

Acces PDF Mastering Chess
And Shogi By Self Play With A
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Mastering Chess And Shogi By Self Play With A General

This book constitutes revised selected papers from the 7th Workshop on Computer Games, CGW 2018, held in conjunction with the 27th International Conference on Artificial Intelligence, IJCAI 2018 in Stockholm, Sweden, in July 2018. The 8 full papers presented in this volume were carefully reviewed and selected from 15 submissions. They cover a wide range of topics related to video games; general game playing.- machine learning and Monte Carlo tree search.

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SHORTLISTED FOR THE
FINANCIAL TIMES & MCKINSEY
2020 BUSINESS BOOK OF THE
YEAR One of Fortune Best Books
of the Year One of Inc. Best
Business Books of the Year One of
The Times (UK) Best Business
Books of the Year A New York
Times Book Review Editors'
Choice From an Oxford economist,
a visionary account of how
technology will transform the world
of work, and what we should do
about it From mechanical looms to
the combustion engine to the first
computers, new technologies have
always provoked panic about
workers being replaced by
machines. For centuries, such fears
have been misplaced, and many

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economists maintain that they remain so today. But as Daniel Susskind demonstrates, this time really is different. Breakthroughs in artificial intelligence mean that all kinds of jobs are increasingly at risk. Drawing on almost a decade of research in the field, Susskind argues that machines no longer need to think like us in order to outperform us, as was once widely believed. As a result, more and more tasks that used to be far beyond the capability of computers – from diagnosing illnesses to drafting legal contracts, from writing news reports to composing music – are coming within their reach. The threat of technological unemployment is now real. This is

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not necessarily a bad thing, Susskind emphasizes.

Technological progress could bring about unprecedented prosperity, solving one of humanity's oldest problems: how to make sure that everyone has enough to live on.

The challenges will be to distribute this prosperity fairly, to constrain the burgeoning power of Big Tech, and to provide meaning in a world where work is no longer the center of our lives. Perceptive, pragmatic, and ultimately hopeful, *A World Without Work* shows the way.

This book constitutes the proceedings of the 32nd Australasian Joint Conference on Artificial Intelligence, AI 2019, held in Adelaide, SA, Australia, in

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December 2019. The 48 full papers presented in this volume were carefully reviewed and selected from 115 submissions. The paper were organized in topical sections named: game and multiagent systems; knowledge acquisition, representation, reasoning; machine learning and applications; natural language processing and text analytics; optimization and evolutionary computing; and image processing.

This book contains the revised and extended versions of selected papers from the 10th International Conference, ICAART 2018, held in Funchal, Madeira, Portugal, in January 2018. The 45 full papers together with 42 short papers and

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26 Posters were carefully reviewed and selected from 161 initial submissions. The papers are organized in topics such as Agents, Artificial Intelligence, Semantic Web, Multi-Agent Systems, Distributed Problem Solving, Agent Communication and much more.

Game Changer

What's the Worst That Could Happen?

20th EPIA Conference on Artificial Intelligence, EPIA 2021, Virtual Event, September 7–9, 2021, Proceedings

Progress in Artificial Intelligence
10th International Conference,
ICAART 2018, Funchal, Madeira,
Portugal, January 16 – 18, 2018,
Revised Selected Papers

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Deep Reinforcement Learning
Hands-On

Apply modern RL methods, with deep Q-networks, value iteration, policy gradients, TRPO, AlphaGo Zero and more

In this textbook the author takes as inspiration recent breakthroughs in game playing to explain how and why deep reinforcement learning works. In particular he shows why two-person games of tactics and strategy fascinate scientists, programmers, and game enthusiasts and unite them in a common goal: to create artificial intelligence (AI).

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After an introduction to the core concepts, environment, and communities of intelligence and games, the book is organized into chapters on reinforcement learning, heuristic planning, adaptive sampling, function approximation, and self-play. The author takes a hands-on approach throughout, with Python code examples and exercises that help the reader understand how AI learns to play. He also supports the main text with detailed pointers to online machine learning frameworks, technical details

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for AlphaGo, notes on how to play and program Go and chess, and a comprehensive bibliography. The content is class-tested and suitable for advanced undergraduate and graduate courses on artificial intelligence and games. It's also appropriate for self-study by professionals engaged with applications of machine learning and with games development. Finally it's valuable for any reader engaged with the philosophical implications of artificial and general intelligence, games

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represent a modern Turing test of the power and limitations of AI.

Learn and master the fascinating game of Japanese Chess or "Shogi" with this expert guide and Chess set. Japanese Chess: The Game of Shogi is the ultimate strategy guidebook for players of any skill level to improve their game and winning strategies. Played by millions around the world, Shogi is the uniquely Japanese variant of chess. It is the only version in which an opponent's captured piece can be dropped back

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onto the board as one's own. This makes for extremely exciting, dynamic gameplay in which momentum can quickly shift back and forth between players. Trevor Legett, expert player and longtime resident of Japan, gives you all the information you need to play the game, from its basic rules to winning tactics. Also included in this book are:

- Sample game and commentary*
- Discussion of various opening strategies and game positions*
- Explanation of how to read a Japanese score*
- Fold-out*

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*Shogi board Sturdy paper
playing pieces Japanese
Chess features everything
you need to get started
playing this challenging and
fun game!*

*This state-of-the-art survey
is dedicated to the memory
of Emmanuil Markovich
Braverman (1931-1977), a
pioneer in developing
machine learning theory.*

*The 12 revised full papers
and 4 short papers included
in this volume were
presented at the conference
"Braverman Readings in
Machine Learning: Key Ideas
from Inception to Current*

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State" held in Boston, MA, USA, in April 2017, commemorating the 40th anniversary of Emmanuil Braverman's decease. The papers present an overview of some of Braverman's ideas and approaches. The collection is divided in three parts. The first part bridges the past and the present and covers the concept of kernel function and its application to signal and image analysis as well as clustering. The second part presents a set of extensions of Braverman's work to issues of current interest both in theory and

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applications of machine learning. The third part includes short essays by a friend, a student, and a colleague.

