in the light of perceptual control”

The associated paper “A General Architecture for Robotics Systems: A Perception-Based Approach to Artificial Life” was published in the Spring 2017 edition of the Artificial Life journal.

Also see the article “The ‘Natural Selection’ of Robotics.”

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