

Cambridge University Press

978-1-108-48457-2 — The Age of Algorithms

Serge Abiteboul, Gilles Dowek, Translated by K-Rae Nelson

Frontmatter

[More Information](#)

---

# THE AGE OF ALGORITHMS



Algorithms are probably the most sophisticated tools that men have had at their disposal since the beginnings of human history. They have transformed science, industry, and society. They upset the concepts of work, property, government, private life, even humanity. Going easily from one extreme to the other, we rejoice that they make life easier for us, but fear that they will enslave us. To get beyond this vision of good vs. evil, this book takes a new look at our time, the Age of Algorithms. Creations of the human spirit, algorithms are what we made them. And they will be what we want them to be: it is up to us to choose the world we want to live in.



Serge Abiteboul is a member of the Board of Arcep and a computer scientist at Inria. He has been visiting professor at Stanford University and is a founder of the Xyleme company. He is fascinated by and likes to write about societal issues related to the digital world.

Gilles Dowek is a researcher in computer science. He has published several popular science books and books on epistemology of computer science and ethics in the digital world. His book *Computation, Proof, Machine* (Cambridge University Press) has received the French Academy philosophy award.

Cambridge University Press

978-1-108-48457-2 — The Age of Algorithms

Serge Abiteboul , Gilles Dowek , Translated by K-Rae Nelson

Frontmatter

[More Information](#)

---

# THE AGE OF ALGORITHMS

---

*Serge*  
ABITEBOUL

*Gilles*  
DOWEK



CAMBRIDGE  
UNIVERSITY PRESS

Cambridge University Press  
 978-1-108-48457-2 — The Age of Algorithms  
 Serge Abiteboul, Gilles Dowek, Translated by K-Rae Nelson  
 Frontmatter  
[More Information](#)

## CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,  
New Delhi – 110025, India

79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781108484572](http://www.cambridge.org/9781108484572)

DOI: 10.1017/9781108614139

© Cambridge University Press 2020

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published as *Le temps des algorithmes* by Editions Le Pommier 2020

English translation 2020

Printed in the United States of America by Sheridan Books, Inc.

*A catalogue record for this publication is available from the British Library.*

*Library of Congress Cataloging-in-Publication Data*

Names: Abiteboul, S. (Serge), author. | Dowek, Gilles, author.

Title: The age of algorithms / Serge Abiteboul, Aachen University of Technology,  
Gilles Dowek, Ecole Normale Supérieure, Saclay.

Description: Cambridge, United Kingdom ; New York, NY : Cambridge  
University Press, 2018.

Identifiers: LCCN 2019044718 (print) | LCCN 2019044719 (ebook) |  
ISBN 9781108484572 (hardback) | ISBN 9781108745420 (paperback) |  
ISBN 9781108614139 (epub)

Subjects: LCSH: Algorithms.

Classification: LCC QA9.58 .A245 2018 (print) | LCC QA9.58 (ebook) |  
DDC 518/.1–dc23

LC record available at <https://lcn.loc.gov/2019044718>

LC ebook record available at <https://lcn.loc.gov/2019044719>

ISBN 978-1-108-48457-2 Hardback

ISBN 978-1-108-74542-0 Paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

CONTENTS



<i>Acknowledgments</i>	<i>page vi</i>
1 Algorithms Intrigue, Algorithms Disturb	1
2 What Is an Algorithm?	5
3 Algorithms, Computers, and Programs	19
4 What Algorithms Do	29
5 What Algorithms Don't Do	36
6 Computational Thinking	45
7 The End of Employment	53
8 The End of Work	61
9 The End of Property	70
10 Governing in the Age of Algorithms	81
11 An Algorithm in the Community	89
12 The Responsibility of Algorithms	96
13 Personal Data and Privacy	104
14 Fairness, Transparency, and Diversity	115
15 Computer Science and Ecology	125
16 Computer Science Education	133
17 The Augmented Human	143
18 Can an Algorithm Be Intelligent?	150
19 Can an Algorithm Have Feelings?	156
20 Time to Choose	160

## ACKNOWLEDGMENTS



We wish to thank Bertrand Braunschweig, Laurent Fribourg, Sophie Gamerman, Florence Hachez-Leroy, Marie Jung, Xavier de La Porte, Michel Puech, and Michel Volle for their pertinent comments on an early version of this text.

We would also like to thank Jean-Pierre Archambault, Gérard Berry, Maurice Nivat, and many others for the often passionate discussions on the topics addressed in this book.