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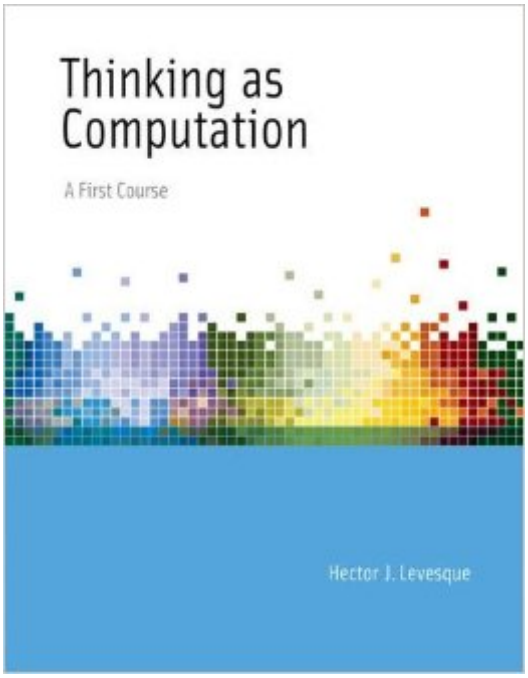
Thinking As Computation: A First Course (MIT Press)



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Synopsis

This book guides students through an exploration of the idea that thinking might be understood as a form of computation. Students make the connection between thinking and computing by learning to write computer programs for a variety of tasks that require thought, including solving puzzles, understanding natural language, recognizing objects in visual scenes, planning courses of action, and playing strategic games. The material is presented with minimal technicalities and is accessible to undergraduate students with no specialized knowledge or technical background beyond high school mathematics. Students use Prolog (without having to learn algorithms: "Prolog without tears!"), learning to express what they need as a Prolog program and letting Prolog search for answers. After an introduction to the basic concepts, Thinking as Computation offers three chapters on Prolog, covering back-chaining, programs and queries, and how to write the sorts of Prolog programs used in the book. The book follows this with case studies of tasks that appear to require thought, then looks beyond Prolog to consider learning, explaining, and propositional reasoning. Most of the chapters conclude with short bibliographic notes and exercises. The book is based on a popular course at the University of Toronto and can be used in a variety of classroom contexts, by students ranging from first-year liberal arts undergraduates to more technically advanced computer science students.

Book Information

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Customer Reviews

This book is an elementary undergraduate introduction to the basics of artificial intelligence. It does not require background in formal logic, mathematics or programming that more advanced books. It moves slowly through the material trying to insure that the reader has mastered one concept before moving onto the next. While I would opt, at times, for an alternative Prolog format, I assume that the authors pedagogical experience formed their choices.This is a textbook at succeeds in teaching what it set out to teach - not exciting but effective.

This book is a life-saver for anybody taking a Knowledge-Base and Prolog related course for the first time. In this book, the author assumes we are a dummy, without assuming we are stupid. He starts with a procedure for thinking in chapter two that prepares you for Prolog and knowledge base before really introducing it. Through sentence examples he proceeds to illustrate conceptually what a knowledge base is, and he does it in a way that anyone can understand. And he doesn't blow it - he pulls it off!He then goes on to Prolog, but you aren't just learning Prolog, you are learning it in context to solving programs. If you are taking any class involving knowledge bases, first-order logic, or prolog, I highly recommend this book. I am using it as a supplement to the higher-level knowledge representation textbook he coauthored. In that book it is strap on your seatbelt and have Google handy to translate the topics you should already know. Not so with this book. After reading chapters one and two, I felt like I had a conceptual underpinning to his harder textbook. Yeah, I still had to go search out supplemental first-order logic symbolic tutorials to understand his text...but those resources were for the formal symbolic stuff. This book is for the concepts behind it. It's a great book. The author being able to make such a complex topic seem so easy is commendable. Five Stars for this book - it's a life saver. If you want to truly understand the underpinnings of AI and Knowledge...buy this book. It makes the hard stuff easier, as you can only struggle with the hard stuff and not the concepts behind the hard stuff.

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