This book constitutes the refereed proceedings of the 20th EPIA Conference on Artificial Intelligence, EPIA 2021, held virtually in September 2021. The 62 full papers and 6 short papers presented were carefully reviewed and selected from a total of 108 submissions. The papers are organized in the following topical sections: artificial intelligence and IoT in

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agriculture; artificial intelligence and law; artificial intelligence in medicine; artificial intelligence in power and energy systems; artificial intelligence in transportation systems; artificial life and evolutionary algorithms; ambient intelligence and affective environments; general AI; intelligent robotics; knowledge discovery and business intelligence; multi-agent systems: theory and applications; and text mining and applications.

Seven Games: A Human History

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*Intelligent Mobile Projects
with TensorFlow*

*Reinventing Democracy in
the Age of Intelligent
Machines*

*43rd German Conference on
AI, Bamberg, Germany,
September 21-25, 2020,
Proceedings*

Japanese Chess

*Reinforcement Learning and
Games*

*AI 2019: Advances in
Artificial Intelligence*

***Build real-world Artificial
Intelligence applications
with Python to intelligently
interact with the world
around you About This Book***

Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with

the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems

Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across

many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining

techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple

examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

This book constitutes the refereed post-conference proceedings of the 16th International Conference on Advances in Computer Games, ACG 2019, held in Macao, China, in August 2019. The 12 full papers presented together with 2 invited papers were carefully reviewed and selected from

19 submissions. The selected papers are devoted to topics such as cooperation; single player games; mathematical approaches; nonogram: general and specific approaches; and deep learning.

This practical guide will teach you how deep learning (DL) can be used to solve complex real-world problems. Key Features Explore deep reinforcement learning (RL), from the first principles to the latest algorithms Evaluate high-profile RL methods, including value iteration,

deep Q-networks, policy gradients, TRPO, PPO, DDPG, D4PG, evolution strategies and genetic algorithms Keep up with the very latest industry developments, including AI-driven chatbots Book Description Recent developments in reinforcement learning (RL), combined with deep learning (DL), have seen unprecedented progress made towards training agents to solve complex problems in a human-like way. Google's use of algorithms to play and

defeat the well-known Atari arcade games has propelled the field to prominence, and researchers are generating new ideas at a rapid pace.

Deep Reinforcement

Learning Hands-On is a comprehensive guide to the very latest DL tools and their limitations. You will evaluate methods including Cross-entropy and policy gradients, before applying them to real-world environments. Take on both the Atari set of virtual games and family favorites such as Connect4. The book provides an introduction to the basics of RL, giving you

the know-how to code intelligent learning agents to take on a formidable array of practical tasks. Discover how to implement Q-learning on 'grid world' environments, teach your agent to buy and trade stocks, and find out how natural language models are driving the boom in chatbots. What you will learn Understand the DL context of RL and implement complex DL models Learn the foundation of RL: Markov decision processes Evaluate RL methods including Cross-entropy,

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***DQN, Actor-Critic, TRPO,
PPO, DDPG, D4PG and
others Discover how to deal
with discrete and continuous
action spaces in various
environments Defeat Atari
arcade games using the
value iteration method
Create your own OpenAI
Gym environment to train a
stock trading agent Teach
your agent to play Connect4
using AlphaGo Zero Explore
the very latest deep RL
research on topics including
AI-driven chatbots Who this
book is for Some fluency in
Python is assumed. Basic
deep learning (DL)***

approaches should be familiar to readers and some practical experience in DL will be helpful. This book is an introduction to deep reinforcement learning (RL) and requires no background in RL.

The book, “Intelligent Computing - Proceedings of the 2022 Computing Conference”, is a comprehensive collection of chapters focusing on the core areas of computing and their further applications in the real world. Each chapter is a paper presented at the Computing Conference 2022

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held on July 14-15, 2022. Computing 2022 attracted a total of 498 submissions which underwent a double-blind peer-review process. Of those 498 submissions, 179 submissions have been selected to be included in this book. The goal of this conference is to give a platform to researchers with fundamental contributions and to be a premier venue for academic and industry practitioners to share new ideas and development experiences. We hope that readers find this book interesting and valuable as it

provides the state-of-the-art intelligent methods and techniques for solving real-world problems. We also expect that the conference and its publications will be a trigger for further related research and technology improvements in this important subject.

Computers, People, and Thought

The Fourth Education Revolution

Applications of Evolutionary Computation

Technology, Automation, and How We Should Respond

Developing Human-Friendly, Social AI

New Knowledge in Information Systems and Technologies

Using and Understanding Data

The widespread adoption of AI and machine learning is revolutionizing many industries today. Once these technologies are combined with the programmatic availability of historical and real-time financial data, the financial industry will also change fundamentally. With this practical book, you'll learn how to use AI and machine learning to discover statistical inefficiencies in financial markets and exploit them

through algorithmic trading.

