The Role of Metacognition in Creating Safe, Self-Improving Entities

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Abstract:
Every AI system to date clearly demonstrates what Daniel Dennett calls “competence without comprehension”. While they might perform at super-human levels on specific well-bounded tasks, they are hopelessly brittle in the face of unexpected changes or anomalies. Previously, I, along with many others, have blamed “derived intentionality” for this state of affairs. In this talk, however, I will argue instead that it is “merely” a total lack of metacognition that is the sole (and traversable) hurdle which must be overcome in order to create artificial general intelligence (AGI). With the correct senses, tools and motivations, it should be possible to build a rudimentary metacognitive system that should not only dramatically ease the creation, maintenance and upgrading of current intelligent systems but pave the way for future intelligent software entities as well.