THE COMPUTER ALWAYS WINS

A Playful Introduction to Algorithms through Puzzles and Strategy Games

Elliot Lichtman

MIT PRESS | Publishing April 29, 2025
208 pp., 6 x 9 in, 123 color illustrations, 11 b&w illustrations
Translation Rights via O'Connor Literary Agency
Rights Sold: Chinese Simplified

An engaging and approachable resource for beginning-to-intermediate coders eager to learn advanced ideas in computer programming.

Too often, the magic of computer science is locked behind an intimidating wall of syntax and mathematics. Students of all ages are drawn to the idea of using computers to ask questions and solve problems, but the standard computer science curriculum demands that they first slog through a seemingly endless run of dull, technical muck. They want to tinker; they are told to trudge. In *The Computer Always Wins,* Elliot Lichtman strips away these conventional barriers, using familiar puzzles and strategy games to explore some of computer science's most inspiring ideas.

The Computer Always Wins is designed for readers who know the bare-bones basics of computer programming and are ready to truly love it. The book introduces some of the field's most powerful concepts but does so accessibly by framing them in the context of word games, board games, and strategy games that readers already know. Tic-Tac-Toe helps a student understand recursion. Wordle teaches how to efficiently parse an enormous list. Rock-paper-scissors becomes an intuitive gateway to machine learning. By the end of the book, readers come away with not only a better understanding of these foundational strategies, but also a joyful appreciation for the amazing and exciting feats that can be accomplished using simple, readable code.

Elliot Lichtman started teaching online classes in computer science in March 2020. At the time, he was a freshman in high school. His small classes in algorithm design quickly grew into a series of larger and longer offerings. From those offerings, this book was born. Lichtman is now studying at Yale University.

Advance Praise for THE COMPUTER ALWAYS WINS:

"Marvelously crafted. Just the kind of book every MIT-bound young computer scientist would want to master before college." **– Dr. Isaac Chuang, Professor of Electrical Engineering, Computer Science & Physics, Massachusetts Institute of Technology**

"A superb collection of coding challenges accompanied by elegant descriptions of the relevant computer science concepts. The joy of algorithms shines through, page after page." **– Dr. John MacCormick, Professor of Computer Science, Dickinson College; Author of *Nine Algorithms that Changed the Future***

"Great introductions to complex topics not only teach the reader new concepts and tools, but open up entirely new ways of thinking. A real treat." **– Richard Rusczyk, founder of the Art of Problem Solving & director of the National Security Administration's USA Mathematical Talent Search**