

top. To his right is a pivotal position from the second game of the historic Go match between former world champion Lee Sedol and DeepMind's ALPHAGO program. Move 37 by ALPHAGO violated centuries of Go orthodoxy and was immediately seen by human experts as an embarrassing mistake, but it turned out to be a winning move. At top left is an Atlas humanoid robot built by Boston Dynamics. A depiction of a self-driving car sensing its environment appears between Ada Lovelace, the world's first computer programmer, and Alan Turing, whose fundamental work defined artificial intelligence. At the bottom of the chess board are a Mars Exploration Rover robot and a statue of Aristotle, who pioneered the study of logic; his planning algorithm from *De Motu Animalium* appears behind the authors' names. Behind the chess board is a probabilistic programming model used by the UN Comprehensive Nuclear-Test-Ban Treaty Organization for detecting nuclear explosions from seismic signals.

Acknowledgments

It takes a global village to make a book. Over 600 people read parts of the book and made suggestions for improvement. The complete list is at aima.cs.berkeley.edu/ack.html; we are grateful to all of them. We have space here to mention only a few especially important contributors. First the contributing writers:

- Judea Pearl (Section 13.5, Causal Networks);
- Vikash Mansinghka (Section 15.4, Programs as Probability Models);
- Michael Wooldridge (Chapter 18, Multiagent Decision Making);
- Ian Goodfellow (Chapter 21, Deep Learning);
- Jacob Devlin and Ming-Wei Chang (Chapter 24, Deep Learning for Natural Language Processing);
- Jitendra Malik and David Forsyth (Chapter 25, Computer Vision);
- Anca Dragan (Chapter 26, Robotics).

Then some key roles:

- Cynthia Yeung and Malika Cantor (project management);
- Julie Sussman and Tom Galloway (copyediting and writing suggestions);
- Omari Stephens (illustrations);
- Tracy Johnson (editor);
- Erin Ault and Rose Kernan (cover and color conversion);
- Nalin Chhibber, Sam Goto, Raymond de Lacaze, Ravi Mohan, Ciaran O'Reilly, Amit Patel, Dragomir Radiv, and Samagra Sharma (online code development and mentoring);
- Google Summer of Code students (online code development).

Stuart would like to thank his wife, Loy Sheflott, for her endless patience and boundless wisdom. He hopes that Gordon, Lucy, George, and Isaac will soon be reading this book after they have forgiven him for working so long on it. RUGS (Russell's Unusual Group of Students) have been unusually helpful, as always.

Peter would like to thank his parents (Torsten and Gerda) for getting him started, and his wife (Kris), children (Bella and Juliet), colleagues, boss, and friends for encouraging and tolerating him through the long hours of writing and rewriting.