Author Yves Hilpisch shows practitioners, students, and academics in both finance and data science practical ways to apply machine learning and deep learning algorithms to finance. Thanks to lots of self-contained Python examples, you'll be able to replicate all results and figures presented in the book. In five parts, this guide helps you: Learn central notions and algorithms from AI, including recent breakthroughs on the way to artificial general intelligence (AGI) and superintelligence (SI) Understand why data-driven finance, AI, and machine learning will have a lasting impact on

*financial theory and practice Apply
neural networks and reinforcement
learning to discover statistical
inefficiencies in financial markets
Identify and exploit economic
inefficiencies through backtesting
and algorithmic trading--the
automated execution of trading
strategies Understand how AI will
influence the competitive dynamics
in the financial industry and what
the potential emergence of a
financial singularity might bring
about*

*There is no more important issue
facing education, or humanity at
large, than the fast approaching
revolution in Artificial Intelligence
or AI. This book is a call to*

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educators everywhere to open their eyes to what is coming. If we do so, then the future will be shaped by us in the interests of humanity as a whole - but if we don't, it will be imposed by others. Britain and the US have an excellent education system in their schools and universities - excellent, but tailored to the twentieth century. The factory mass teaching methods of the third revolution era have failed to conquer enduring problems of inequity and unfairness. Students have to make progress at a set rate which demotivates some and bores others. And for all the new technologies, teachers remain weighed down by routine

administration and only a narrow range of our aptitudes are encouraged. Will the fourth AI revolution be able to remedy these problems? We have allowed ourselves to believe that teaching can uniquely be done only by the teacher, but might it in fact be better carried out by AI machines? Or at least in concert with teachers? The evolution of AI, still in its infancy, raises a range of issues of enormous importance as we grapple with how we as humans will interact with it. AI will be an altogether new way of spreading quality education across the world, especially to those hundreds of millions who do not have it. And

coming it is - the final part of the book stresses that we have to embrace AI and ensure that we shape it to the best advantage of humanity. If we get it wrong, there may be no second opportunity. The conclusion... Nothing matters more than education if we are to see AI liberate not infantilise humanity. This book includes a selection of articles from The 2019 World Conference on Information Systems and Technologies (WorldCIST'19), held from April 16 to 19, at La Toja, Spain. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional

experiences and challenges in modern information systems and technologies research, together with their technological development and applications. The book covers a number of topics, including A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human–Computer Interaction; J)

Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.

"The authors' clear visual style provides a comprehensive look at what's currently possible with artificial neural networks as well as a glimpse of the magic that's to come." –Tim Urban, author of Wait But Why Fully Practical, Insightful Guide to Modern Deep Learning Deep learning is transforming software, facilitating powerful new artificial intelligence capabilities, and driving

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*unprecedented algorithm
performance. Deep Learning
Illustrated is uniquely intuitive and
offers a complete introduction to
the discipline's techniques. Packed
with full-color figures and easy-to-
follow code, it sweeps away the
complexity of building deep
learning models, making the subject
approachable and fun to learn.
World-class instructor and
practitioner Jon Krohn—with
visionary content from Grant
Beyleveld and beautiful
illustrations by Aglaé
Bassens—presents straightforward
analogies to explain what deep
learning is, why it has become so
popular, and how it relates to other*

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machine learning approaches.

Krohn has created a practical reference and tutorial for developers, data scientists, researchers, analysts, and students who want to start applying it. He illuminates theory with hands-on Python code in accompanying Jupyter notebooks. To help you progress quickly, he focuses on the versatile deep learning library Keras to nimbly construct efficient TensorFlow models; PyTorch, the leading alternative library, is also covered. You'll gain a pragmatic understanding of all major deep learning approaches and their uses in applications ranging from machine vision and natural

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language processing to image generation and game-playing algorithms. Discover what makes deep learning systems unique, and the implications for practitioners Explore new tools that make deep learning models easier to build, use, and improve Master essential theory: artificial neurons, training, optimization, convolutional nets, recurrent nets, generative adversarial networks (GANs), deep reinforcement learning, and more Walk through building interactive deep learning applications, and move forward with your own artificial intelligence projects Register your book for convenient access to downloads, updates,

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*and/or corrections as they become
available. See inside book for
details.*

*25th International Conference,
ICONIP 2018, Siem Reap,
Cambodia, December 13–16, 2018,
Proceedings, Part III*

*Neural Information Processing
Cyber Republic*

*Analysis of Cognitive Models in
Constraint Handling Rules*

*32nd Australasian Joint
Conference, Adelaide, SA,
Australia, December 2–5, 2019,
Proceedings*

*From Data Mining to Evolutionary
Robotics*

Deep Learning Illustrated

The seven-volume set of LNCS

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11301-11307, constitutes the proceedings of the 25th International Conference on Neural Information Processing, ICONIP 2018, held in Siem Reap, Cambodia, in December 2018. The 401 full papers presented were carefully reviewed and selected from 575 submissions. The papers address the emerging topics of theoretical research, empirical studies, and applications of neural information processing techniques across different domains. The third volume, LNCS 11303, is organized in topical sections on embedded learning, transfer learning, reinforcement learning, and other learning approaches. In this book the author discusses

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synergies between computers and thought, related to the field of Artificial Intelligence; between people and thought, leading to questions of consciousness and our existence as humans; and between computers and people, leading to the recent remarkable advances in the field of humanoid robots. He then looks toward the implications of intelligent 'conscious' humanoid robots with superior intellects, able to operate in our human environments. After presenting the basic engineering components and supporting logic of computer systems, and giving an overview of the contributions of pioneering scientists in the domains of computing, logic, and robotics, in

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the core of the book the author examines the meaning of thought and intelligence in the context of specific tasks and successful AI approaches. In the final part of the book he introduces related societal and ethical implications. The book will be a useful accompanying text in courses on artificial intelligence, robotics, intelligent systems, games, and evolutionary computing. It will also be valuable for general readers and historians of technology.

