Case-Based Reasoning: A Textbook

Michael M. Richter, Rosina O. Weber
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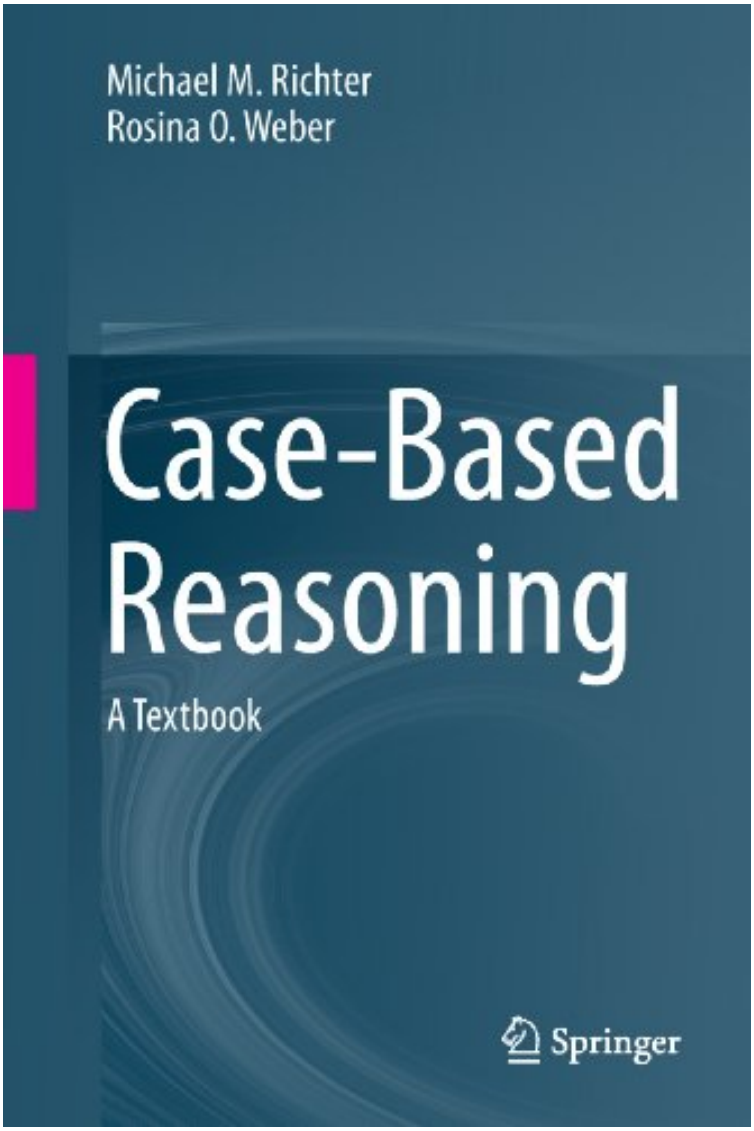

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Michael M. Richter, Rosina O. Weber : Case-Based Reasoning: A Textbook before purchasing it in order to gage whether or not it would be worth my time, and all praised Case-Based Reasoning: A Textbook:

0 of 1 people found the following review helpful. The most complete compendium in the fieldBy JonathanEasy to read and includes related areas that help understanding it. Good for teaching or consultation.

This book presents case-based reasoning in a systematic approach with two goals: to present rigorous and formally valid structures for precise case-based reasoning, and to demonstrate the range of techniques, methods, and tools available for many applications.

From the Back CoverWhile it is relatively easy to record billions of experiences in a database, the wisdom of a system is not measured by the number of its experiences but rather by its ability to make use of them. Case-based reashy;soning (CBR) can be viewed as experience mining, with analogical reasoning applied to problemndash;solution pairs. As cases are typically not identical, simple storage and recall of experiences is not sufficient, we must define and analyze similarity and adaptation. The fundamentals of the approach are now well-established, and there are many successful commercial applications in diverse fields, attracting interest from researchers across various disciplines.nbsp;This textbook presents case-based reasoning in a systematic approach with two goals: to present rigorous and formally valid structures for precise reasoning, and to demonstrate the range of techniques, methods, and tools available for many applications. In the chapters in Part I the authors present the basic elements of CBR without assuming prior reader knowledge; Part II explains the core methods, in particushy;lar case representations, similarity topics, retrieval, adaptation, evaluation, revisions, learning, developshy;ment, and maintenance; Part III offers advanced views of these topics, additionally covering uncertainty and probabilities; and Part IV shows the range of knowledge sources, with chapters on textual CBR, imshy;ages, sensor data and speech, conversational CBR, and knowledge management. The book concludes with appendices that offer short descriptions of the basic formal definitions and methods, and comparisons beshy;tween CBR and other techniques. nbsp;The authors draw on years of teaching and training experience in academic and business environments, and they employ chapter summaries, background notes, and exercises throughout the book. It's suitable for advanced undergraduate and graduate students of computer science, management, and related disciplines, and it's also a practical introduction and guide for industrial researchers and practitioners engaged with knowledge engineering systems.About the AuthorProf. Michael M. Richter completed his PhD on mathematical logic at the University of Freiburg, and his Habilitation in mathematics at the University of Tuuml;bingen. He taught at the University of Texas at Austin and at RWTH Aachen, in addition to numerous visiting professorships. He was president of the German Society for Mathematical Logic and the Foundations of Exact Sciences for four years. Most recently, from 1986 he held a chair in computer science at the University of Kaiserslautern, where he was also a founding scientific director of the DFKI (German Research Center for Artificial Intelligence). In 2005 he became an adjunct professor at the University of Calgary. He has taught, researched, and published extensively in the areas of mathematical logic and artificial intelligence. Prof. Richter is one of the pioneers of case-based reasoning: he founded the leading European event on the subject, he led many of the key academic research projects, and he demonstrated the real-world viability of the approach with successful commercial products. Dr. Rosina Weber is an Associate Professor in the College of Information Science and Technology at Drexel University in Philadelphia. She received her PhD from the Dept. of Production Engineering of the Federal University of Santa Catarina in Brazil, in a "sandwichrdquo; program collaboration with the Dept. of Industrial Management Systems Engineering of the University of South Florida in Tampa. She has a masterrsquo;s degree in operations research and a bachelorrsquo;s degree in business administration. She was a postdoc at the Navy Center for Applied Research in Artificial Intelligence at the Naval Research Lab in Washington, DC. Her key research interest is knowledge engineering and management, using intelligent methods and techniques such as case-based reasoning, information extraction, fuzzy sets, genetic algorithms, neural networks, and ontologies in applications in domains such as law, defense, nutrition, medicine, finance, biology, and psychology.