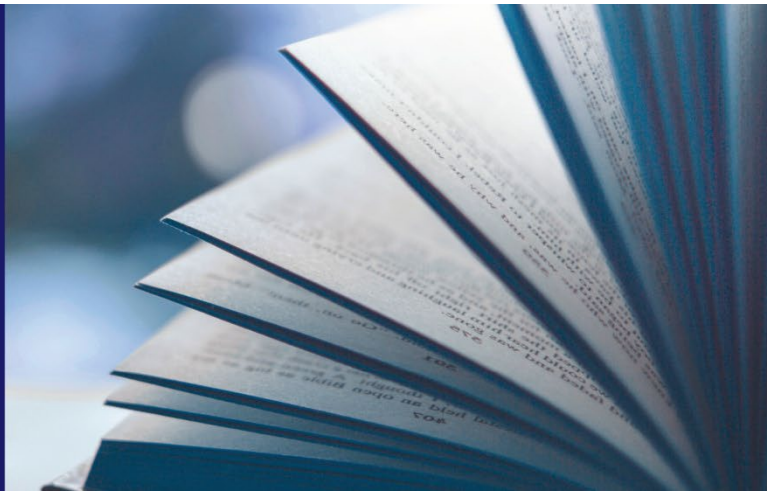
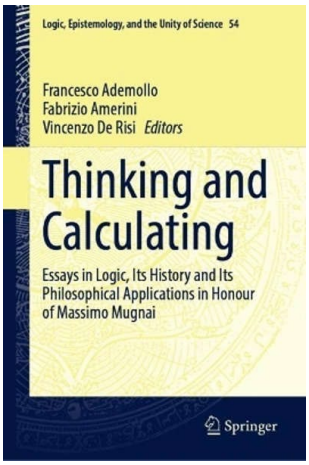
Les nouveautés

BIBLIOTHÈQUE DE L'IHPST

Février-mars 2026

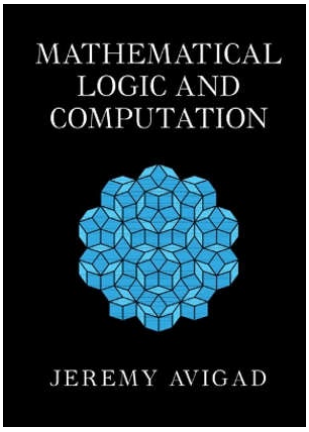




Auteur(s) : **Francesco Ademollo** - **Fabrizio Amerini** - **Vincenzo De Risi**
Titre : **Thinking and Calculating : Essays in Logic, Its History and Its Philosophical Applications in Honour of Massimo Mugnai**

Éditeur : Springer International Publishing
Collection : Logic, Epistemology, and the Unity of Science
Date de parution : 05/07/2022
Cote : 160 ADEM THIN

This volume collects 22 essays on the history of logic written by outstanding specialists in the field. The book was originally prompted by the 2018-2019 celebrations in honor of Massimo Mugnai, a world-renowned historian of logic, whose contributions on Medieval and Modern logic, and to the understanding of the logical writings of Leibniz in particular, have shaped the field in the last four decades. Given the large number of recent contributions in the history of logic that have some connections or debts with Mugnai's work, the editors have attempted to produce a volume showing the vastness of the development of logic throughout the centuries. We hope that such a volume may help both the specialist and the student to realize the complexity of the history of logic, the large array of problems that were touched by the discipline, and the manifold relations that logic entertained with other subjects in the course of the centuries. The contributions of the volume, in fact, span from Antiquity to the Modern Age, from semantics to linguistics and proof theory, from the discussion of technical problems to deep metaphysical questions, and in it the history of logic is kept in dialogue with the history of mathematics, economics, and the moral sciences at large.

