A Neural Algorithm Of Artistic Style Pdf Arxiv

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Data Analytics and AI - Jay Liebowitz 2020-08-06
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.
Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences - Mayank Dave 2021-02-19
This book presents best selected papers presented at the International Conference on Paradigms of Computing, Communication and Data Sciences (PCCDS 2020), organized by National Institute of Technology, Kurukshetra, India, during 1–3 May 2020. It discusses high-quality and cutting-edge research in the areas of advanced computing, communications and data science techniques. The book is a collection of latest research articles in computation algorithm, communication and data sciences, intertwined with each other for efficiency.
Computer Vision – ECCV 2018 Workshops - Laura Leal-Taixé 2019-01-22
The six-volume set comprising the LNCS volumes 11129-11134 constitutes the refereed proceedings of the workshops that took place in conjunction with the 15th European Conference on Computer Vision, ECCV 2018, held in Munich, Germany, in September 2018.43 workshops from 74 workshops proposals were selected for inclusion in the proceedings. The workshop topics present a good orchestration of new trends and traditional issues, built bridges into neighboring fields, and discuss fundamental technologies and novel applications.
Глубокое обучение с точки зрения практика - Джош Паттерсон 2022-01-29
Интерес к машинному обучению зашкаливает, но завышенные ожидания нередко губят проекты еще на ранней стадии. Как машинное обучение – и особенно глубокие нейронные сети – может изменить вашу организацию? Эта книга не только содержит практически полезную информацию о предмете, но и поможет приступить к созданию эффективных сетей глубокого обучения.Авторы сначала раскрывают фундаментальные вопросы глубокого обучения – настройка, распараллеливание, векторизация, конвейеры операций, а затем переходят к библиотеке Deeplearning4j (DL4J), предназначенной для разработки технологических процессов профессионального уровня. На реальных примерах читатель познакомится с методами и стратегиями обучения глубоких сетей с различной архитектурой и их распараллеливания в кластерах Hadoop и Spark.Издание предназначено для специалистов по анализу данных, находящихся в поисках более широкого и практического понимания принципов глубокого обучения.
Intelligent Mobile Projects with TensorFlow - Jeff Tang 2018-05-22
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 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 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 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' 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.
Deep Learning For Dummies - John Paul Mueller 2019-04-15
Take a deep dive into deep learning Deep learning provides the means for discerning patterns in the data that drive online business and social media outlets. Deep Learning for Dummies gives you the information you need to take the mystery out of the topic—and all of the underlying technologies associated with it. In no time, you'll make sense of those increasingly confusing algorithms, and find a simple and safe environment to experiment with deep learning. The book develops a sense of precisely what deep learning can do at a high level and then provides examples of the major deep learning application types. Includes sample code Provides real-world examples within the approachable text Offers hands-on activities to make learning easier Shows you how to use Deep Learning more effectively with the right tools This book is perfect for those who want to better understand the basis of the underlying technologies that we use each and every day.
Deep Generative Models - Anirban Mukhopadhyay 2022-10-07
This book constitutes the refereed proceedings of the Second MICCAI Workshop on Deep Generative Models, DG4MICCAI 2022, held in conjunction with MICCAI 2022, in September 2022. The workshops took place in Singapore. DG4MICCAI 2022 accepted 12 papers from the 15 submissions received. The workshop focusses on recent algorithmic developments, new results, and promising future directions in Deep Generative Models. Deep generative models such as Generative Adversarial Network (GAN) and Variational Auto-Encoder (VAE) are currently receiving widespread attention from not only the computer vision and machine learning communities, but also in the MIC and CAI

community.

Deep Learning - Andrew Glassner 2021-06-22

A richly-illustrated, full-color introduction to deep learning that offers visual and conceptual explanations instead of equations. You'll learn how to use key deep learning algorithms without the need for complex math. Ever since computers began beating us at chess, they've been getting better at a wide range of human activities, from writing songs and generating news articles to helping doctors provide healthcare. Deep learning is the source of many of these breakthroughs, and its remarkable ability to find patterns hiding in data has made it the fastest growing field in artificial intelligence (AI). Digital assistants on our phones use deep learning to understand and respond intelligently to voice commands; automotive systems use it to safely navigate road hazards; online platforms use it to deliver personalized suggestions for movies and books - the possibilities are endless. Deep Learning: A Visual Approach is for anyone who wants to understand this fascinating field in depth, but without any of the advanced math and programming usually required to grasp its internals. If you want to know how these tools work, and use them yourself, the answers are all within these pages. And, if you're ready to write your own programs, there are also plenty of supplemental Python notebooks in the accompanying Github repository to get you going. The book's conversational style, extensive color illustrations, illuminating analogies, and real-world examples expertly explain the key concepts in deep learning, including: • How text generators create novel stories and articles • How deep learning systems learn to play and win at human games • How image classification systems identify objects or people in a photo • How to think about probabilities in a way that's useful to everyday life • How to use the machine learning techniques that form the core of modern AI Intellectual adventurers of all kinds can use the powerful ideas covered in Deep Learning: A Visual Approach to build intelligent systems that help us better understand the world and everyone who lives in it. It's the future of AI, and this book allows you to fully envision it. Full Color Illustrations

