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ARTIFICIAL INTELLIGENCE AND DATA MINING IN HEALTHCARE

Springer Nature This book presents recent work on healthcare management and engineering using artificial intelligence and data mining techniques. Specific topics covered in the contributed chapters include predictive mining, decision support, capacity management, patient flow optimization, image compression, data clustering, and feature selection. The content will be valuable for researchers and postgraduate students in computer science, information technology, industrial engineering, and applied mathematics.

MINING THE SOCIAL WEB

ANALYZING DATA FROM FACEBOOK, TWITTER, LINKEDIN, AND OTHER SOCIAL MEDIA SITES

"O'Reilly Media, Inc." Provides information on data analysis from a variety of social networking sites, including Facebook, Twitter, and LinkedIn.

THE COMPUTING UNIVERSE

A JOURNEY THROUGH A REVOLUTION

Cambridge University Press This exciting and accessible book takes us on a journey from the early days of computers to the cutting-edge research of the present day that will shape computing in the coming decades. It introduces a fascinating cast of dreamers and inventors who brought these great technological developments into every corner of the modern world, and will open up the universe of computing to anyone who has ever wondered where his or her smartphone came from.

COGNITIVE SCIENCE AND HEALTH BIOINFORMATICS

ADVANCES AND APPLICATIONS

Springer This book highlights the interdisciplinary study of cognition, mind and behavior from an information processing perspective, and describes related applications to health informatics. The respective chapters address health problem-solving and education, decision support systems, user-centered interfaces, and the design and use of controlled medical terminologies. Reflecting cutting-edge research on computational methods – including theory, algorithms, numerical simulation, error and uncertainty analysis, and their applications – the book offers a valuable resource for doctoral students and researchers in the fields of Computer Science and Engineering.

THE FOURTH INDUSTRIAL REVOLUTION

Penguin UK The founder and executive chairman of the World Economic Forum on how the impending technological revolution will change our lives We are on the brink of the Fourth Industrial Revolution. And this one will be unlike any other in human history. Characterized by new technologies fusing the physical, digital and biological worlds, the Fourth Industrial Revolution will impact all disciplines, economies and industries - and it will do so at an unprecedented rate. World Economic Forum data predicts that by 2025 we will see: commercial use of nanomaterials 200 times stronger than steel and a million times thinner than human hair; the first transplant of a 3D-printed liver; 10% of all cars on US roads being driverless; and much more besides. In The Fourth Industrial Revolution, Schwab outlines the key technologies driving this revolution, discusses the major impacts on governments, businesses, civil society and individuals, and offers bold ideas for what can be done to shape a better future for all.

THE CAMBRIDGE HANDBOOK OF TECHNOLOGY AND EMPLOYEE BEHAVIOR

Cambridge University Press Experts from across all industrial-organizational (IO) psychology describe how increasingly rapid technological change has affected the field. In each chapter, authors describe how this has altered the meaning of IO research within a particular subdomain and what steps must be taken to avoid IO research from becoming obsolete. This Handbook presents a forward-looking review of IO psychology's understanding of both workplace technology and how technology is used in IO research methods. Using interdisciplinary perspectives to further this understanding and serving as a focal text from which this research will grow, it tackles three main questions facing the field. First, how has technology affected IO psychological theory and practice to date? Second, given the current trends in both research and practice, could IO psychological theories be rendered obsolete? Third, what are the highest priorities for both research and practice to ensure IO psychology remains appropriately engaged with technology moving forward?