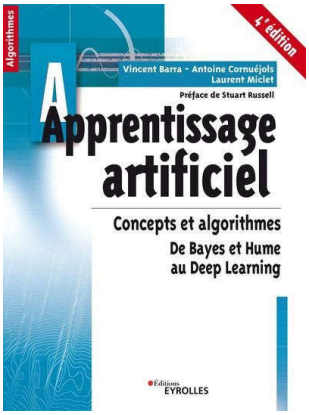


Auteur(s) : **Jeremy Avigad**
Titre : **Mathematical Logic and Computation**

Éditeur : Cambridge University Press
Date de parution : 24/11/2022
Cote : 160 AVIG MATH

This new book on mathematical logic by Jeremy Avigad gives a thorough introduction to the fundamental results and methods of the subject from the syntactic point of view, emphasizing logic as the study of formal languages and systems and their proper use. Topics include proof theory, model theory, the theory of computability, and axiomatic foundations, with special emphasis given to aspects of mathematical logic that are

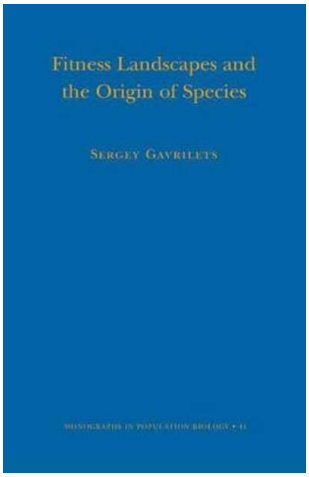
fundamental to computer science, including deductive systems, constructive logic, the simply typed lambda calculus, and type-theoretic foundations. Clear and engaging, with plentiful examples and exercises, it is an excellent introduction to the subject for graduate students and advanced undergraduates who *are interested in logic in mathematics, computer science, and philosophy, and an invaluable reference for any practicing logician's bookshelf.*



Auteur(s) : **Cornuéjols, Antoine** - **Miclet, Laurent** - **Barra, Vincent**
Titre : **Apprentissage artificiel : concepts et algorithmes : de Bayes et Hume au deep learning**

Éditeur : Eyrolles
Collection : Algorithmes
Edition : 4e édition
Date de parution : 25/03/2021
Cote : 003 BARR APPR

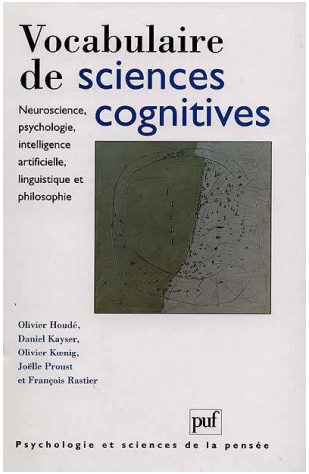
Les programmes d'intelligence artificielle sont aujourd'hui capables de reconnaître des commandes vocales, d'analyser automatiquement des photos satellites, d'assister des experts pour prendre des décisions dans des environnements complexes et évolutifs (analyse de marchés financiers, diagnostics médicaux...), de fouiller d'immenses bases de données hétérogènes, telles les innombrables pages du Web...
Pour réaliser ces tâches, ils sont dotés de modules d'apprentissage leur permettant d'adapter leur comportement à des situations jamais rencontrées, ou d'extraire des lois à partir de bases de données d'exemples. Ce livre présente les concepts qui sous-tendent l'apprentissage artificiel, les algorithmes qui en découlent et certaines de leurs applications. Son objectif est de décrire un ensemble d'algorithmes utiles en tentant d'établir un cadre théorique pour l'ensemble des techniques regroupées sous ce terme « d'apprentissage artificiel ».
La quatrième édition de ce livre a été augmentée et complètement réorganisée pour s'adapter aux évolutions très significatives de l'apprentissage artificiel ces dernières années. Une large place y est accordée aux techniques d'apprentissage profond et à de nouvelles applications, incluant le traitement de flux de données



Auteur(s) : **Sergey Gavrilets**
Titre : **Fitness Landscapes and the Origin of Species**

Éditeur : Princeton University Press
Collection : Monographs in Population Biology
Date de parution : 26/07/2004
Cote : **570 GAVR FITN**

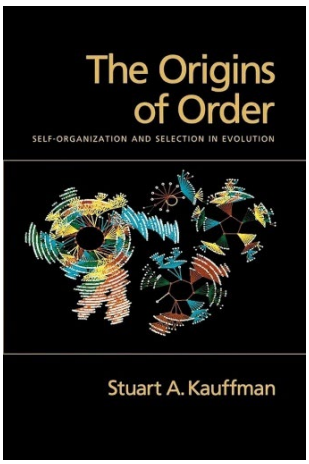
Uses a unified framework based on the notion of fitness landscapes introduced by Sewall Wright in 1932, generalizing this notion to explore the consequences of the huge dimensionality of fitness landscapes that correspond to biological systems.



