

ai in network management

AI in Network Management: Revolutionizing Network Operations

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Abstract: The convergence of artificial intelligence (AI) and network management is transforming how organizations operate and maintain their networks. This article explores the exciting opportunities presented by AI in network management, while also acknowledging the challenges that must be addressed for successful implementation. From predictive maintenance and automated troubleshooting to enhanced security and optimized resource allocation, AI offers significant potential. However, issues such as data security, algorithm bias, and the need for skilled personnel require careful consideration. This comprehensive analysis provides a balanced perspective on this rapidly evolving field.

Keywords: AI in network management, artificial intelligence, network automation, predictive maintenance, network security, AI-driven network optimization, machine learning, deep learning, network troubleshooting, intelligent networking.

1. Introduction: The Rise of AI in Network Management

The complexity of modern networks, with their vast scale, heterogeneous devices, and ever-increasing data volumes, presents significant challenges to traditional network management practices. Manual monitoring and reactive troubleshooting are becoming increasingly inefficient and unsustainable. This is where AI in network management steps in, offering a powerful set of tools to automate tasks, improve performance, and enhance security. AI's ability to analyze vast datasets, identify patterns, and make predictions enables proactive management, reducing downtime and operational costs. The adoption of AI in network management is rapidly accelerating, driven by the need for greater efficiency, improved security, and enhanced user experience.

1. Opportunities: Harnessing the Power of AI

The opportunities presented by AI in network management are numerous and transformative:

Predictive Maintenance: AI algorithms can analyze network performance data to predict potential failures before they occur. This allows for proactive maintenance, minimizing downtime and reducing the cost of repairs. By identifying anomalies and patterns indicative of impending failures, AI in network management can significantly improve network reliability.

Automated Troubleshooting: AI can automate the process of identifying and resolving network issues. By analyzing logs, metrics, and other data, AI can pinpoint the root cause of problems much faster than human operators, significantly reducing mean time to resolution (MTTR). AI-driven network troubleshooting tools are becoming increasingly sophisticated, offering faster and more accurate problem resolution.

Enhanced Network Security: AI can play a crucial role in enhancing network security by detecting and responding to threats in real-time. AI algorithms can identify malicious activities, such as intrusion attempts and data breaches, by analyzing network traffic patterns and identifying anomalies. AI in network management provides a proactive approach to security, improving threat detection and response capabilities.

Optimized Resource Allocation: AI can optimize the allocation of network resources, ensuring that bandwidth and other resources are used efficiently. By analyzing network traffic patterns and predicting future demand, AI can automatically adjust resource allocation to meet the needs of users and applications. This leads to improved network performance and reduced operational costs.

Improved User Experience: AI can enhance the user experience by providing personalized network services and optimizing application performance. By analyzing user behavior and preferences, AI can tailor network settings to meet individual needs, resulting in faster speeds and improved responsiveness.

1. Challenges: Navigating the Complexities of AI Implementation

Despite the considerable opportunities, implementing AI in network management presents several challenges:

Data Security and Privacy: AI relies on vast amounts of network data, raising concerns about data security and privacy. Robust security measures are essential to protect sensitive information and ensure compliance with regulations like GDPR. The use of AI in network management necessitates careful consideration of data security and privacy implications.

Algorithm Bias and Fairness: AI algorithms can be biased if they are trained on biased data. This can lead to unfair or discriminatory outcomes. It's crucial to ensure that AI algorithms used in network management are trained on diverse and representative datasets. Addressing algorithm bias and ensuring fairness are critical aspects of responsible AI implementation.

Integration Complexity: Integrating AI tools into existing network management systems can be complex and time-consuming. This requires careful planning and coordination, as well as expertise in both AI and networking. Successful integration necessitates careful consideration of compatibility and interoperability.

Skills Gap: The effective implementation and management of AI in network management requires skilled personnel with expertise in both AI and networking. A significant skills gap exists in this area, hindering the adoption of AI in many organizations. Addressing this skills gap is crucial for successful AI adoption.

Cost of Implementation: Implementing AI in network management can be expensive, requiring investment in new hardware, software, and skilled personnel. Organizations need to carefully evaluate the costs and benefits before making investments in AI-based network management solutions.