ARTIFICIAL INTELLIGENCE AND GAMES

Springer This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study by industrial game developers and practitioners. The authors have developed a website (<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

MINING THE SOCIAL WEB

DATA MINING FACEBOOK, TWITTER, LINKEDIN, INSTAGRAM, GITHUB, AND MORE

O'Reilly Media Mine the rich data tucked away in popular social websites such as Twitter, Facebook, LinkedIn, and Instagram. With the third edition of this popular guide, data scientists, analysts, and programmers will learn how to glean insights from social media—including who's connecting with whom, what they're talking about, and where they're located—using Python code examples, Jupyter notebooks, or Docker containers. In part one, each standalone chapter focuses on one aspect of the social landscape, including each of the major social sites, as well as web pages, blogs and feeds, mailboxes, GitHub, and a newly added chapter covering Instagram. Part two provides a cookbook with two dozen bite-size recipes for solving particular issues with Twitter. Get a straightforward synopsis of the social web landscape Use Docker to easily run each chapter's example code, packaged as a Jupyter notebook Adapt and contribute to the code's open source GitHub repository Learn how to employ best-in-class Python 3 tools to slice and dice the data you collect Apply advanced mining techniques such as TFIDF, cosine similarity, collocation analysis, clique detection, and image recognition Build beautiful data visualizations with Python and JavaScript toolkits

AN INTRODUCTION TO ETHICS IN ROBOTICS AND AI

Springer Nature This open access book introduces the reader to the foundations of AI and ethics. It discusses issues of trust, responsibility, liability, privacy and risk. It focuses on the interaction between people and the AI systems and Robotics they use. Designed to be accessible for a broad audience, reading this book does not require prerequisite technical, legal or philosophical expertise. Throughout, the authors use examples to illustrate the issues at hand and conclude the book with a discussion on the application areas of AI and Robotics, in particular autonomous vehicles, automatic weapon systems and biased algorithms. A list of questions and further readings is also included for students willing to explore the topic further.

EXPLORING SERVICE SCIENCE

10TH INTERNATIONAL CONFERENCE, IESS 2020, PORTO, PORTUGAL, FEBRUARY 5-7, 2020, PROCEEDINGS

Springer This book constitutes the proceedings of the 10th International Conference on Exploring Service Science, IESS 2020, held in Porto, Portugal, in February 2020. The 28 papers presented in this volume were carefully reviewed and selected from 42 submissions. The book includes papers that extend the view on different concepts related to the development of the Service Science domain of study, applying them to frameworks, advanced technologies, and tools for the design of new, digitally-enabled service systems. This book is structured in six parts, based on the six main conference themes, as follows: Customer Experience, Data Analytics in Service, Emerging Service Technologies, Service Design and Innovation, Service Ecosystems, and Service Management.

INTRODUCTION TO MACHINE LEARNING

MIT Press The goal of machine learning is to program computers to use example data or past experience to solve a given problem. Many successful applications of machine learning exist already, including systems that analyze past sales data to predict customer behavior, optimize robot behavior so that a task can be completed using minimum resources, and extract knowledge from bioinformatics data. Introduction to Machine Learning is a comprehensive textbook on the subject, covering a broad array of topics not usually included in introductory machine learning texts. Subjects include supervised learning; Bayesian decision theory; parametric, semi-parametric, and nonparametric methods; multivariate analysis; hidden Markov models; reinforcement learning; kernel machines; graphical models; Bayesian estimation; and statistical testing. Machine learning is rapidly becoming a skill that computer science students must master before graduation. The third edition of Introduction to Machine Learning reflects this shift, with added support for beginners, including selected solutions for exercises and additional example data sets (with code available online). Other substantial changes include discussions of outlier detection; ranking algorithms for perceptrons and support vector machines; matrix decomposition and spectral methods; distance estimation; new kernel algorithms; deep learning in

multilayered perceptrons; and the nonparametric approach to Bayesian methods. All learning algorithms are explained so that students can easily move from the equations in the book to a computer program. The book can be used by both advanced undergraduates and graduate students. It will also be of interest to professionals who are concerned with the application of machine learning methods.