Auteur(s) : **Houdé, Olivier** - **Kayser, Daniel** - **Koenig, Olivier**
Titre : **Vocabulaire de sciences cognitives : neuroscience, psychologie, intelligence artificielle, linguistique et philosophie**

Éditeur : PUF
Collection : Psychologie et sciences de la pensée
Date de parution : 01/11/1998
Cote : 159 HOUD VOCA

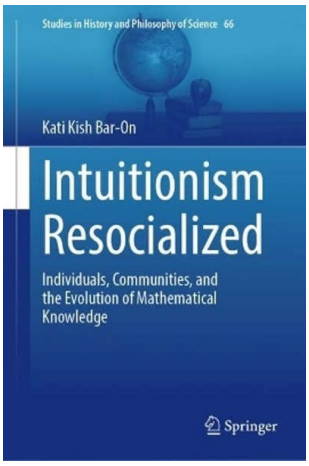
Abduction, action, analyse computationnelle, apprentissage, attention, attitude professionnelle, autisme, base de connaissance, catégorisation, cognition animale, cognition du bébé, cognitivisme, contexte, contrôle, créativité, croyance, darwinisme neural-mental, désir, développement cognitif, différenciation, discours, écriture, émergence, émotion, épistémique, espace, esprit, fonctionnalisme, imagerie cérébrale fonctionnelle, imagerie mentale, information, intentionnalité, langage, langage de la pensée, lecture, localisation cérébrale, logique, mémoire, métacognition, modularité, naturalisation, neuropsychologie, nombre, objet, perception, pragmatique, psychiatrie cognitive, psychophysique, raisonnement, rationalité, représentation, robotique, schizophrénie, sémantique, sémiotique, symbole, syntaxe, système dynamique, temps, théorie de l'esprit, vie artificielle, vieillissement, volonté, etc. Autant d'entrées qui figurent dans ce premier Vocabulaire de sciences cognitives, où sont conjugués les apports essentiels de la neuroscience cognitive, de la psychologie cognitive, de l'intelligence artificielle, de la linguistique cognitive et de la philosophie de l'esprit. Les sciences cognitives s'imposent aujourd'hui comme un nouveau champ du savoir qui tente d'élucider par l'expérimentation, la modélisation et l'usage de technologies de pointe, le "Mystère de l'Esprit" dans ses rapports avec la Matière : le cerveau, le corps et l'ordinateur.



Auteur(s) : **Stuart A. Kauffman**
Titre **: The Origins of Order : Self-Organization and Selection in Evolution**

Éditeur : Oxford University Press Inc
Date de parution : 16/09/1993
Cote : 570 KAUF ORIG

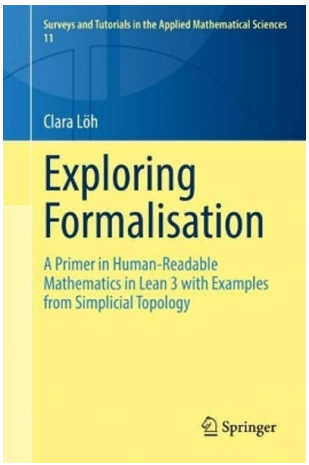
This monograph extends the basic concepts of Darwinian evolution to accommodate recent findings and perspectives from the fields of biology, physics, chemistry and mathematics. It explains how complex systems, contrary to expectations, can spontaneously exhibit degrees of order.