Pattern Recognition - Bodo Rosenhahn 2016-08-26

This book constitutes the refereed proceedings of the 38th German Conference on Pattern Recognition, GCPR 2016, held in Hannover, Germany, in September 2016. The 36 revised full papers presented were carefully reviewed and selected from 85 submissions. The papers are organized in topical sections on image processing, learning, optimization, segmentation, applications, image analysis, motion and tracking.

Deep Learning with R - Abhijit Ghatak 2019-04-13

Deep Learning with R introduces deep learning and neural networks using the R programming language. The book builds on the understanding of the theoretical and mathematical constructs and enables the reader to create applications on computer vision, natural language processing and transfer learning. The book starts with an introduction to machine learning and moves on to describe the basic architecture, different activation functions, forward propagation, cross-entropy loss and backward propagation of a simple neural network. It goes on to create different code segments to construct deep neural networks. It discusses in detail the initialization of network parameters, optimization techniques, and some of the common issues surrounding neural networks such as dealing with NaNs and the vanishing/exploding gradient problem. Advanced variants of multilayered perceptrons namely, convolutional neural networks and sequence models are explained, followed by application to different use cases. The book makes extensive use of the Keras and TensorFlow frameworks.

Art in the Age of Machine Learning - Sofian Audry 2021-11-23

An examination of machine learning art and its practice in new media art and music. Over the past decade, an artistic movement has emerged that draws on machine learning as both inspiration and medium. In this book, transdisciplinary artist-researcher Sofian Audry examines artistic practices at the intersection of machine learning and new media art, providing conceptual tools and historical perspectives for new media artists, musicians, composers, writers, curators, and theorists. Audry looks at works from a broad range of practices, including new media installation, robotic art, visual art, electronic music and sound, and electronic literature, connecting machine learning art to such earlier artistic practices as cybernetics art, artificial life art, and evolutionary art. Machine learning underlies computational systems that are biologically inspired, statistically driven, agent-based networked entities that program themselves. Audry explains the fundamental design of machine learning algorithmic structures in terms accessible to the nonspecialist while framing these technologies within larger historical and conceptual spaces. Audry debunks myths about machine learning art, including the ideas that machine learning can create art without artists and that machine learning will soon bring about superhuman intelligence and creativity. Audry considers learning procedures, describing how artists hijack the training process by playing with evaluative functions; discusses trainable machines and models, explaining how different types of machine learning systems enable different kinds of artistic practices; and reviews the role of data in machine learning art, showing how artists use data as a raw material to steer learning systems and arguing that machine learning allows for novel forms of algorithmic remixes.

Data Science Programming All-in-One For Dummies - John Paul Mueller 2020-01-09

Your logical, linear guide to the fundamentals of data science programming Data science is exploding—in a good way—with a forecast of 1.7 megabytes of new information created every second for each human being on the planet by 2020 and 11.5 million job openings by 2026. It clearly pays dividends to be in the know. This friendly guide charts a path through the fundamentals of data science and then delves into the actual work: linear regression, logical regression, machine learning, neural networks, recommender engines, and cross-validation of models. Data Science Programming All-In-One For Dummies is a compilation of the key data science, machine learning, and deep learning programming languages: Python and R. It helps you decide which programming languages are best for specific data science needs. It also gives you the guidelines to build your own projects to solve problems in real time. Get grounded: the ideal start for new data professionals What lies ahead: learn about specific areas that data is transforming Be meaningful: find out how to tell your data story See clearly: pick up the art of visualization Whether you’re a beginning student or already mid-career, get your copy now and add even more meaning to your life—and everyone else’s!