DECISION MAKING UNDER UNCERTAINTY

THEORY AND APPLICATION

MIT Press An introduction to decision making under uncertainty from a computational perspective, covering both theory and applications ranging from speech recognition to airborne collision avoidance. Many important problems involve decision making under uncertainty—that is, choosing actions based on often imperfect observations, with unknown outcomes. Designers of automated decision support systems must take into account the various sources of uncertainty while balancing the multiple objectives of the system. This book provides an introduction to the challenges of decision making under uncertainty from a computational perspective. It presents both the theory behind decision making models and algorithms and a collection of example applications that range from speech recognition to aircraft collision avoidance. Focusing on two methods for designing decision agents, planning and reinforcement learning, the book covers probabilistic models, introducing Bayesian networks as a graphical model that captures probabilistic relationships between variables; utility theory as a framework for understanding optimal decision making under uncertainty; Markov decision processes as a method for modeling sequential problems; model uncertainty; state uncertainty; and cooperative decision making involving multiple interacting agents. A series of applications shows how the theoretical concepts can be applied to systems for attribute-based person search, speech applications, collision avoidance, and unmanned aircraft persistent surveillance. Decision Making Under Uncertainty unifies research from different communities using consistent notation, and is accessible to students and researchers across engineering disciplines who have some prior exposure to probability theory and calculus. It can be used as a text for advanced undergraduate and graduate students in fields including computer science, aerospace and electrical engineering, and management science. It will also be a valuable professional reference for researchers in a variety of disciplines.

MODELING CREATIVITY

CASE STUDIES IN PYTHON

University Press Antwerp Modeling Creativity (doctoral thesis, 2013) explores how creativity can be represented using computational approaches. Our aim is to construct computer models that exhibit creativity in an artistic context, that is, that are capable of generating or evaluating an artwork (visual or linguistic), an interesting new idea, a subjective opinion. The research was conducted in 2008–2012 at the Computational Linguistics Research Group (CLiPS, University of Antwerp) under the supervision of Prof. Walter Daelemans. Prior research was also conducted at the Experimental Media Research Group (EMRG, St. Lucas University College of Art & Design Antwerp) under the supervision of Lucas Nijs. Modeling Creativity examines creativity in a number of different perspectives: from its origins in nature, which is essentially blind, to humans and machines, and from generating creative ideas to evaluating and learning their novelty and usefulness. We will use a hands-on approach with case studies and examples in the Python programming language.

LANDMARKS

GISCIENCE FOR INTELLIGENT SERVICES

Springer Science & Business This book covers the latest research on landmarks in GIS, including practical applications. It addresses perceptual and cognitive aspects of natural and artificial cognitive systems, computational aspects with respect to identifying or selecting landmarks for various purposes, and communication aspects of human-computer interaction for spatial information provision. Concise and organized, the book equips readers to handle complex conceptual aspects of trying to define and formally model these situations. The book provides a thorough review of the cognitive, conceptual, computational and communication aspects of GIS landmarks. This review is unique for comparing concepts across a spectrum of sub-disciplines in the field. Portions of the ideas discussed led to the world's first commercial navigation service using landmarks selected with cognitive principles. Landmarks: GI Science for Intelligent Services targets practitioners and researchers working in geographic information science, computer science, information science, cognitive science, geography and psychology. Advanced-level students in computer science, geography and psychology will also find this book valuable as a secondary textbook or reference.

PERSPECTIVES ON DIGITAL HUMANISM

Springer Nature This open access book aims to set an agenda for research and action in the field of Digital Humanism through short essays written by selected thinkers from a variety of disciplines, including computer science, philosophy, education, law, economics, history, anthropology, political science, and sociology. This initiative emerged from the Vienna Manifesto on Digital Humanism and the associated lecture series. Digital Humanism deals with the complex relationships between people and machines in digital times. It acknowledges the potential of information technology. At the same time, it points to societal threats such as privacy violations and ethical concerns around artificial intelligence, automation and loss of jobs, ongoing monopolization on the Web, and sovereignty. Digital Humanism aims to address these topics with a sense of urgency but with a constructive mindset. The book argues for a Digital Humanism that analyses and, most importantly, influences the complex interplay of technology and humankind toward a better society and life while fully respecting universal human rights. It is a call to shaping technologies in accordance with human values and needs.