Auteur(s) : **Kati Kish Bar-On**
Titre : **Intuitionism Resocialized : Individuals, Communities, and the Evolution of Mathematical Knowledge**

Éditeur : Springer International Publishing
Collection : Studies in History and Philosophy of Science
Date de parution : 29/10/2025
Cote : 510 KISH INTU

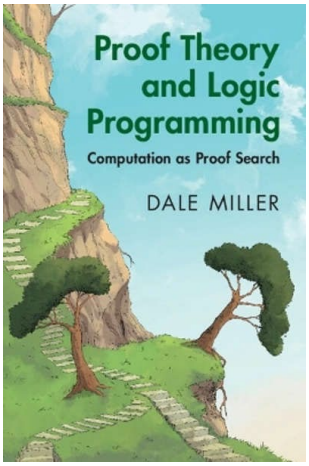
This book provides a fresh perspective on how mathematicians interpreted and responded to Dutch mathematician L.E.J. Brouwer's ideas. It offers an original outlook on the dynamics between mathematicians, their commitments to their working frameworks, and the establishment of scientific norms. Expanding on the collective scientific work literature, it prompts a dialogue on applying insights from social epistemology to mathematics, exploring whether such an approach can offer new insights into individual and communal responses to Brouwer's intuitionistic pursuit. As a result, the book is of great value to those interested in STS studies, history and philosophy of science and sociology of science, delving into topics like the social construction of knowledge, epistemic cultures, and disagreements and trust in communities. Amid ongoing discussions about the marginalization and legitimization of knowledge, this book arrives just at the right time to offer a thorough exploration of the reasons behind the marginalization of a specific school in the history of mathematics.



Auteur(s) : **Clara Löh**
Titre : **Exploring Formalisation : A Primer in Human-Readable Mathematics in Lean 3 with Examples from Simplicial Topology**

Éditeur : Springer International Publishing
Collection : Surveys and Tutorials in the Applied Mathematical Sciences
Date de parution : 25/09/2022
Cote : 510 LOH EXPL

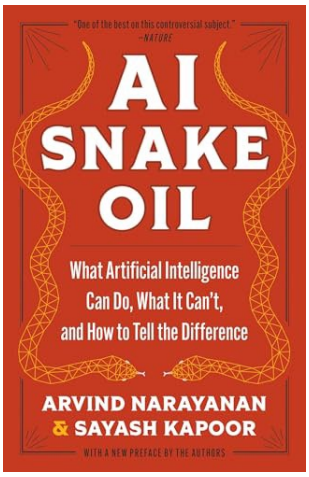
This primer on mathematics formalisation provides a rapid, hands-on introduction to proof verification in Lean. After a quick introduction to Lean, the basic techniques of human-readable formalisation are introduced, illustrated by simple examples on maps, induction and real numbers. Subsequently, typical design options are discussed and brought to life through worked examples in the setting of simplicial complexes (a higher-dimensional generalisation of graph theory). Finally, the book demonstrates how current research in algebraic and geometric topology can be formalised by means of suitable abstraction layers. Informed by the author's recent teaching and research experience, this book allows students and researchers to quickly get started with formalising and checking their proofs. The core material of the book is accessible to mathematics students with basic programming skills. For the final chapter, familiarity with elementarycategory theory and algebraic topology is recommended.



Auteur(s) : **Dale Miller**
Titre : **Proof Theory and Logic Programming : Computation as Proof Search**

Éditeur : Cambridge University Press
Date de parution : 18/12/2025
Cote : 160 MILL PROO

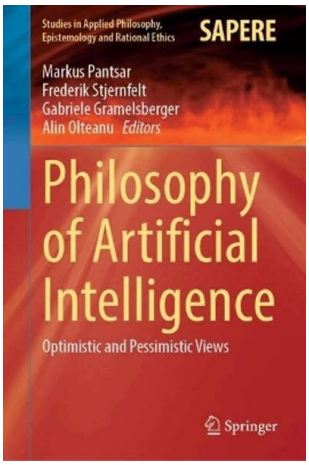
Dale Miller is Director of Research at INRIA Saclay-Île-de-France. He has been a professor at the University of Pennsylvania, Pennsylvania State University, and the École Polytechnique in France. He served as Editor-in-Chief of the 'ACM Transactions on Computational Logic' and has received an ERC Advanced Investigators Grant, the LICS Test-of-Time Award (twice), and the Dov Gabbay Prize for Logic and Foundations.