1. The Future of AI in Network Management

The future of AI in network management is bright. As AI technologies continue to advance, we can expect even more sophisticated applications, including:

Autonomous Networking: AI will enable the creation of self-managing networks that can automatically configure, optimize, and heal themselves.

Edge AI: AI will be increasingly deployed at the edge of the network, enabling faster processing and improved responsiveness.

Increased Use of Explainable AI (XAI): This will enhance transparency and trust in AI-driven network management decisions.

1. Conclusion

AI in network management is revolutionizing how organizations operate and manage their networks. While challenges remain, the opportunities presented by AI are too significant to ignore. By addressing the challenges and embracing the opportunities, organizations can leverage AI to improve network performance, enhance security, and reduce operational costs. The future of network management is inextricably linked to the continued development and adoption of AI technologies.

FAQs

1. What are the key benefits of using AI in network management? Key benefits include predictive maintenance, automated troubleshooting, enhanced security, optimized resource allocation, and improved user experience.

1. What are the main challenges of implementing AI in network management? Challenges include data security, algorithm bias, integration complexity, the skills gap, and the cost of implementation.
1. What types of AI are used in network management? Machine learning (ML), deep learning (DL), and reinforcement learning (RL) are commonly used.
1. How can organizations address the skills gap in AI for network management? Organizations can address this through training programs, partnerships with universities, and recruiting experienced professionals.
1. What are some examples of AI-driven network management tools? Several vendors offer AI-powered solutions for network monitoring, troubleshooting, and security.
1. How does AI improve network security? AI enhances security by detecting anomalies, identifying threats in real-time, and responding to attacks proactively.
1. What is the role of big data in AI-driven network management? Big data provides the vast datasets needed to train AI algorithms and enable accurate predictions and insights.
1. How can organizations ensure the ethical use of AI in network management? Ethical considerations should be prioritized throughout the AI lifecycle, including data privacy, bias mitigation, and transparency.
1. What is the future outlook for AI in network management? The future looks promising, with advancements in areas such as autonomous networking, edge AI, and explainable AI.

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communications technology educators, Communication Networks and Service Management in the Era of Artificial Intelligence and Machine Learning will also earn a place in the libraries of engineers and professionals who seek a structured reference on how the emergence of artificial intelligence and machine learning techniques is affecting service and network management.

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comfortable with the new ecosystem, administrators can begin making fully automated, orchestrated, and tactical changes to the network. The next evolutionary leap occurs when fully automated network configuration management is implemented. Important information from the network running-configurations is abstracted into data models in a human readable format. Device configurations are dynamically templated creating a scalable, intent-based, source of truth. Much like in the world of software development, full automation of the network using a CI/CD pipeline can be realized. Automated builds, automated testing and automated scheduled releases are orchestrated and executed when changes are approved and checked into the central repository. This book is unlike any on the market today as it includes multiple Ansible playbooks, sample YAML data models and Jinja2 templates for network devices, and a whole new methodology and approach to enterprise network administration and management. The CLI no longer cuts it. Readers should take away from this book a new approach to enterprise network management and administration as well as the full knowledge and understanding of how to use TFS, VS Code, Git, and Ansible to create an automation ecosystem. Readers should have some basic understanding of modern network design, operation, and configuration. No prior programming or software development experience is required. John Capobianco has over 20 years of IT experience and is currently a Technical Advisor for the Canadian House of Commons. A graduate of St. Lawrence College's Computer Programmer Analyst program, John is also a former Professor at St. Lawrence College in the Computer Networking and Technical Support (CNTS) program. John has achieved CCNP, CCDP, CCNA: Data Center, MCITP: EA/SA, CompTIA A+ / Network+, and ITIL Foundation certifications. Having discovered a new way to interface with the network John felt compelled to share this new methodology in hopes of revolutionizing the industry and bringing network automation to the world.

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processing, predictive analysis, and adaptive learning. Because these advancements transform how we interact with data and services, applying AI to complex networks has never been more essential. AI for Large Scale Communication Networks explores how AI can enhance network performance, scalability, and security. With contributions from experts, this book covers topics such as algorithm optimization, machine learning improvements, and neural network applications. It also addresses critical challenges like fault tolerance and distributed computing, emphasizing the need for interdisciplinary collaboration. Designed for academics, practitioners, and students, this resource provides actionable insights and strategies to optimize communication networks using AI.