Digital Ethics - Thomas Dreier 2022-05-12

Digitale Bilder werfen ethische Fragen auf, die bislang kaum Aufmerksamkeit gefunden haben. Die diskreten Pixel digitaler Bilder lassen sich frei kombinieren. Zugleich ermöglicht das Netz eine im Vergleich zur Verbreitung analoger Bilder ungleich größere Kontrolle. Die Folgen für die visuelle Gegenwartskommunikation wie auch für das kulturelle visuelle Gedächtnis sind erst in Umrissen erkennbar. Kann es überhaupt eine angewandte Ethik digitaler Bilder geben? Welchen Inhalt könnte eine solche normative Ethik haben? Und schließlich: In welchem Verhältnis stehen Ethik und das Recht digitaler Bilder zueinander? Der Band versammelt die Beiträge einer von der DFG geförderten interdisziplinären deutsch-italienischen Tagung in der Villa Vigoni. Mit Beiträgen von Prof. Gianmaria Ajani, Prof. Tiziana Andina, Dr. Eva-Maria Bauer, Dr. Davide Dal Sasso, Prof. Dr. Thomas Dreier, PD Dr. Johannes Eichenhofer, Prof. Maurizio Ferraris, Prof. Dr. Christophe Geiger, Prof. Dr. Dr. h.c. Werner Gephart, Olivia Hägle, Prof. Wybo Houkes, Dr. Lisa Käde, Prof. Massimo Leone, Lorenz Müller-Tamm, Dr. Eberhard Ortland, Prof. Dr. Benjamin Raue, Ass. Prof. Cosetta Saba, Prof. Dr. Reinold Schmücker, Ass. Prof. Enrico Terrone und Prof. Dr. Wolfgang Ullrich.

Proceedings of the Future Technologies Conference (FTC) 2020, Volume 1 - Kohei Arai 2020-10-30

This book provides the state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research. The fifth 2020 Future Technologies Conference was organized virtually and received a total of 590 submissions from academic pioneering researchers, scientists, industrial engineers, and students from all over the world. The submitted papers covered a wide range of important topics including but not limited to computing, electronics, artificial intelligence, robotics, security and communications and their applications to the real world. After a double-blind peer review process, 210 submissions (including 6 poster papers) have been selected to be included in these proceedings. One of the meaningful and valuable dimensions of this conference is the way it brings together a large group of technology geniuses in one venue to not only present breakthrough research in future technologies, but also to promote discussions and debate of relevant issues, challenges, opportunities and research findings. The authors hope that readers find the book interesting, exciting and inspiring

Deep Learning - Josh Patterson 2017-07-28

Although interest in machine learning has reached a high point, lofty expectations often scuttle projects before they get very far. How can machine learning—especially deep neural networks—make a real difference in your organization? This hands-on guide not only provides the most practical information available on the subject, but also helps you get started building efficient deep learning networks. Authors Adam Gibson and Josh Patterson provide theory on deep learning before introducing their open-source Deeplearning4j (DL4J) library for developing production-class workflows. Through real-world examples, you’ll learn methods and strategies for training deep network architectures and running deep learning workflows on Spark and Hadoop with DL4J. Dive into machine learning concepts in general, as well as deep learning in particular Understand how deep networks evolved from neural network fundamentals Explore the major deep network architectures, including Convolutional and Recurrent Learn how to map specific deep networks to the right problem Walk through the fundamentals of tuning general neural networks and specific deep network architectures Use vectorization techniques for different data types with DataVec, DL4J’s workflow tool Learn how to use DL4J natively on Spark and Hadoop

AI 상식사전 - 한규동 2022-06-30

인공지능, 전공은 아니지만 궁금했어요 궁금했지만 배우고 싶지는 않았던 인공지능 비전공자도 이해할 수 있도록 상식 수준으로 풀어 설명합니다. 2016년 알파고와 이세돌의 대결 이후 인공지능과 딥러닝, 머신러닝이 유행처럼 번지고 있다. 하지만 인공지능이 무엇인지 설명할 수 있는 사람은 드물다. 이 책은 평소 인공지능에 대해 알고 싶지만 깊이 있게 공부하기에는 부담스러웠던 사람들을 위한 책이다. 따라서 복잡한 수식이나 어려운 프로그래밍 용어는 최대한 배제하고 인공지능을 최대한 알기 쉽게 설명한다. 전공은 아니지만 궁금했던 인공지능의 역사부터 인공 신경망, 머신러닝, 딥러닝 등 인공지능과 관련 기술의 개념, 기계 번역에 활용되는 언어 모델, 이미지 처리의 원리 등을 다양한 사례를 사용해 쉽고 재미있게 설명한다. 이 책을 덮는 순간부터 ‘아, 인공지능이요? 존 매카시가 다트머스 회의에서 처음 언급했죠.’라고 여유 있게 아는 척할 수 있다. * 보조 설명문에 표기된 각 챕터의 제목을 구분하기 쉽게 수정했습니다.

Intelligence Science II - Zhongzhi Shi 2018-10-24

This book constitutes the refereed proceedings of the Third International Conference on Intelligence Science, ICIS 2018, held in Beijing China, in November 2018. The 44 full papers and 5 short papers presented were carefully reviewed and selected from 85 submissions. They deal with key issues in intelligence science and have been organized in the following topical sections: brain cognition; machine learning; data intelligence; language cognition; perceptual intelligence; intelligent robots; fault diagnosis; and ethics of artificial intelligence.