Auteur(s) : **Arvind Narayanan** - **Sayash Kapoor**
Titre : **AI Snake Oil : What Artificial Intelligence Can Do, What It Can't, and How to Tell the Difference**

Éditeur : Princeton University Press
Date de parution : 24/09/2024
Cote : 159 NARA AI

Confused about AI and worried about what it means for your future and the future of the world? You're not alone. AI is everywhere--and few things are surrounded by so much hype, misinformation, and misunderstanding. In AI Snake Oil, computer scientists Arvind Narayanan and Sayash Kapoor cut through the confusion to give you an essential understanding of how AI works and why it often doesn't, where it might be useful or harmful, and when you should suspect that companies are using AI hype to sell AI snake oil--products that don't work, and probably never will.
While acknowledging the potential of some AI, such as ChatGPT, AI Snake Oil uncovers rampant misleading claims about the capabilities of AI and describes the serious harms AI is already causing in how it's being built, marketed, and used in areas such as education, medicine, hiring, banking, insurance, and criminal justice. The book explains the crucial differences between types of AI, why organizations are falling for AI snake oil, why AI can't fix social media, why AI isn't an existential risk, and why we should be far more worried about what people will do with AI than about anything AI will do on its own. The book also warns of the dangers of a world where AI continues to be controlled by largely unaccountable big tech companies.

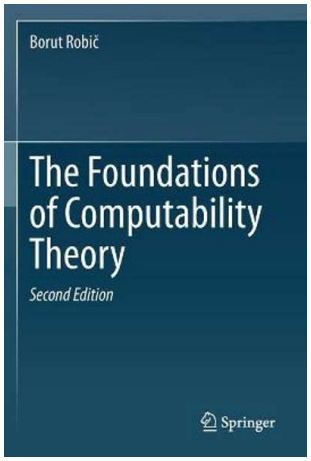


Auteur(s) : **Markus Pantsar** - **Frederik Stjernfelt** - **Gabriele Gramelsberger** - **Alin Olteanu**
Titre : **Philosophy of Artificial Intelligence : Optimistic and Pessimistic Views**
Cote : **159 PANT PHIL**

Éditeur : Springer International Publishing
Collection : Studies in Applied Philosophy, Epistemology and Rational Ethics
Date de parution : 01/11/2025

This book discusses, from various angles, the new trends in Artificial intelligence (AI), given the current so-called golden period that this field is undergoing. Recent progress

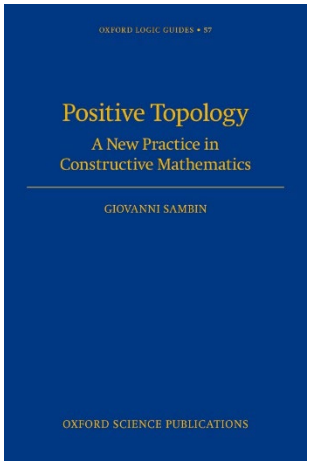
in machine learning applications, such as image recognition and natural language processing, have raised the level of optimism that one day an AI can exhibit genuine intelligence. In games like Go and chess, human players have been surpassed by computers. As during earlier periods of AI optimism, there is increasing talk about domain-general artificial intelligence being possible. But just how intelligent are current AI systems, and what can we expect in the future? What will a world with an increasingly important role for AI systems be like? Which shifts with regard to the concept of intelligence as well as the societal order do these developments have? Authors with different views on the present and future of AI research and the role of AI in society discuss these questions, illustrating the diversity of discussions on AI and the many ways our lives are influenced by it.