TACTICAL ENTANGLEMENTS

AI ART, CREATIVE AGENCY, AND THE LIMITS OF INTELLECTUAL PROPERTY

How do artistic experiments with artificial intelligence problematize human-centered notions of creative agency, authorship, and ownership? Offering a wide-ranging discussion of contemporary digital art practices, philosophical and technical considerations of AI, posthumanist thought, and emerging issues of intellectual property and the commons, this book is firmly positioned against the anthropomorphic spectacle of "creative AI." It proposes instead the concept of the posthumanist agential assemblage, and invites readers to consider what new types of creative practice, what reconfigurations of the author function, and what critical interventions become possible when AI art provokes tactical entanglements between aesthetics, law, and capital.

CONTEMPORARY ARTIFICIAL ART AND THE LAW

SEARCHING FOR AN AUTHOR

BRILL AI as an "autonomous author" urges the law to rethink authorship. Policy makers should consider a reformative conception of AI in copyright law looking at innovative theories in robot law, where new frames for a legal personhood of artificial agents are proposed.

THE BRITISH NATIONAL BIBLIOGRAPHY

ARTIFICIAL INTELLIGENCE AS A DISRUPTIVE TECHNOLOGY

ECONOMIC TRANSFORMATION AND GOVERNMENT REGULATION

Springer Nature Artificial intelligence (AI) is the latest technological evolution which is transforming the global economy and is a major part of the "Fourth Industrial Revolution." This book covers the meaning, types, subfields and applications of AI, including U.S. governmental policies and regulations, ethical and privacy issues, particularly as they pertain and affect facial recognition programs and the Internet-of-Things (IoT). There is a lengthy analysis of bias, AI's effect on the current and future job market, and how AI precipitated fake news. In addition, the text covers basics of intellectual property rights and how AI will transform their protection. The author then moves on to explore international initiatives from the European Union, China's New Generation Development Plan, other regional areas, and international conventions. The book concludes with a discussion of super intelligence and the question and applicability of consciousness in machines. The interdisciplinary scope of the text will appeal to any scholars, students and general readers interested in the effects of AI on our society, particularly in the fields of STS, economics, law and politics.

INTRODUCTION TO NATURAL LANGUAGE PROCESSING

MIT Press A survey of computational methods for understanding, generating, and manipulating human language, which offers a synthesis of classical representations and algorithms with contemporary machine learning techniques. This textbook provides a technical perspective on natural language processing—methods for building computer software that understands, generates, and manipulates human language. It emphasizes contemporary data-driven approaches, focusing on techniques from supervised and unsupervised machine learning. The first section establishes a foundation in machine learning by building a set of tools that will be used throughout the book and applying them to word-based textual analysis. The second section introduces structured representations of language, including sequences, trees, and graphs. The third section explores different approaches to the representation and analysis of linguistic meaning, ranging from formal logic to neural word embeddings. The final section offers chapter-length treatments of three transformative applications of natural language processing: information extraction, machine translation, and text generation. End-of-chapter exercises include both paper-and-pencil analysis and software implementation. The text synthesizes and distills a broad and diverse research literature, linking contemporary machine learning techniques with the field's linguistic and computational foundations. It is suitable for use in advanced undergraduate and graduate-level courses and as a reference for software engineers and data scientists. Readers should have a background in computer programming and college-level mathematics. After mastering the material presented, students will have the technical skill to build and analyze novel natural language processing systems and to understand the latest research in the field.

DEEP LEARNING IN COMPUTATIONAL MECHANICS

AN INTRODUCTORY COURSE

Springer Nature This book provides a first course on deep learning in computational mechanics. The book starts with a short introduction to machine learning's fundamental concepts before neural networks are explained thoroughly. It then provides an overview of current topics in physics and engineering, setting the stage for the book's main topics: physics-informed neural networks and the deep energy method. The idea of the book is to provide the basic concepts in a mathematically sound manner and yet to stay as simple as possible. To achieve this goal, mostly one-dimensional examples are investigated, such as approximating functions by neural networks or the simulation of the temperature's evolution in a one-dimensional bar. Each chapter contains examples and exercises which are either

solved analytically or in PyTorch, an open-source machine learning framework for python.