This book constitutes the refereed proceedings of the 24th International Conference on Applications of Evolutionary Computation, EvoApplications 2021, held as part of Evo*2021, as

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Virtual Event, in April 2021, co-located with the Evo*2021 events EuroGP, EvoCOP, and EvoMUSART. The 51 revised full papers presented in this book were carefully reviewed and selected from 78 submissions. The papers cover a wide spectrum of topics, ranging from applications of evolutionary computation; applications of deep bioinspired algorithms; soft computing applied to games; machine learning and AI in digital healthcare and personalized medicine; evolutionary computation in image analysis, signal processing and pattern recognition; evolutionary machine learning; parallel and distributed systems; and applications of nature

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inspired computing for sustainability and development.

This book constitutes the refereed proceedings of the 43rd German Conference on Artificial Intelligence, KI 2020, held in Bamberg, Germany, in September 2020. The 16 full and 12 short papers presented together with 6 extended abstracts in this volume were carefully reviewed and selected from 62 submissions. As well-established annual conference series KI is dedicated to research on theory and applications across all methods and topic areas of AI research. KI 2020 had a special focus on human-centered AI with highlights on AI and education and explainable machine learning. Due

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to the Corona pandemic KI 2020
was held as a virtual event.

International Conference
Commemorating the 40th
Anniversary of Emmanuil
Braverman's Decease, Boston, MA,
USA, April 28-30, 2017, Invited
Talks

24th International Conference,
EvoApplications 2021, Held as Part
of EvoStar 2021, Virtual Event,
April 7-9, 2021, Proceedings
Range

Data Analytics and AI
The Deep Learning Revolution
Advances in Computer Games
AlphaZero's Groundbreaking Chess
Strategies and the Promise of AI
The #1 New York Times
bestseller that has all America

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talking—with a new afterword on expanding your range—as seen on CNN's Fareed Zakaria GPS, Morning Joe, CBS This Morning, and more. “The most important business—and parenting—book of the year.”

—Forbes “Urgent and important. . . an essential read for bosses, parents, coaches, and anyone who cares about improving performance.”

—Daniel H. Pink Shortlisted for the Financial Times/McKinsey Business Book of the Year Award
Plenty of experts argue that anyone who wants to develop a skill, play an instrument, or lead their field should start early, focus

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intensely, and rack up as many hours of deliberate practice as possible. If you dabble or delay, you'll never catch up to the people who got a head start. But a closer look at research on the world's top performers, from professional athletes to Nobel laureates, shows that early specialization is the exception, not the rule. David Epstein examined the world's most successful athletes, artists, musicians, inventors, forecasters and scientists. He discovered that in most fields—especially those that are complex and unpredictable—generalists, not specialists, are primed to

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excel. Generalists often find their path late, and they juggle many interests rather than focusing on one. They're also more creative, more agile, and able to make connections their more specialized peers can't see. Provocative, rigorous, and engrossing, Range makes a compelling case for actively cultivating inefficiency. Failing a test is the best way to learn. Frequent quitters end up with the most fulfilling careers. The most impactful inventors cross domains rather than deepening their knowledge in a single area. As experts silo themselves further while computers master more of the

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skills once reserved for highly focused humans, people who think broadly and embrace diverse experiences and perspectives will increasingly thrive.

A jaw-dropping exploration of everything that goes wrong when we build AI systems and the movement to fix them.

Today's "machine-learning" systems, trained by data, are so effective that we've invited them to see and hear for us—and to make decisions on our behalf. But alarm bells are ringing. Recent years have seen an eruption of concern as the field of machine learning advances. When the systems

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we attempt to teach will not, in the end, do what we want or what we expect, ethical and potentially existential risks emerge. Researchers call this the alignment problem.

Systems cull résumés until, years later, we discover that they have inherent gender biases. Algorithms decide bail and parole—and appear to assess Black and White defendants differently. We can no longer assume that our mortgage application, or even our medical tests, will be seen by human eyes. And as autonomous vehicles share our streets, we are increasingly putting our lives in their hands.

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The mathematical and computational models driving these changes range in complexity from something that can fit on a spreadsheet to a complex system that might credibly be called “artificial intelligence.” They are steadily replacing both human judgment and explicitly programmed software. In best-selling author Brian Christian’s riveting account, we meet the alignment problem’s “first-responders,” and learn their ambitious plan to solve it before our hands are completely off the wheel. In a masterful blend of history and on-the ground reporting,

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Christian traces the explosive growth in the field of machine learning and surveys its current, sprawling frontier. Readers encounter a discipline finding its legs amid exhilarating and sometimes terrifying progress. Whether they—and we—succeed or fail in solving the alignment problem will be a defining human story. The Alignment Problem offers an unflinching reckoning with humanity's biases and blind spots, our own unstated assumptions and often contradictory goals. A dazzlingly interdisciplinary work, it takes a hard look not only at our technology but at

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our culture—and finds a story by turns harrowing and hopeful.