Auteur(s) : **Borut Robič**
Titre : **The Foundations of Computability Theory**

Éditeur : Springer Berlin
Date de parution : 14/11/2021
Cote : 510 ROBI FOUN

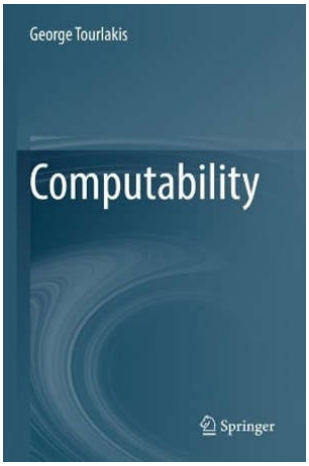
This book offers an original and informative view of the development of fundamental concepts of computability theory. The treatment is put into historical context, emphasizing the motivation for ideas as well as their logical and formal development. In Part I the author introduces computability theory, with chapters on the foundational crisis of mathematics in the early twentieth century, and formalism. In Part II he explains classical computability theory, with chapters on the quest for formalization, the Turing Machine, and early successes such as defining incomputable problems, c.e. (computably enumerable) sets, and developing methods for proving incomputability. In Part III he explains relative computability, with chapters on computation with external help, degrees of unsolvability, the Turing hierarchy of unsolvability, the class of degrees of unsolvability, c.e. degrees and the priority method, and the arithmetical hierarchy. Finally, in the new Part IV the author revisits thecomputability (Church-Turing) thesis in greater detail. He offers a systematic and detailed account of its origins, evolution, and meaning, he describes more powerful, modern versions of the thesis, and he discusses recent speculative proposals for new computing paradigms such as hypercomputing.
This is a gentle introduction from the origins of computability theory up to current research, and it will be of value as a textbook and guide for advanced undergraduate and graduate students and researchers in the domains of computability theory and theoretical computer science.
This new edition is completely revised, with almost one hundred pages of new material. In particular the author applied more up-to-date, more consistent terminology, and he addressed some notational redundancies and minor errors. He developed a glossary relating to computability theory, expanded the bibliographic references with new entries, and added the new part described above and other new sections.



Auteur(s) : **Giovanni Sambin**
Titre : **Positive Topology : A New Practice in Constructive Mathematics**

Éditeur : Oxford University Press
Collection : Oxford Logic Guides
Date de parution : 30/10/2025
Cote : 510 SAMB POSI

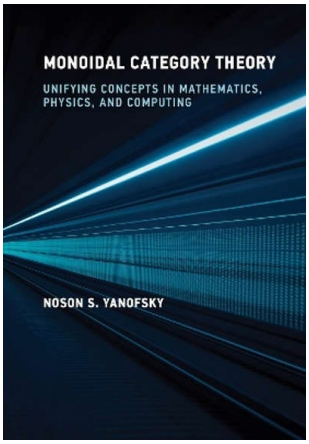
This book contains the first systematic exposition of a new discipline called positive topology, which brings many conceptual and mathematical innovations and many benefits for mathematical practice and applications, for the first time extending Darwin's evolutionary vision to the practice of mathematics.



Auteur(s) : **George Tourlakis**
Titre : **Computability**

Éditeur : Springer International Publishing
Date de parution : 03/08/2023
Cote : 160 TOUR COMP

This survey of computability theory offers the techniques and tools that computer scientists (as well as mathematicians and philosophers studying the mathematical foundations of computing) need to mathematically analyze computational processes and investigate the theoretical limitations of computing. Beginning with an introduction to the mathematisation of "mechanical process" using URM programs, this textbook explains basic theory such as primitive recursive functions and predicates and sequence-coding, partial recursive functions and predicates, and loop programs.
Advanced chapters cover the Ackerman function, Tarski's theorem on the non-representability of truth, Goedel's incompleteness and Rosser's incompleteness theorems, two short proofs of the incompleteness theorem that are based on Lob's deliverability conditions, Church's thesis, the second recursion theorem and applications, a provably recursive universal function for the primitive recursive functions, Oraclecomputations and various classes of computable functionals, the Arithmetical hierarchy, Turing reducibility and Turing degrees and the priority method, a thorough exposition of various versions of the first recursive theorem, Blum's complexity, Hierarchies of primitive recursive functions, and a machine-independent characterisation of Cobham's feasibly computable functions.



Auteur(s) : **Noson S. Yanofsky**
Titre : Monoidal Category Theory : Unifying Concepts in Mathematics, Physics, and Computing

Éditeur : MIT Press Ltd
Date de parution : 05/11/2024
Cote : 510 YANO MONO

Category theory is a powerful framework that began in mathematics but has since expanded to encompass several areas of computing and science, with broad applications in many fields. In this comprehensive text, Noson Yanofsky makes

category theory accessible to those without a background in advanced mathematics. Monoidal Category Theorydemonstrates the expansive uses of categories, and in particular monoidal categories, throughout the sciences. The textbook starts from the basics of category theory and progresses to cutting edge research. Each idea is defined in simple terms and then brought alive by many real-world examples before progressing to theorems and uncomplicated proofs. Richly guided exercises ground readers in concrete computation and application. The result is a highly readable and engaging textbook that will open the world of category theory to many.