AI TECHNOLOGY

IOS Press

DIGITAL TRANSFORMATION IN BUSINESS AND SOCIETY

THEORY AND CASES

Springer Nature *The digital traces that people leave behind as they conduct their daily lives provide a powerful resource for businesses to better understand the dynamics of an otherwise chaotic society. Digital technologies have become omnipresent in our lives and we still do not fully know how to make the best use of the data these technologies could harness. Businesses leveraging big data appropriately could definitely gain a sustainable competitive advantage. With a balanced mix of texts and cases, this book discusses a variety of digital technologies and how they transform people and organizations. It offers a debate on the societal consequences of the yet unfolding technological revolution and proposes alternatives for harnessing disruptive technologies for the greater benefit of all. This book will have wide appeal to academics in technology management, strategy, marketing, and human resource management.*

BIG DATA IN ORGANIZATIONS AND THE ROLE OF HUMAN RESOURCE MANAGEMENT

A COMPLEX SYSTEMS THEORY-BASED CONCEPTUALIZATION

Peter Lang GmbH, Internationaler Verlag Der Wissenschaften *Big data are changing the way we work. This book conveys a theoretical understanding of big data and the related interactions on a socio-technological level as well as on the organizational level. Big data challenge the human resource department to take a new role. An organization's new competitive advantage is its employees augmented by big data.*

THE DIGITAL TURN

HOW THE INTERNET TRANSFORMS OUR EXISTENCE

AuthorHouse *Awarded with the US National Indie Excellence Award 2014 in Social Media. This book is about digital media. Even more, the book is about us. It explains how the ever-growing flood of digital media affects our perceptions of the world, change our behaviors and eventually transform our very existence. In the era of Facebook, Twitter, Google, and Apple, being online is the standard. We spend many hours a day gazing at our screens, traversing the virtual realm, and posting our tweets, tags, and likes. Billions of years of evolution have prepared us for life at the savannas. It took us less than two decades to radically transform our biotope. Being online is no less than a fundamentally different mode of being. It is likely to produce a fragmented, detached, and distorted view of the world. What will be our understanding of the world when all certainties that result from living in a material world become useless? What will be our role and position when computer intelligence surpasses human intelligence? How can we avoid losing grip of the significance of identity, friendship, social engagement, and eventually life at large? The book explains the mechanisms and consequences of engaging in online spaces. It offers an accessible means for attaining a better understanding of the ways digital media influence our lives. It is a compact guide to becoming media literate and to preparing us for the advanced digital services that are yet to come. This makes the book an indispensable aid for every twenty-first-century citizen.*

MULTI-DISCIPLINARY TRENDS IN ARTIFICIAL INTELLIGENCE

10TH INTERNATIONAL WORKSHOP, MIWAI 2016, CHIANG MAI, THAILAND, DECEMBER 7-9, 2016, PROCEEDINGS

Springer *This book constitutes the refereed conference proceedings of the 10th International Conference on Multi-disciplinary Trends in Artificial Intelligence, MIWAI 2016, held in Chiang Mai, Thailand, in December 2016. The 22 revised full papers presented together with 5 short papers and 2 abstracts of invited talks were carefully reviewed and selected from 50 submissions. The workshop solicits papers from all areas of AI including cognitive science; computational intelligence; computational philosophy; game theory; machine learning; multi-agent systems; natural language; representation and reasoning; speech; vision and the web; as well as applications of AI in big data; bioinformatics; biometrics; decision support; e-commerce; image processing; analysis and retrieval; industrial applications; knowledge management; privacy; recommender systems; security; software engineering; spam filtering; surveillance; telecommunications; and web services.*

ONTOLOGY LEARNING FOR THE SEMANTIC WEB

Springer Science & Business Media *Ontology Learning for the Semantic Web explores techniques for applying knowledge discovery techniques to different web data sources (such as HTML documents, dictionaries, etc.), in order to support the task of engineering and maintaining ontologies. The approach of ontology learning proposed in Ontology Learning for the Semantic Web includes a number of complementary disciplines that feed in different types of unstructured and semi-structured data. This data is necessary in order to support a semi-automatic ontology engineering process. Ontology Learning for the Semantic Web is designed for researchers and developers of semantic web applications. It also serves as an excellent supplemental reference to advanced level courses in ontologies and the semantic web.*

