

Commissioned Book Review

Book: Surfing Uncertainty: Prediction, Action, and the Embodied Mind

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Our understanding of ‘how the brain works’ has expanded enormously in recent decades. Nevertheless, the relatively new field of neuroscience is still searching of a ‘unified theory’ of brain function – one that can explain how the brain finesses perception, action and attention using a more general (neuro-computational) framework.

In his engaging new book, ‘Surfing Uncertainty: Prediction, Action, and the Embodied Mind’, philosopher Andy Clark sketches out what is arguably the best current contender for such a ‘unified theory’: The Predictive Processing Hypothesis. This hypothesis makes the bold claim that practically everything that the brain does can be understood by viewing it as an organ that is ceaselessly attempting to predict the future (more precisely, to predict its moment-by-moment exteroceptive and interoceptive inputs). Under this hypothesis, vision, for example, is achieved not by *decoding* the signals coming in through the optic nerve in a stepwise fashion, but by comparing the *actual* incoming sensory signals against the *predicted* signals, given the brain’s internal representation of world. This ‘top down’ view of brain function is a radical departure from the account found in most undergraduate textbooks.

Clark argues convincingly that the Predictive Processing Hypothesis is not just of interest to basic neuroscientists, and outlines recent work that has applied the model to psychiatric disorders including schizophrenia, autism and functional neurological disorders.

Clark’s enthusiasm for the Predictive Processing Hypothesis is evident in his writing, and he succeeds in conveying the hypothesis’ key ideas in an accessible manner. ‘Surfing Uncertainty’ stands out from most accounts of the Predictive Processing Hypothesis in the existing literature by avoiding the use of mathematical equations and opting instead to use illustrative examples. Despite its informal tone, however, this erudite text does not shy away from the minutiae of experimental findings and neuroanatomical details, and any prospective reader should be warned that this is not an ‘easy read’. Nevertheless, I would encourage all those interested in understanding the brain to meet the challenge enthusiastically – ‘Surfing Uncertainty’ just might change your view of the brain (and of reality) forever.