Creativity and Data Marketing - Becky Wang 2017-01-03

The world is moving towards universal connectivity at a dizzying rate; underpinning this complex system of incessant transaction, connection and digital experience is an infrastructure that generates a trail of data. This trail not only tells us about human behaviour, but provides vital insights into market dynamics, consumer behaviour, as well as the relationships we value and the culture we live in. Creativity and Data Marketing helps marketers access this data, find meaning in it and leverage it creatively to gain a competitive advantage. Creativity and Data Marketing addresses the need to analyse data creatively, and in particular how balancing tangible insights with creative market influence can maximise business innovation and results. The book clarifies where businesses can improve existing infrastructure, processes and activities, as well as finding new addressable markets ready to validate or rethink market demand. By identifying how and why a consumer interacts with touch points beyond paid media, for example forums, blog content, native advertising and word-of-mouth, Becky Wang presents a creativity and data blueprint on how businesses can make lucrative steps forward to innovate their products, services and communication strategies, laying the groundwork for long-term results. Online resources include bonus content covering analytics methods, evolving research, data platforms and more, and a creative brief template.

Proceedings of First International Conference on Computational Electronics for Wireless Communications - Sanyog Rawat 2022-01-03

This book includes high-quality papers presented at Proceedings of First International Conference on Computational Electronics for Wireless Communications (ICCWC 2021), held at National Institute of Technology, Kurukshetra, Haryana, India, during June 11–12, 2021. The book presents original research work of academics and industry professionals to exchange their knowledge of the state-of-the-art research and development in computational electronics with an emphasis on wireless communications. The topics covered in the book are radio frequency and microwave, signal processing, microelectronics and wireless networks.

Big Mind - Geoff Mulgan 2019-11-12

"A new field of collective intelligence has emerged in the last few years, prompted by a wave of digital technologies that make it possible for organizations and societies to think at large scale. This "bigger mind"--human and machine capabilities working together--has the potential to solve the great challenges of our time. So why do smart technologies not automatically lead to smart results? Gathering insights from diverse fields, including philosophy, computer science, and biology, Big Mind reveals how collective intelligence can guide corporations, governments, universities, and societies to make the most of human brains and digital technologies"--Amazon.com.

Kollege KI - Stefan Gröner 2019-04-15

Künstliche Intelligenz ist "the next big thing" – und alle halten gebannt und ängstlich die Luft an. Leider verharren viele Unternehmen jedoch in dieser Schockstarre. Sie drohen, den Wandel zu verpassen und gehen die notwendigen Anpassungen ihres Geschäftsmodells zu spät und zu wenig konsequent an. Und verpassen die Chancen, die sich durch den verstärkten Einsatz von Kollege KI wie Machine Learning oder Deep Learning eröffnen. Mehr und mehr wird es für das Überleben von Firmen ausschlaggebend sein, eine Antwort auf Fragen nach dem Einsatz von KI zu haben – ob bei Planung, Produktion und Arbeitsprozesse, vor allem aber beim Angebot von Produkten und Dienstleistung mit hohem Individualisierungsgrad. Die gute Nachricht: Es ist noch nicht zu spät! Selbst wer die Digitalisierung nur stiefmütterlich beachtet hat, bekommt nun die Chance, sich neue Vorteile zu erschließen. Wie, erfährt man praxisnah mit vielen Beispielen in diesem Buch.

Ethics of Artificial Intelligence - S. Matthew Liao 2020

Should a self-driving car prioritize the lives of the passengers over the lives of pedestrians? Should we as a society develop autonomous weapon systems that are capable of identifying and attacking a target without human intervention? What happens when AIs become smarter and more capable than us? Could they have greater than human moral status? Can we prevent superintelligent AIs from harming us or causing our extinction? At a critical time in this fast-moving debate, thirty leading academics and researchers at the forefront of AI technology development come together to explore these existential questions, including Aaron James (UC Irvine), Allan Dafoe (Oxford), Andrea Loreggia (Padova), Andrew Critch (UC Berkeley), Azim Shariff (Univ. .