COMPUTATIONAL INTELLIGENCE

A LOGICAL APPROACH

Oxford University Press on Demand *Provides an integrated introduction to artificial intelligence. Develops AI representation schemes and describes their uses for diverse applications, from autonomous robots to diagnostic assistants to infobots. DLC: Artificial intelligence.*

SEARCH IN ARTIFICIAL INTELLIGENCE

Springer Science & Business Media *Search is an important component of problem solving in artificial intelligence (AI) and, more generally, in computer science, engineering and operations research. Combinatorial optimization, decision analysis, game playing, learning, planning, pattern recognition, robotics and theorem proving are some of the areas in which search algorithms play a key role. Less than a decade ago the conventional wisdom in artificial intelligence was that the best search algorithms had already been invented and the likelihood of finding new results in this area was very small. Since then many new insights and results have been obtained. For example, new algorithms for state space, AND/OR graph, and game tree search were discovered. Articles on new theoretical developments and experimental results on backtracking, heuristic search and constraint propagation were published. The relationships among various search and combinatorial algorithms in AI, Operations Research, and other fields were clarified. This volume brings together some of this recent work in a manner designed to be accessible to students and professionals interested in these new insights and developments.*

THE VALUATION OF DIGITAL INTANGIBLES

TECHNOLOGY, MARKETING AND INTERNET

Springer Nature *This book offers a primer on the valuation of digital intangibles, a trending class of immaterial assets. Startups like successful unicorns, as well as consolidated firms desperately working to re-engineer their business models, are now trying to go digital and to reap higher returns by exploiting new intangibles. This book is innovative in its design and concept since it tackles a frontier topic with an original methodology, combining academic rigor with practical insights. Digital intangibles range from digitized versions of traditional immaterial assets (brands, patents, know-how, etc.) to more trendy applications like big data, Internet of Things, interoperable databases, artificial intelligence, digital newspapers, social networks, blockchains, FinTech applications, etc. This book comprehensively addresses related valuation issues, and demonstrates how best practices can be applied to specific asset appraisals, making it of interest to researchers, students, and practitioners alike.*

ARTIFICIAL INTELLIGENCE

STRUCTURES AND STRATEGIES FOR COMPLEX PROBLEM SOLVING

Pearson Higher Ed *This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Artificial Intelligence: Structures and Strategies for Complex Problem Solving is ideal for a one- or two-semester undergraduate course on AI. In this accessible, comprehensive text, George Luger captures the essence of artificial intelligence-solving the complex problems that arise wherever computer technology is applied. Ideal for an undergraduate course in AI, the Sixth Edition presents the fundamental concepts of the discipline first then goes into detail with the practical information necessary to implement the algorithms and strategies discussed. Readers learn how to use a number of different software tools and techniques to address the many challenges faced by today's computer scientists.*

INTRODUCTION TO AUTONOMOUS MOBILE ROBOTS, SECOND EDITION

MIT Press *The second edition of a comprehensive introduction to all aspects of mobile robotics, from algorithms to mechanisms. Mobile robots range from the Mars Pathfinder mission's teleoperated Sojourner to the cleaning robots in the Paris Metro. This text offers students and other interested readers an introduction to the fundamentals of mobile robotics, spanning the mechanical, motor, sensory, perceptual, and cognitive layers the field comprises. The text focuses on mobility itself, offering an overview of the mechanisms that allow a mobile robot to move through a real world environment to perform its tasks, including locomotion, sensing, localization, and motion planning. It synthesizes material from such fields as kinematics, control theory, signal analysis, computer vision, information theory, artificial intelligence, and probability theory. The book presents the techniques and technology that enable mobility in a series of interacting modules. Each chapter treats a different aspect of mobility, as the book moves from low-level to high-level details. It covers all aspects of mobile robotics, including software and hardware design considerations, related technologies, and algorithmic techniques. This second edition has been revised and updated throughout, with 130 pages of new material on such topics as locomotion, perception, localization, and planning and navigation. Problem sets have been added at the end of each chapter. Bringing together all aspects of mobile robotics into one volume, Introduction to Autonomous Mobile Robots can serve as a textbook or a working tool for*

