

Why Can't We Build Robots that are as Clever as Crows?

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Abstract

In recent years the cognitive prowess of corvids has been amply demonstrated. Despite their evolutionary distance from primates and the correspondingly different organisation of their brains, corvids are capable of tool manufacture and use, physical and causal cognition, social cognition and deception, and mental time travel. But how are these capacities realised in their brains? A satisfactory answer to this question would surely meet the criterion of implementability. If we really knew what makes a crow tick, we would be able to build a clockwork crow. Conversely, if we could build a clockwork crow, then we might be in a position to advance hypotheses about what makes a real crow tick. But today's robots fall a long way short of corvid-level intelligence. In this respect, the prospects for AI-inspired biology look as forlorn as those for biologically-inspired AI. Perhaps the way to fill the explanatory hole is to look to the emerging field of neurodynamics for the right theoretical vocabulary.