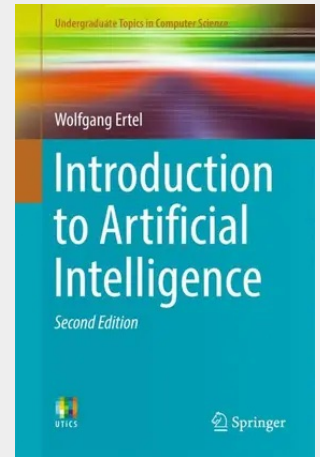


Introduction to Artificial Intelligence

This accessible and engaging textbook presents a concise introduction to the exciting field of artificial intelligence (AI). The broad-ranging discussion covers the key subdisciplines within the field, describing practical algorithms and concrete applications in the areas of agents, logic, search, reasoning under uncertainty, machine learning, neural networks, and reinforcement learning. Fully revised and updated, this much-anticipated second edition also includes new material on deep learning.

Topics and features: presents an application-focused and hands-on approach to learning, with supplementary teaching resources provided at an associated website; contains numerous study exercises and solutions, highlighted examples, definitions, theorems, and illustrative cartoons; includes chapters on predicate logic, PROLOG, heuristic search, probabilistic reasoning, machine learning and data mining, neural networks and reinforcement learning; reports on developments in deep learning, including applications of neural networks to generate creative content such as text, music and art (NEW); examines performance evaluation of clustering algorithms, and presents two practical examples explaining Bayes' theorem and its relevance in everyday life (NEW); discusses search algorithms, analyzing the cycle check, explaining route planning for car navigation systems, and introducing Monte Carlo Tree Search (NEW); includes a section in the introduction on AI and society, discussing the implications of AI on topics such as employment and transportation (NEW). Ideal for foundation courses or modules on AI, this easy-to-read textbook offers an excellent overview of the field for students of computer science and other technical disciplines, requiring no more than a high-school level of knowledge of mathematics to understand the material.

The ultimate aim of artificial intelligence (A.I.) is to understand intelligence and to build intelligent software and robots that come close to the performance of humans. On their way towards this goal, A.I. researchers have developed a number of quite different subdisciplines. This concise and accessible Introduction to Artificial Intelligence supports a foundation or module course on A.I., covering a broad selection of the subdisciplines within this field. The textbook presents concrete algorithms and applications in the areas of agents, logic, search, reasoning under uncertainty, machine learning, neural networks and reinforcement learning. **Topics and features:** presents an application-focused and hands-on approach to learning the subject; provides study exercises of varying degrees of difficulty at the end of each chapter, with solutions given at the end of the book; supports the text with highlighted examples, definitions, theorems, and illustrative cartoons; includes chapters on predicate logic, PROLOG, heuristic search, probabilistic reasoning, machine learning and data mining, neural networks and reinforcement learning; contains an extensive bibliography for deeper reading on further topics; supplies additional teaching resources, including lecture slides and training data for learning algorithms, at the website <http://www.hs-weingarten.de/~ertel/aibook>. Students of computer science and other technical natural sciences will find this easy-to-read textbook excellent for self-study, a high-school level of knowledge of mathematics being the only prerequisite to understanding the material. With its extensive tools and bibliography, it is an ideal, quick resource on A.I.



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