beginning practitioners. Curriculum developed by Dr. Robert King, Colorado School of Mines, and Dr. James Conrad, University of North Carolina-Charlotte, to accompany the National Instruments LabVIEW Robotics Starter Kit, are available. Included are 13 (6 by Dr. King and 7 by Dr. Conrad) laboratory exercises for using the LabVIEW Robotics Starter Kit to teach mobile robotics concepts.

CROWDSOURCED DATA MANAGEMENT

INDUSTRY AND ACADEMIC PERSPECTIVES

Crowdsourced Data Management: Industry and Academic Perspectives aims to narrow the gap between academics and practitioners in this burgeoning field. It simultaneously introduces academics to real problems that practitioners encounter every day, and provides a survey of the state of the art for practitioners to incorporate into their designs.

MODEL DRIVEN ARCHITECTURE AND ONTOLOGY DEVELOPMENT

Springer Science & Business Media Defining a formal domain ontology is considered a useful, not to say necessary step in almost every software project. This is because software deals with ideas rather than with self-evident physical artefacts. However, this development step is hardly ever done, as ontologies rely on well-defined and semantically powerful AI concepts such as description logics or rule-based systems, and most software engineers are unfamiliar with these. This book fills this gap by covering the subject of MDA application for ontology development on the Semantic Web. The writing is technical yet clear, and is illustrated with examples. The book is supported by a website.

ROBOTICS, AI, AND HUMANITY

SCIENCE, ETHICS, AND POLICY

Springer This open access book examines recent advances in how artificial intelligence (AI) and robotics have elicited widespread debate over their benefits and drawbacks for humanity. The emergent technologies have for instance implications within medicine and health care, employment, transport, manufacturing, agriculture, and armed conflict. While there has been considerable attention devoted to robotics/AI applications in each of these domains, a fuller picture of their connections and the possible consequences for our shared humanity seems needed. This volume covers multidisciplinary research, examines current research frontiers in AI/robotics and likely impacts on societal well-being, human - robot relationships, as well as the opportunities and risks for sustainable development and peace. The attendant ethical and religious dimensions of these technologies are addressed and implications for regulatory policies on the use and future development of AI/robotics technologies are elaborated.

THE DIGITAL HUMANIST

A CRITICAL INQUIRY

This book offers a critical introduction to the core technologies underlying the Internet from a humanistic perspective. It provides a cultural critique of computing technologies, by exploring the history of computing and examining issues related to writing, representing, archiving and searching. The book raises awareness of, and calls for, the digital humanities to address the challenges posed by the linguistic and cultural divides in computing, the clash between communication and control, and the biases inherent in networked technologies. A common problem with publications in the Digital Humanities is the dominance of the Anglo-American perspective. While seeking to take a broader view, the book attempts to show how cultural bias can become an obstacle to innovation both in the methodology and practice of the Digital Humanities. Its central point is that no technological instrument is culturally unbiased, and that all too often the geography that underlies technology coincides with the social and economic interests of its producers. The alternative proposed in the book is one of a world in which variation, contamination and decentralization are essential instruments for the production and transmission of digital knowledge. It is thus necessary not only to have spaces where DH scholars can interact (such as international conferences, THATCamps, forums and mailing lists), but also a genuine sharing of technological know-how and experience. "This is a truly exceptional work on the subject of the digital....Students and scholars new to the field of digital humanities will find in this book a gentle introduction to the field, which I cannot but think would be good and perhaps even inspirational for them....Its history of the development of machines and programs and communities bent on using computers to advance science and research merely sets the stage for an insightful analysis of the role of the digital in the way both scholars and everyday people communicate and conceive of themselves and "others" in written forms - from treatises to credit card transactions." Peter Shillingsburg *The Digital Humanist* is not simply a translation of the Italian book *L'umanista digitale* (il Mulino 2010), but a new version tailored to an international audience through the improvement and expansion of the sections on social, cultural and ethical problems of the most widely used methodologies, resources and applications. TABLE OF CONTENTS // Preface: Digital Humanities at a Political Turn? by Geoffrey Rockwell / PART I: The Socio-Historical Roots - Chap. 1: Technology and the Humanities: A History of Interaction - Chap. 2: Internet, or The Humanistic Machine / PART II: Theoretical and Practical Dimensions - Chap. 3: Writing and Content Production - Chap. 4: Representing and Archiving - Chap. 5: Searching and Organizing / Conclusions: DH in a Global Perspective