How deep learning—from Google Translate to driverless cars to personal cognitive assistants—is changing our lives and transforming every sector of the economy. The deep learning revolution has brought us driverless cars, the greatly improved Google Translate, fluent conversations with Siri and Alexa, and enormous profits from automated trading on the New York Stock Exchange. Deep learning networks can play poker better than professional poker players and defeat a

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world champion at Go. In this book, Terry Sejnowski explains how deep learning went from being an arcane academic field to a disruptive technology in the information economy. Sejnowski played an important role in the founding of deep learning, as one of a small group of researchers in the 1980s who challenged the prevailing logic-and-symbol based version of AI. The new version of AI Sejnowski and others developed, which became deep learning, is fueled instead by data. Deep networks learn from data in the same way that babies experience the world, starting

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with fresh eyes and gradually acquiring the skills needed to navigate novel environments. Learning algorithms extract information from raw data; information can be used to create knowledge; knowledge underlies understanding; understanding leads to wisdom. Someday a driverless car will know the road better than you do and drive with more skill; a deep learning network will diagnose your illness; a personal cognitive assistant will augment your puny human brain. It took nature many millions of years to evolve human intelligence; AI is on a trajectory measured

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In decades. Sejnowski prepares us for a deep learning future.

Create Deep Learning and Reinforcement Learning apps for multiple platforms with TensorFlow Key Features Build TensorFlow-powered AI applications for mobile and embedded devices Learn modern AI topics such as computer vision, NLP, and deep reinforcement learning Get practical insights and exclusive working code not available in the TensorFlow documentation Book

Description As a developer, you always need to keep an eye out and be ready for what will be trending soon, while

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also focusing on what's trending currently. So, what's better than learning about the integration of the best of both worlds, the present and the future? Artificial Intelligence (AI) is widely regarded as the next big thing after mobile, and Google's TensorFlow is the leading open source machine learning framework, the hottest branch of AI. This book covers more than 10 complete iOS, Android, and Raspberry Pi apps powered by TensorFlow and built from scratch, running all kinds of cool TensorFlow models offline on-device: from computer vision, speech and language processing to

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generative adversarial networks and AlphaZero-like deep reinforcement learning. You'll learn how to use or retrain existing TensorFlow models, build your own models, and develop intelligent mobile apps running those TensorFlow models. You'll learn how to quickly build such apps with step-by-step tutorials and how to avoid many pitfalls in the process with lots of hard-earned troubleshooting tips. What you will learn

- Classify images with transfer learning
- Detect objects and their locations
- Transform pictures with amazing art styles
- Understand simple speech

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commands Describe images in natural language Recognize drawing with Convolutional Neural Network and Long Short-Term Memory Predict stock price with Recurrent Neural Network in TensorFlow and Keras Generate and enhance images with generative adversarial networks Build AlphaZero-like mobile game app in TensorFlow and Keras Use TensorFlow Lite and Core ML on mobile Develop TensorFlow apps on Raspberry Pi that can move, see, listen, speak, and learn Who this book is for If you're an iOS/Android developer interested in building and retraining others'

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TensorFlow models and running them in your mobile apps, or if you're a TensorFlow developer and want to run your new and amazing TensorFlow models on mobile devices, this book is for you. You'll also benefit from this book if you're interested in TensorFlow Lite, Core ML, or TensorFlow on Raspberry Pi.

Reinforcement Learning,
second edition

Human Advantage in an Age of
Technology and Turmoil

Build 10+ Artificial Intelligence
apps using TensorFlow Mobile
and Lite for iOS, Android, and
Raspberry Pi

How to Grow a Robot

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Artificial Intelligence
Fundamentals, Research and
Applications
Ryan's Retina E-Book

Analytics and artificial intelligence (AI), what are they good for? The bandwagon keeps answering, absolutely everything! Analytics and artificial intelligence have captured the attention of everyone from top executives to the person in the street. While these disciplines have a relatively long history, within the last ten or so years they have exploded into corporate business and public consciousness. Organizations

have rushed to embrace data-driven decision making.

Companies everywhere are turning out products boasting that "artificial intelligence is included." We are indeed living in exciting times. The question we need to ask is, do we really know how to get business value from these exciting tools? Unfortunately, both the analytics and AI communities have not done a great job in collaborating and communicating with each other to build the necessary synergies. This book bridges the gap between these two critical fields. The book begins

by explaining the commonalities and differences in the fields of data science, artificial intelligence, and autonomy by giving a historical perspective for each of these fields, followed by exploration of common technologies and current trends in each field. The book also readers introduces to applications of deep learning in industry with an overview of deep learning and its key architectures, as well as a survey and discussion of the main applications of deep learning. The book also presents case studies to

illustrate applications of AI and analytics. These include a case study from the healthcare industry and an investigation of a digital transformation enabled by AI and analytics transforming a product-oriented company into one delivering solutions and services. The book concludes with a proposed AI-informed data analytics life cycle to be applied to unstructured data. Rigorous treatment of the theory of deep learning from first principles, with applications to beautiful problems in the natural sciences.

