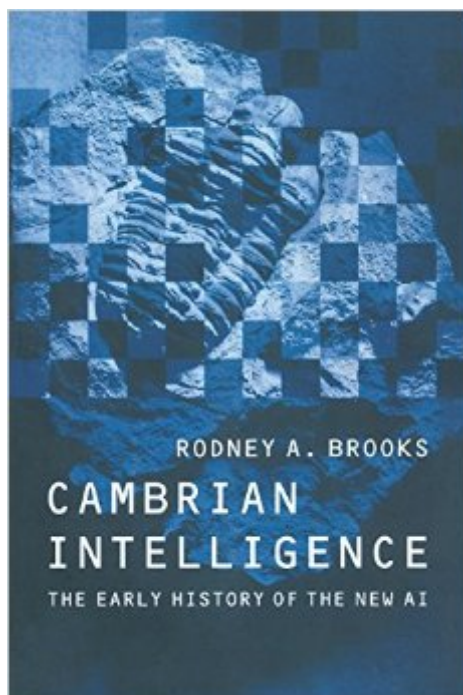# Cambrian Intelligence: The Early History Of The New AI

# Synopsis

Until the mid-1980s, AI researchers assumed that an intelligent system doing high-level reasoning was necessary for the coupling of perception and action. In this traditional model, cognition mediates between perception and plans of action. Realizing that this core AI, as it was known, was illusory, Rodney A. Brooks turned the field of AI on its head by introducing the behavior-based approach to robotics. The cornerstone of behavior-based robotics is the realization that the coupling of perception and action gives rise to all the power of intelligence and that cognition is only in the eye of an observer. Behavior-based robotics has been the basis of successful applications in entertainment, service industries, agriculture, mining, and the home. It has given rise to both autonomous mobile robots and more recent humanoid robots such as Brooks' Cog.This book represents Brooks' initial formulation of and contributions to the development of the behavior-based approach to robotics. It presents all of the key philosophical and technical ideas that put this "bottom-up" approach at the forefront of current research in not only AI but all of cognitive science.

# Book Information

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# Customer Reviews

This book is essentially a collection of several "classic" papers by Brooks on behavior-based AI/robotics. He has added some nice historical commentary to the papers, which helps bind the book together. If you have been following Brooks' research, you may find that you already have most of this material, but this book is still a nice compilation, and is also a good introduction to

behavior-based AI.

This book is absolutely misleading! It is not a 'book' in the first place, but only a compendium of papers. The subtitle "an early history of the new AI" is ridiculous, for there is no history, not even a personal account of it! Even if Brooks is doing good science, I still think that most intelligent readers should go for the papers instead of paying for the very same thing in book form, because that is exactly why papers exist in the first place.Anyway, these are the references that form such "early history of AI":Chapter 1. A robust layered control system for a mobile robot, IEEE Journal of Robotics and Automation 2, 1986, 14-23.Chapter 2. A robot that walks: emergent behaviors from a carefully evolved network. Neural Computation 1, 1989, 253-262.Chapter 3. Learning a distributed map representation based on navigation behaviors. Proceedings of the 1990 USA-Japan Symposium on Flexible Automation, Kioto, Japan, 499-506.Chapter 4. New approaches to robotics. Science 253, 12227-1232, 1991.Chapter 5. Intelligence without representation. Artificial Intelligence 47, 139-160, 1991.Chapter 6. Planning is just a way of avoiding figuring out what to do next. MIT AI Lab Working Paper 303, September 1987.Chapter 7. Elephants don't play chess. Robotics and Autonomous Systems 6, 1990, 3-15.Chapter 8. Intelligence without reason. Proceedings of the 1991 IJCAI, 569-595.I just thought other readers might not appreciate being deceived the way I was...AL

This book is a collection of the "best" / most cited Brooks papers. Basically it covers what is considered the core of papers that got behaviour based robotics rolling. Almost all papers have appeared as journal papers earlier and this is merely a convenient collection of these.For anyone working on mobile robotics these papers are a must. I.e. everyone ought to know these papers, both because they are thought provoking and widely referenced. For anyone with access to a library it might be an overkill to pay for this book. Go to the library and read the papers.The real disappointment here is the lack of a historical perspective. These papers are all 5-15 years old. They strongly influenced the robotics world when they were published. The examples are interesting, but for REAL everyday robot systems the world is more complex than indicated by Brooks. It would have been interesting to see a final chapter that discussed lessons and limitations of the approach when seen in a historical perspective. Brooks is now building a humanoid system (Cog) and one wonders how many of the behaviour based ideas made it into Cog? Probably not as many as this book might indicate.If you have a library, use you money on an upto date book! If not, you ought to acquire it for a view of the history.

This book presents a series of papers (technical and philosophical) on an approach to AI (specifically, robotics), that basically denies the need for the existence of a 'cognition' system. I like this approach because of it's simplicity, and it's philosophical implications. To the reader that was expecting a book on the history of AI: Yes, the title could be read like that, but I think the intent was to say "This is the history of a new way of looking at things", not "This is the early history of the entire field of AI"

While the title is a bit misleading (this is not a history per se, so much as a collection of papers of historical interest), this book contains a wealth of good material for those researching behavior-based robotics. As the book is a collection of Brooks' papers on the subject, it gives good insights into his approach -- although it does include a significant amount of redundant text (as you'd expect, many of the papers share "boilerplate" treatments of some subject matter).Still, "Cambrian Intelligence" is both thought-provoking (to those primarily acquainted with "classical" AI approaches), and well worth the price tag -- if only for the convenience factor (vs. rounding up and printing out all the included papers).

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