Praxiseinstieg Deep Learning - Ramon Wartala 2018-01-02

Deep Learning ist ein Teilbereich des Machine Learning und basiert auf künstlichen neuronalen Netzen. Dieser praktische Leitfaden bietet einen schnellen Einstieg in die Schlüsseltechnologie und erschließt Grundlagen und Arbeitsweisen von Deep Learning. Anhand Python-basierter Beispielanwendungen wird der Umgang mit den Frameworks Caffe/Caffe2 und TensorFlow gezeigt. Einfache, alltagstaugliche Beispiele laden zum Nachprogrammieren ein. Darüber hinaus erfahren Sie, warum moderne Grafikkarten, Big Data und Cloud Computing beim Deep Learning so wichtig sind. Wenn Sie bereits mit Python, NumPy und matplotlib arbeiten, ermöglicht Ihnen dieses Buch, praktische Erfahrungen mit Deep-Learning-Anwendungen zu machen. Deep Learning – die Hintergründe - Lernmethoden, die Deep Learning zugrunde liegen - Aktuelle Anwendungsfelder wie maschinelle Übersetzungen, Sprach- und Bilderkennung bei Google, Facebook, IBM oder Amazon Der Werkzeugkasten mit Docker - Der Docker-Container zum Buch: Alle nötigen Tools und Programme sind bereits installiert, damit Sie die Beispiele des Buchs und eigene Deep-Learning-Anwendungen leicht ausführen können. - Die Arbeitsumgebung kennenlernen: Jupyter Notebook, Beispieldatensätze, Web Scraping Der Praxiseinstieg - Einführung in Caffe/Caffe2 und TensorFlow - Deep-Learning-Anwendungen nachprogrammieren: Handschrifterkennung, Bilderkennung und -klassifizierung, Deep Dreaming - Lösungen für Big-Data-Szenarien: verteilte Anwendungen, Spark, Cloud-Systeme - Modelle in produktive Systeme überführen

Deep Learning with PyTorch Lightning - Kunal Sawarkar 2022-04-29

Build, train, deploy, and scale deep learning models quickly and accurately, improving your productivity using the lightweight PyTorch Wrapper Key FeaturesBecome well-versed with PyTorch Lightning architecture and learn how it can be implemented in various industry domainsSpeed up your research using PyTorch Lightning by creating new loss functions, networks, and architecturesTrain and build new algorithms for massive data using distributed trainingBook Description PyTorch Lightning lets researchers build their own Deep Learning (DL) models without having to worry about the boilerplate. With the help of this book, you'll be able to maximize productivity for DL projects while ensuring full flexibility from model formulation through to implementation. You'll take a hands-on approach to implementing PyTorch Lightning models to get up to speed in no time. You'll start by learning how to configure PyTorch Lightning on a cloud platform, understand the architectural components, and explore how they are configured to build various industry solutions. Next, you'll build a network and application from scratch and see how you can expand it based on your specific needs, beyond what the framework can provide. The book also demonstrates how to implement out-of-box capabilities to build and train Self-Supervised Learning, semi-supervised learning, and time series models using PyTorch Lightning. As you advance, you'll discover how generative adversarial networks (GANs) work. Finally, you'll work with deployment-ready applications, focusing on faster performance and scaling, model scoring on massive volumes of data, and model debugging. By the end of this PyTorch book, you'll have developed the knowledge and skills necessary to build and deploy your own scalable DL applications using PyTorch Lightning. What you will learnCustomize models that are built for different datasets, model architectures, and optimizersUnderstand how a variety of Deep Learning models from image recognition and time series to GANs, semi-supervised and self-supervised models can be builtUse out-of-the-box model architectures and pre-trained models using transfer learningRun and tune DL models in a multi-GPU environment using mixed-mode precisionsExplore techniques for model scoring on massive workloadsDiscover troubleshooting techniques while debugging DL modelsWho this book is for This deep learning book is for citizen data scientists and expert data scientists transitioning from other frameworks to PyTorch Lightning. This book will also be useful for deep learning researchers who are just getting started with coding for deep learning models using PyTorch Lightning. Working knowledge of Python programming and an intermediate-level understanding of statistics and deep learning fundamentals is expected.

Non-Photorealistic Computer Graphics - Thomas Strothotte 2002-04-12
Penning one of the first books to offer a systematic assessment of computer graphics, the authors provide detailed accounts of today's major non-photorealistic algorithms, along with the background information and implementation advice users need to put them to productive use.

Hybrid Artificial Intelligent Systems - Hilde Pérez García 2019-08-26
This volume constitutes the refereed proceedings of the 14th International Conference on Hybrid Artificial Intelligent Systems, HAIS 2019, held in León, Spain, in September 2019. The 64 full papers published in this volume were carefully reviewed and selected from 134 submissions. They are organized in the following topical sections: data mining, knowledge discovery and big data; bio-inspired models and evolutionary computation; learning algorithms; visual analysis and advanced data processing techniques; data mining applications; and hybrid intelligent applications.