Through six outstanding and award-winning editions, Ryan's Retina has offered unsurpassed coverage of this complex subspecialty—everything from basic science through the latest research, therapeutics, technology, and surgical techniques. The fully revised 7th Edition, edited by Drs. Srinivas R. Sadda, Andrew P. Schachat, Charles P. Wilkinson, David R. Hinton, Peter Wiedemann, K. Bailey Freund, and David Sarraf, continues the tradition of excellence, balancing the latest scientific research and

clinical correlations and covering everything you need to know on retinal diagnosis, treatment, development, structure, function, and pathophysiology. More than 300 global contributors share their knowledge and expertise to create the most comprehensive reference available on retina today. Features sweeping content updates, including new insights into the fundamental pathogenic mechanisms of age-related macular degeneration, advances in imaging including OCT angiography and

intraoperative OCT, new therapeutics for retinal vascular disease and AMD, novel immune-based therapies for uveitis, and the latest in instrumentation and techniques for vitreo-retinal surgery. Includes five new chapters covering Artificial Intelligence and Advanced Imaging Analysis, Pachychoroid Disease and Its Association with Polypoidal Choroidal Vasculopathy, Retinal Manifestations of Neurodegeneration, Microbiome and Retinal Disease, and OCT-Angiography. Includes more

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than 50 video clips (35 new to this edition) highlighting the latest surgical techniques, imaging guidance, and coverage of complications of vitreoretinal surgery. New videos cover Scleral Inlay for Recurrent Optic Nerve Pit Masculopathy, Trauma with Contact Lens, Recurrent Retinal Detachment due to PVR, Asteroid Hyalosis, and many more. Contains more than 2,000 high-quality images (700 new to this edition) including anatomical illustrations, clinical and surgical photographs, diagnostic imaging, decision

trees, and graphs.

How to develop robots that will be more like humans and less like computers, more social than machine-like, and more playful and less programmed. Most robots are not very friendly. They vacuum the rug, mow the lawn, dispose of bombs, even perform surgery—but they aren't good conversationalists. It's difficult to make eye contact. If the future promises more human-robot collaboration in both work and play, wouldn't it be better if the robots were less mechanical and more social? In How to Grow a Robot, Mark

Lee explores how robots can be more human-like, friendly, and engaging. Developments in artificial intelligence—notably Deep Learning—are widely seen as the foundation on which our robot future will be built.

These advances have already brought us self-driving cars and chess match-winning algorithms. But, Lee writes, we need robots that are perceptive, animated, and responsive—more like humans and less like computers, more social than machine-like, and more playful and less programmed. The way to

achieve this, he argues, is to “grow” a robot so that it learns from experience—just as infants do. After describing “what's wrong with artificial intelligence” (one key shortcoming: it's not embodied), Lee presents a different approach to building human-like robots: developmental robotics, inspired by developmental psychology and its accounts of early infant behavior. He describes his own experiments with the iCub humanoid robot and its development from newborn helplessness to ability levels

equal to a nine-month-old, explaining how the iCub learns from its own experiences. All robots are designed to know humans as objects; developmental robots will learn empathy. Developmental robots, with an internal model of “self,” will be better interactive partners with humans. That is the kind of future technology we should work toward.

**7th Workshop, CGW 2018,
Held in Conjunction with the
27th International Conference
on Artificial Intelligence, IJCAI
2018, Stockholm, Sweden,
July 13, 2018, Revised**

Selected Papers

Deep Reinforcement Learning

The Game of Shogi

16th International Conference,

ACG 2019, Macao, China,

August 11–13, 2019, Revised

Selected Papers

The Alignment Problem:

Machine Learning and Human

Values

A Visual, Interactive Guide to

Artificial Intelligence

Intelligent Computing

Why catastrophic risks are more dangerous than you think, and how populism is making them worse. Did you know that you're more likely to die from a catastrophe than in a car crash? The odds that a typical US resident will die from a catastrophic event—for example, nuclear

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war, bioterrorism, or out-of-control artificial intelligence—have been estimated at 1 in 6. That's fifteen times more likely than a fatal car crash and thirty-one times more likely than being murdered. In *What's the Worst That Could Happen?*, Andrew Leigh looks at catastrophic risks and how to mitigate them, arguing provocatively that the rise of populist politics makes catastrophe more likely. Leigh explains that pervasive short-term thinking leaves us unprepared for long-term risks. Politicians sweat the small stuff—granular policy details of legislation and regulation—but rarely devote much attention to reducing long-term risks. Populist movements thrive on short-termism because they focus on their followers' immediate grievances. Leigh argues that we should be long-termers: broaden our thinking and give big threats the attention and resources they need.

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Leigh outlines the biggest existential risks facing humanity and suggests remedies for them. He discusses pandemics, considering the possibility that the next virus will be more deadly than COVID-19; warns that unchecked climate change could render large swaths of the earth uninhabitable; describes the metamorphosis of the arms race from a fight into a chaotic brawl; and examines the dangers of runaway superintelligence. Moreover, Leigh points out, populism (and its crony, totalitarianism) not only exacerbates other dangers but is also a risk factor in itself, undermining the institutions of democracy as we watch. Shortlisted for the 2021 Vine Awards Art, chess, and an \$87,000 pipe frame an inside look at the relationship between Dadaist artist Marcel Duchamp and chess Grandmaster George Koltanowski Spanning three decades, two continents,

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two world wars, and the international art and chess scenes of the mid twentieth century, Duchamp's Pipe explores the remarkable friendship between art world enfant terrible Marcel Duchamp and blindfold chess champion George Koltanowski. Artist and cultural historian Celia Rabinovitch describes each man's rise to prominence, the chess matches that sparked their relationship, and the recently discovered pipe that Duchamp gave to Koltanowski. This tale of genius and resilience offers fresh insights into the essence of the gift in the bohemian underground. Rabinovitch invites us to discover the chess wizard and a Duchamp slightly off pedestal--and ultimately more human.

