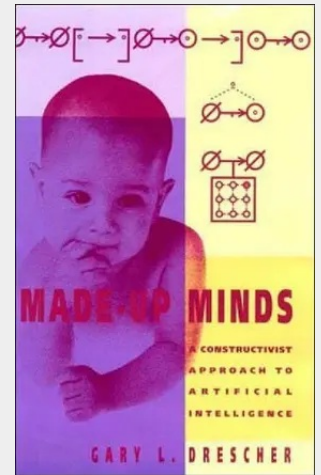


Made-Up Minds

A Constructivist Approach to Artificial Intelligence

Made-Up Minds addresses fundamental questions of learning and concept invention by means of an innovative computer program that is based on the cognitive-developmental theory of psychologist Jean Piaget. Drescher uses Piaget's theory as a source of inspiration for the design of an artificial cognitive system called the schema mechanism, and then uses the system to elaborate and test Piaget's theory. The approach is original enough that readers need not have extensive knowledge of artificial intelligence, and a chapter summarizing Piaget assists readers who lack a background in developmental psychology. The schema mechanism learns from its experiences, expressing discoveries in its existing representational vocabulary, and extending that vocabulary with new concepts. A novel empirical learning technique, marginal attribution, can find results of an action that are obscure because each occurs rarely in general, although reliably under certain conditions. Drescher shows that several early milestones in the Piagetian infant's invention of the concept of persistent object can be replicated by the schema mechanism.

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27,30 €

27,30 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780262517089

Medium: Buch

ISBN: 978-0-262-51708-9

Verlag: MIT Press

Erscheinungstermin: 01.01.2003

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2003

Serie: Artificial Intelligence Series

Produktform: Kartoniert

Gewicht: 354 g

Seiten: 240

Format (B x H): 152 x 229 mm