Automatische Hermeneutik? - Bastian Weiß
Hermeneutik fundiert als nicht-methodisierbare Methode der Geisteswissenschaften zugleich deren Selbstverständnis und strittigen Status als Wissenschaft. Die Arbeit unternimmt eine kritische Betrachtung der Grenzen bzw. der Möglichkeit eines sinnverstehenden, interpretierenden Zugangs zu Texten durch maschinelle Algorithmen. Dieses Vorhaben motiviert sich einerseits aus den Erwartungshaltungen, die an moderne KI-Technologien gerichtet werden, andererseits aus der Emphase, mit der im Hinblick auf KI-Fortschritte reagiert wird - und richtet sich damit gegen Mystifikationen insbesondere angesichts von Machine-Learning-Technologien, ohne aber hermeneutisches Sinnverstehen als einem formalen Zugriff von vornherein enthoben anzunehmen.

Analyzing Future Applications of AI, Sensors, and Robotics in Society - Musiolik, Thomas Heinrich 2020-09-11
The rise of artificial intelligence and its countless branches have caused many professional industries to rethink their traditional methods of practice and develop new techniques to keep pace with technological advancement. The continued use of intelligent technologies in the professional world has propelled researchers to contemplate future opportunities and challenges that artificial intelligence may withhold. Significant research is a necessity for understanding future trends of artificial intelligence and the preparation of prospective issues. Analyzing Future Applications of AI, Sensors, and Robotics in Society provides emerging research exploring the potential uses and future challenges of intelligent technological advancements and their impact in education, finance, politics, business, healthcare, and engineering. Featuring coverage on a broad range of topics such as neuronal networks, cognitive computing, and e-health, this book is ideally designed for practitioners, researchers, scientists, executives, strategists, policymakers, academicians, government officials, developers, and students seeking current research on future societal uses of intelligent technology.

The Routledge Companion to Artificial Intelligence in Architecture - Imdat As 2021-05-06
Providing the most comprehensive source available, this book surveys the state of the art in artificial intelligence (AI) as it relates to architecture. This book is organized in four parts: theoretical foundations, tools and techniques, AI in research, and AI in architectural practice. It provides a framework for the issues surrounding AI and offers a variety of perspectives. It contains 24 consistently illustrated contributions examining seminal work on AI from around the world, including the United States, Europe, and Asia. It articulates current theoretical and practical methods, offers critical views on tools and techniques, and suggests future directions for meaningful uses of AI technology. Architects and educators who are concerned with the advent of AI and its ramifications for the design industry will find this book an essential reference.

Fundamentals of Deep Learning - Nikhil Buduma 2017-05-25
With the reinvigoration of neural networks in the 2000s, deep learning has become an extremely active area of research, one that’s paving the way for modern machine learning. In this practical book, author Nikhil Buduma provides examples and clear explanations to guide you through major concepts of this complicated field. Companies such as Google, Microsoft, and Facebook are actively growing in-house deep-learning teams. For the rest of us, however, deep learning is still a pretty complex and difficult subject to grasp. If you’re familiar with Python, and have a background in calculus, along with a basic understanding of machine learning, this book will get you started. Examine the foundations of machine learning and neural networks Learn how to train feed-forward neural networks Use TensorFlow to implement your first neural network Manage problems that arise as you begin to make networks deeper Build neural networks that analyze complex images Perform effective dimensionality reduction using autoencoders Dive deep into sequence analysis to examine language Learn the fundamentals of reinforcement learning

Deep Learning with Python - Francois Chollet 2017-11-30
Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author François Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision and Pattern Recognition (CVPR), the Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance

U. S. -China Strategic Relations and Competitive Sports - David Lai 2022

"This book contains valuable essays that stretch our imagination. Football, soccer, baseball, chess, weiqi and other games provide interesting metaphors that help us understand the various dimensions of the cooperative rivalry between the US and China. It is a fascinating read." --Joseph S. Nye is University Distinguished Service Professor Emeritus at Harvard University, USA and author of Do Morals Matter? Presidents and Foreign Policy from FDR to Trump "A thoughtful account of how sports shape strategic culture in the U.S. and China--and how sports competitions, in turn, can provide clues for managing the U.S.-China rivalry." --Graham Allison, Douglas Dillon Professor of Government at Harvard University, USA "A thought-provoking and fascinating exploration of American and Chinese strategic approaches." --Newt Gingrich, former Speaker of the United States House of Representatives, USA "This work offers exceptionally useful insights into the cultural underpinnings of China's value system and, thus, its motivations. Dr. Lai, one of America's most informed experts on the Peoples' Republic of China, is uniquely positioned to understand and explain how PRC leaders think." --Douglas C. Lovelace, Jr., Esquire, USA is a widely published senior national security strategist, former Director of the U.S. Army Strategic Institute, and Editor and Coauthor of Terrorism: Commentary on Security Documents, Oxford University Press. This book investigates cultural influences of competitive sports on U.S. and Chinese strategic thinking and tactical behavior. Most competitive sports owe their origins to human fighting. Although they are "ritualized contests," competitive sports have retained many aspects of human warfare, especially the use of strategy and tactics that moves human contest beyond military clashes to the subjugation of opponents without bloodshed. Cultural influences usually go unnoticed. Indeed, Washington often conducts foreign affairs like football games without knowing that is the case. Likewise, Beijing moves in Weiqi style subconsciously. This book uncovers these influences. David Lai, Ph.D. is currently an adjunct professor at the George Washington University, USA and previously professor at the U.S. Army and Air War Colleges respectively.