This textbook covers the broader field of artificial intelligence. The chapters for this textbook span within three categories:
Deductive reasoning methods: These

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methods start with pre-defined hypotheses and reason with them in order to arrive at logically sound conclusions. The underlying methods include search and logic-based methods. These methods are discussed in Chapters 1 through 5.

Inductive Learning Methods: These methods start with examples and use statistical methods in order to arrive at hypotheses. Examples include regression modeling, support vector machines, neural networks, reinforcement learning, unsupervised learning, and probabilistic graphical models. These methods are discussed in Chapters~6 through 11.

Integrating Reasoning and Learning: Chapters~11 and 12 discuss techniques for integrating reasoning and learning.

Examples include the use of knowledge graphs and neuro-symbolic artificial intelligence. The primary audience for this textbook are professors and advanced-

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level students in computer science. It is also possible to use this textbook for the mathematics requirements for an undergraduate data science course.

Professionals working in this related field many also find this textbook useful as a reference.

The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been

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significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-

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studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

Why Generalists Triumph in a Specialized World

Existential Risk and Extreme Politics

Braverman Readings in Machine

Learning. Key Ideas from Inception to Current State

Agents and Artificial Intelligence

KI 2020: Advances in Artificial Intelligence

Computer Games

A World Without Work

Healthcare transformation requires us to continually look at new and better ways to manage insights - both within and outside the

organization. Increasingly, the ability to glean and operationalize new insights efficiently as a byproduct of an organization's day-to-day operations is becoming vital for hospitals and health systems to survive and prosper. One of the long-standing challenges in healthcare informatics has been the ability to deal with the sheer variety and volume of disparate healthcare data and the increasing need to derive veracity and value out of it. This book addresses several topics important to the understanding and use

of data in healthcare. First, it provides a formal explanation based on epistemology (theory of knowledge) of what data actually is, what we can know about it, and how we can reason with it. The culture of data is also covered and where it fits into healthcare. Then, data quality is addressed, with a historical appreciation, as well as new concepts and insights derived from the author's 35 years of experience in technology. The author provides a description of what healthcare data analysis is

and how it is changing in the era of abundant data. Just as important is the topic of infrastructure and how it provides capability for data use. The book also describes how healthcare information infrastructure needs to change in order to meet current and future needs. The topics of artificial intelligence (AI) and machine learning in healthcare are also addressed. The author concludes with thoughts on the evolution of the role and use of data and information going into the future.

AlphaZero, the self-learning artificial intelligence system created by DeepMind, had been fed nothing but the rules of the Royal Game when it beat the world's strongest chess engine. The games that were published created a sensation: how was it possible to play in such a brilliant and risky style and not lose a single game against an opponent of superhuman strength? Matthew Sadler and Natasha Regan investigated more than two thousand previously unpublished games by

AlphaZero. They also had unparalleled access to its developers and were offered a unique look 'under the bonnet'. Sadler and Regan reveal AlphaZero's thinking process and tell the story of its creation. Game Changer also presents a collection of lucidly explained chess games of astonishing quality. Both professionals and club players will improve their game by studying AlphaZero's stunning discoveries in every field that matters: opening preparation, piece mobility,

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initiative, attacking techniques, long-term sacrifices and much more. Game Changer offers intriguing insights into the opportunities and horizons of Artificial Intelligence. With a foreword by former World Chess Champion Garry Kasparov and an introduction by DeepMind CEO Demis Hassabis. "Cukier and his co-authors have a more ambitious project than Kahneman and Harari. They don't want to just point out how powerfully we are influenced by our perspectives and

prejudices—our frames. They want to show us that these frames are tools, and that we can optimise their use.” —Forbes From pandemics to populism, AI to ISIS, wealth inequity to climate change, humanity faces unprecedented challenges that threaten our very existence. The essential tool that will enable humanity to find the best way foward is defined in Framers by internationally renowned authors Kenneth Cukier, Viktor Mayer-Schönberger, and Francis de Véricourt. To frame is to make a

mental model that enables us to make sense of new situations. Frames guide the decisions we make and the results we attain.

People have long focused on traits like memory and reasoning, leaving framing all but ignored. But with computers becoming better at some of those cognitive tasks, framing stands out as a critical function—and only humans can do it. This book is the first guide to mastering this human ability. Illustrating their case with compelling examples and the latest research, authors Cukier,

***Mayer-Schönberger, and de
Véricourt examine: · Why
advice to “think outside the
box” is useless · How
Spotify beat Apple by
reframing music as an
experience · How the
#MeToo twitter hashtag
reframed the perception of
sexual assault · The
disaster of framing
Covid-19 as equivalent to
seasonal flu, and how
framing it akin to SARS
delivered New Zealand
from the pandemic Framers
shows how framing is not
just a way to improve how
we make decisions in the
era of algorithms—but why***

it will be a matter of survival for humanity in a time of societal upheaval and machine prosperity. Computational cognitive modeling explores cognition by building computational models for cognitive processes, mechanisms and representations. Currently, implementations of cognitive models lack a formal foundation. This inhibits analysis. In this thesis, the cognitive architecture Adaptive Control of Thought - Rational (ACT-R) is formalized and embedded

**into the rule-based
programming language
Constraint Handling Rules
(CHR). The powerful
analytical methods of CHR,
particularly confluence
analysis, are extended by
reasoning modulo
equivalence relations. The
results are applied to the
domain of cognitive
modeling.**