ARTIFICIAL INTELLIGENCE IN EDUCATION

16TH INTERNATIONAL CONFERENCE, AIED 2013, MEMPHIS, TN, USA, JULY 9-13, 2013. PROCEEDINGS

Springer This book constitutes the refereed proceedings of the 16th International Conference on Artificial Intelligence in Education, AIED 2013, held in Memphis, TN, USA in July 2013. The 55 revised full papers presented together with 73 poster presentations were carefully reviewed and selected from a total of 168 submissions. The papers are arranged in sessions on student modeling and personalization, open-learner modeling, affective computing and engagement, educational data mining, learning together (collaborative learning and social computing), natural language processing, pedagogical agents, metacognition and self-regulated learning, feedback and scaffolding, designed learning activities, educational games and narrative, and outreach and scaling up.

HAINES SAN MATEO COUNTY CRISS-CROSS DIRECTORY

THE 4TH INDUSTRIAL REVOLUTION

RESPONDING TO THE IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS

Springer This book helps decision makers grasp the importance, and applicability to business, of the new technologies and extended connectivity of systems that underlie what is becoming known as the Fourth Industrial Revolution: technologies and systems such as artificial intelligence, machine learning, 3D printing, the internet of things, virtual and augmented reality, big data and mobile networks. The WEF, OECD and UN all agree that humanity is on the cusp of the Fourth Industrial Revolution. As intelligent systems become integrated into every aspect of our lives this revolution will induce cultural and societal change of a magnitude hitherto unforeseen. These technologies challenge the values, customer experience and business propositions that have been the mainstay of almost every business and organization in existence. By redefining and encapsulating new value structures with emerging intelligent technologies, new innovative models are being created, and brought to market. Understanding the potential and impact of these changes will be a fundamental leadership requirement over the coming years. Skilton and Hovsepian provide decision makers with practical, independent and authoritative guidance to help them prepare for the changes we are all likely to witness due to the rapid convergence of technological advances. In short, bite-sized, nuggets, with frameworks supported by a deep set of practical and up-to-the-minute case studies, they shine light on the new business models and enterprise architectures emerging as businesses seek to build strategies to thrive within this brave new world.

GOAL-DIRECTED DECISION MAKING

COMPUTATIONS AND NEURAL CIRCUITS

Academic Press *Goal-Directed Decision Making: Computations and Neural Circuits* examines the role of goal-directed choice. It begins with an examination of the computations performed by associated circuits, but then moves on to in-depth examinations on how goal-directed learning interacts with other forms of choice and response selection. This is the only book that embraces the multidisciplinary nature of this area of decision-making, integrating our knowledge of goal-directed decision-making from basic, computational, clinical, and ethology research into a single resource that is invaluable for neuroscientists, psychologists and computer scientists alike. The book presents discussions on the broader field of decision-making and how it has expanded to incorporate ideas related to flexible behaviors, such as cognitive control, economic choice, and Bayesian inference, as well as the influences that motivation, context and cues have on behavior and decision-making. Details the neural circuits functionally involved in goal-directed decision-making and the computations these circuits perform Discusses changes in goal-directed decision-making spurred by development and disorders, and within real-world applications, including social contexts and addiction Synthesizes neuroscience, psychology and computer science research to offer a unique perspective on the central and emerging issues in goal-directed decision-making