The Creativity Code - Marcus Du Sautoy 2019

Most books on AI focus on the future of work. But now that algorithms can learn and adapt, does the future of creativity also belong to well-programmed machines? To answer this question, Marcus du Sautoy takes us to the forefront of creative new technologies and offers a more positive and unexpected vision of our future cohabitation with machines.

MultiMedia Modeling - Laurent Amsaleg 2016-12-30

The two-volume set LNCS 10132 and 10133 constitutes the thoroughly refereed proceedings of the 23rd International Conference on Multimedia Modeling, MMM 2017, held in Reykjavik, Iceland, in January 2017. Of the 149 full papers submitted, 36 were selected for oral presentation and 33 for poster presentation; of the 34 special session papers submitted, 24 were selected for oral presentation and 2 for poster presentation; in addition, 5 demonstrations were accepted from 8 submissions, and all 7 submissions to VBS 2017. All papers presented were carefully reviewed and selected from 198 submissions. MMM is a leading international conference for researchers and industry practitioners for sharing new ideas, original research results and practical development experiences from all MMM related areas, broadly falling into three categories: multimedia content analysis; multimedia signal processing and communications; and multimedia applications and services.

2.5D Printing - Carinna Parraman 2018-08-15

A guide that examines the history and current state of 2.5D printing and explores the relationship between two and three dimensions 2.5D Printing: Bridging the Gap Between 2D and 3D Applications examines the relationship between two- and three-dimensional printing and explores the current ideas, methods, and applications. It provides insights about the diversity of our material culture and heritage and how this knowledge can be used to design and develop new methods for texture printing. The authors review the evolving research and interest in working towards developing methods to: capture, measure and model the surface qualities of 3D and 2D objects, represent the appearance of surface, material and textural qualities, and print or reproduce the material and textural qualities. The text reflects information on the topic from a broad range of fields including science, technology, art, design, conservation, perception, and computer modelling. 2.5D Printing: Bridging the Gap Between 2D and 3D Applications provides a survey of traditional methods of capturing 2.5D through painting and sculpture, and how the human perception is able to judge and compare differences. This important text: Bridges the gap between the technical and perceptual domains of 2D and 3D printing Discusses perceptual texture, color, illusion, and visual impact to offer a unique perspective Explores how to print a convincing rendering of texture that integrates the synthesis of texture in fine art paintings, with digital deposition printing Describes contemporary methods for capturing surface qualities and methods for modelling and measuring, and ways that it is currently being used Considers the impact of 2.5D for future technologies 2.5D Printing is a hands-on guide that provides visual inspiration, comparisons between traditional and digital technologies, case studies, and a wealth of references to the world of texture printing. Please visit the companion website at: www.wiley.com/go/bridging2d3d.

Deep Learning with TensorFlow - Giancarlo Zaccone 2018-03-30

Delve into neural networks, implement deep learning algorithms, and explore layers of data abstraction with the help of TensorFlow. Key Features Learn how to implement advanced techniques in deep learning with Google's brainchild, TensorFlow Explore deep neural networks and layers of data abstraction with the help of this comprehensive guide Gain real-world contextualization through some deep learning problems concerning research and application Book Description Deep learning is a branch of machine learning algorithms based on learning multiple levels of abstraction. Neural networks, which are at the core of deep learning, are being used in predictive analytics, computer vision, natural language processing, time series forecasting, and to perform a myriad of other complex tasks. This book is conceived for developers, data analysts, machine learning practitioners and deep learning enthusiasts who want to build powerful, robust, and accurate predictive models with the power of TensorFlow, combined with other open source Python libraries. Throughout the book, you’ll learn how to develop deep learning applications for machine learning systems using Feedforward Neural Networks, Convolutional Neural Networks, Recurrent Neural Networks, Autoencoders, and Factorization Machines. Discover how to attain deep learning programming on GPU in a distributed way. You'll come away with an in-depth knowledge of machine learning techniques and the skills to apply them to real-world projects. What you will learn Apply deep machine intelligence and GPU computing with TensorFlow Access public datasets and use TensorFlow to load, process, and transform the data Discover how to use the high-level TensorFlow API to build more powerful applications Use deep learning for scalable object detection and mobile computing Train machines quickly to learn from data by exploring reinforcement learning techniques Explore active areas of deep learning research and applications Who this book is for The book is for people interested in machine learning and machine intelligence. A rudimentary level of programming in one language is assumed, as is a basic familiarity with computer science techniques and technologies, including a basic awareness of computer hardware and algorithms. Some competence in mathematics is needed to the level of elementary linear algebra and calculus.