**Learning to Play
Proceedings of the 2022
Computing Conference,
Volume 2
Technologies, Applications,
and Challenges
Volume 2
An Introduction**

Artificial Intelligence with Python A Textbook

A group biography of seven enduring and beloved games, and the story of why—and how—we play them. Checkers, backgammon, chess, and Go. Poker, Scrabble, and bridge. These seven games, ancient and modern, fascinate millions of people worldwide. In *Seven Games*, Oliver Roeder charts their origins and historical importance, the delightful arcana of their rules, and the ways their design makes them pleasurable. Roeder introduces thrilling competitors, such as evangelical minister Marion Tinsley, who across forty years lost only

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three games of checkers; Shusai, the Master, the last Go champion of imperial Japan, defending tradition against “modern rationalism”; and an IBM engineer who created a backgammon program so capable at self-learning that NASA used it on the space shuttle. He delves into the history and lore of each game: backgammon boards in ancient Egypt, the Indian origins of chess, how certain shells from a particular beach in Japan make the finest white Go stones. Beyond the cultural and personal stories, Roeder explores why games, seemingly trivial pastimes, speak so deeply to the human soul. He introduces an early philosopher of games, the aptly

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named Bernard Suits, and visits an Oxford cosmologist who has perfected a computer that can effectively play bridge, a game as complicated as human language itself. Throughout, Roeder tells the compelling story of how humans, pursuing scientific glory and competitive advantage, have invented AI programs better than any human player, and what that means for the games—and for us. Funny, fascinating, and profound, *Seven Games* is a story of obsession, psychology, history, and how play makes us human. How to make liberal democracies more inclusive and the digital economy more equitable: a guide for

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the coming Fourth Industrial Revolution. Around the world, liberal democracies are in crisis. Citizens have lost faith in their government; right-wing nationalist movements frame the political debate. At the same time, economic inequality is increasing dramatically; digital technologies have created a new class of super-rich entrepreneurs. Automation threatens to transform the free economy into a zero-sum game in which capital wins and labor loses. But is this digital dystopia inevitable? In *Cyber Republic*, George Zarkadakis presents an alternative, outlining a plan for using technology to make liberal

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democracies more inclusive and the digital economy more equitable. Cyber Republic is no less than a guide for the coming Fourth Industrial Revolution. Zarkadakis, an expert on technology and management, explains how artificial intelligence, together with intelligent robotics, sophisticated sensors, communication networks, and big data, will fundamentally reshape the global economy; a new "intelligent machine age" will force us to adopt new forms of economic and political organization. He envisions a future liberal democracy in which intelligent machines facilitate citizen assemblies, helping to extend citizen rights, and blockchains and

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cryptoeconomics enable new forms of democratic governance and business collaboration. Moreover, the same technologies can be applied to scientific research and technological innovation. We need not fear automation, Zarkadakis argues; in a post-work future, intelligent machines can collaborate with humans to achieve the human goals of inclusivity and equality. Deep reinforcement learning (DRL) is the combination of reinforcement learning (RL) and deep learning. It has been able to solve a wide range of complex decision-making tasks that were previously out of reach for a machine, and famously contributed to the success of

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AlphaGo. Furthermore, it opens up numerous new applications in domains such as healthcare, robotics, smart grids and finance. Divided into three main parts, this book provides a comprehensive and self-contained introduction to DRL. The first part introduces the foundations of deep learning, reinforcement learning (RL) and widely used deep RL methods and discusses their implementation. The second part covers selected DRL research topics, which are useful for those wanting to specialize in DRL research. To help readers gain a deep understanding of DRL and quickly apply the techniques in practice, the third part presents mass

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applications, such as the intelligent transportation system and learning to run, with detailed explanations. The book is intended for computer science students, both undergraduate and postgraduate, who would like to learn DRL from scratch, practice its implementation, and explore the research topics. It also appeals to engineers and practitioners who do not have strong machine learning background, but want to quickly understand how DRL works and use the techniques in their applications.

Artificial Intelligence:
Technologies, Applications, and
Challenges is an invaluable resource
for readers to explore the utilization
of Artificial Intelligence,

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applications, challenges, and its underlying technologies in different applications areas. Using a series of present and future applications, such as indoor-outdoor securities, graphic signal processing, robotic surgery, image processing, character recognition, augmented reality, object detection and tracking, intelligent traffic monitoring, emergency department medical imaging, and many more, this publication will support readers to get deeper knowledge and implementing the tools of Artificial Intelligence. The book offers comprehensive coverage of the most essential topics, including: Rise of the machines and communications

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to IoT (3G, 5G). Tools and Technologies of Artificial Intelligence Real-time applications of artificial intelligence using machine learning and deep learning. Challenging Issues and Novel Solutions for realistic applications Mining and tracking of motion based object data image processing and analysis into the unified framework to understand both IoT and Artificial Intelligence-based applications. This book will be an ideal resource for IT professionals, researchers, under or post-graduate students, practitioners, and technology developers who are interested in gaining insight to the Artificial Intelligence with deep

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learning, IoT and machine learning,
critical applications domains,
technologies, and solutions to
handle relevant challenges.

A Chess Romance--Marcel

Duchamp and George Koltanowski

Deep Learning in Science

Duchamp's Pipe

Will Artificial Intelligence Liberate
Or Infantilise Humanity

Framers

Information Technology and Data in
Healthcare

Artificial Intelligence in Finance