Computer Vision - ECCV 2014 Workshops - Lourdes Agapito 2015-03-18

The four-volume set LNCS 8925, 8926, 8927, and 8928 comprises the refereed post-proceedings of the Workshops that took place in conjunction with the 13th European Conference on Computer Vision, ECCV 2014, held in Zurich, Switzerland, in September 2014. The 203 workshop papers were carefully reviewed and selected for inclusion in the proceedings. They were presented at workshops with the following themes: where computer vision meets art; computer vision in vehicle technology; spontaneous facial behavior analysis; consumer depth cameras for computer vision; "chalearn" looking at people: pose, recovery, action/interaction, gesture recognition; video event categorization, tagging and retrieval towards big data; computer vision with local binary pattern variants; visual object tracking challenge; computer vision + ontology applies cross-disciplinary technologies; visual perception of affordance and functional visual primitives for scene analysis; graphical models in computer vision; light fields for computer vision; computer vision for road scene understanding and autonomous driving; soft biometrics; transferring and adapting source knowledge in computer vision; surveillance and re-identification; color and photometry in computer vision; assistive computer vision and robotics; computer vision problems in plant phenotyping; and non-rigid shape analysis and deformable image alignment. Additionally, a panel discussion on video segmentation is included. .

Integer Programming and Combinatorial Optimization - Andrea Lodi 2019-05-02

This book constitutes the refereed proceedings of the 20th International Conference on Integer Programming and Combinatorial Optimization, IPCO 2019, held in Ann Arbor, MI, USA, in May 2019. The 33 full versions of extended abstracts presented were carefully reviewed and selected from 114 submissions. The conference is a forum for researchers and practitioners working on various aspects of integer programming and combinatorial optimization. The aim is to present recent developments in theory, computation, and applications in these areas.

Cognitive Systems and Signal Processing - Fuchun Sun 2019-04-27
This two-volume set (CCIS 1005 and CCIS 1006) constitutes the refereed proceedings of the 4th International Conference on Cognitive Systems and Signal Processing, ICCSIP2018, held in Beijing, China, in November and December 2018. The 96 revised full papers presented were carefully reviewed and selected from 169 submissions. The papers are organized in topical sections on vision and image; algorithms; robotics; human-computer interaction; deep learning; information processing and automatic driving.

Deep Learning with PyTorch - Vishnu Subramanian 2018-02-23
Build neural network models in text, vision and advanced analytics using PyTorch Key Features Learn PyTorch for implementing cutting-edge deep learning algorithms. Train your neural networks for higher speed and flexibility and learn how to implement them in various scenarios; Cover various advanced neural network architecture such as ResNet, Inception, DenseNet and more with practical examples; Book Description Deep learning powers the most intelligent systems in the world, such as Google Voice, Siri, and Alexa. Advancements in powerful hardware, such as GPUs, software frameworks such as PyTorch, Keras, Tensorflow, and CNTK along with the availability of big data have made it easier to implement solutions to problems in the areas of text, vision, and advanced analytics. This book will get you up and running with one of the most cutting-edge deep learning libraries—PyTorch. PyTorch is grabbing the attention of deep learning researchers and data science professionals due to its accessibility, efficiency and being more native to Python way of development. You'll start off by installing PyTorch, then quickly move on to learn various fundamental blocks that power modern deep learning. You will also learn how to use CNN, RNN, LSTM and other networks to solve real-world problems. This book explains the concepts of various state-of-the-art deep learning architectures, such as ResNet, DenseNet, Inception, and Seq2Seq, without diving deep into the math behind them. You will also learn about GPU computing during the course of the book. You will see how to train a model with PyTorch and dive into complex neural networks such as generative networks for producing text and images. By the end of the book, you'll be able to implement deep learning applications in PyTorch with ease. What you will learn Use PyTorch for GPU-accelerated tensor computations Build custom datasets and data loaders for images and test the models using torchvision and torchtext Build an image classifier by implementing CNN architectures using PyTorch Build systems that do text classification and language modeling using RNN, LSTM, and GRU Learn advanced CNN architectures such as ResNet, Inception, Densenet, and learn how to use them for transfer learning Learn how to mix multiple models for a powerful ensemble model Generate new images using GAN's and generate artistic images using style transfer Who this book is for This book is for machine learning engineers, data analysts, data scientists interested in deep learning and are looking to explore implementing advanced algorithms in PyTorch. Some knowledge of machine learning is helpful but not a mandatory need. Working knowledge of Python programming is expected.