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ai in network management: Computational Intelligence in Telecommunications Networks Witold Pedrycz, Athanasios Vasilakos, 2018-10-03 Telecommunications has evolved and grown at an explosive rate in recent years and will undoubtedly continue to do so. As its functions, applications, and technology grow, it becomes increasingly complex and difficult, if not impossible, to meet the demands of a global network using conventional computing technologies. Computational intelligence (CI) is the technology of the future-and the future is now. Computational Intelligence in Telecommunications Networks offers an in-depth look at the rapid progress of CI technology and shows its importance in solving the crucial problems of future telecommunications networks. It covers a broad range of topics, from Call Admission Control, congestion control, and QoS-routing for ATM networks, to network design and management, optical, mobile, and active networks, and Intelligent Mobile Agents. Today's telecommunications professionals need a working knowledge of CI to exploit its potential to overcome emerging challenges. The CI community must become acquainted with those challenges to take advantage of the enormous opportunities the telecommunications field offers. This text meets both those needs, clearly, concisely, and with a depth certain to inspire further theoretical and practical advances.

ai in network management: Integrated Network Management V Aurel Lazar, Robert Saracco, 2013-06-05 Welcome to IM'97! We hope you had the opportunity to attend the Conference in beautiful San Diego. If that was the case, you will want to get back to these proceedings for further readings and reflections. You'll find e-mail addresses of the main author of each paper, and you are surely encouraged to get in touch for further discussions. You can also take advantage of the CNOM (Committee on Network Operation and Management) web site where a virtual discussion agora has been set up for IM'97 (URL: <http://www.cselt.stet.it/CNOMWWWIIM97.html>). At this site you will find a brief summary of discussions that took place in the various panels, and slides that accompanied some of the presentations--all courtesy of the participants. If you have not been to the

Conference, leafing through these proceedings may give you food for thought. Hopefully, you will also be joining the virtual world on the web for discussions with authors and others who were at the Conference. At IM'97 the two worlds of computer networks and telecommunications systems came to gether, each proposing a view to management that stems from their own paradigms. Each world made clear the need for end-to-end management and, therefore, each one stepped into the oth er's field. We feel that there is no winner but a mutual enrichment. The time is ripe for integra tion and it is likely that the next Conference will bear its fruit.

ai in network management: *Multimedia Streaming in SDN/NFV and 5G Networks* Alcardo Barakabitze, Andrew Hines, 2022-12-06 Multimedia Streaming in SDN/NFV and 5G Networks A comprehensive overview of Quality of Experience control and management of multimedia services in future networks In Multimedia Streaming in SDN/NFV and 5G Networks, renowned researchers deliver a high-level exploration of Quality of Experience (QoE) control and management solutions for multimedia services in future softwarized and virtualized 5G networks. The book offers coverage of network softwarization and virtualization technologies, including SDN, NFV, MEC, and Fog/Cloud Computing, as critical elements for the management of multimedia services in future networks, like 5G and 6G networks and beyond. Providing a fulsome examination of end-to-end QoE control and management solutions in softwarized and virtualized networks, the book concludes with discussions of probable future challenges and research directions in emerging multimedia services and applications, 5G network management and orchestration, network slicing and collaborative service management of multimedia services in softwarized networks, and QoE-oriented business models. The distinguished authors also explore: Thorough introductions to 5G networks, including definitions and requirements, as well as Quality of Experience management of multimedia streaming services Comprehensive explorations of multimedia streaming services over the internet and network softwarization and virtualization in future networks Practical discussions of QoE management using SDN and NFV in future networks, as well as QoE management of multimedia services in emerging architectures, including MEC, ICN, and Fog/Cloud Computing In-depth examinations of QoE in emerging applications, 5G network slicing architectures and implementations, and 5G network slicing orchestration and resource management Perfect for researchers and engineers in multimedia services and telecoms, *Multimedia Streaming in SDN/NFV and 5G Networks* will also earn a place in the libraries of graduate and senior undergraduate students with interests in computer science, communication engineering, and telecommunication systems.

ai in network management: *Advances in Information and Communication* Kohei Arai, 2021-04-12 This book aims to provide an international forum for scholarly researchers, practitioners and academic communities to explore the role of information and communication technologies and its applications in technical and scholarly development. The conference attracted a total of 464 submissions, of which 152 submissions (including 4 poster papers) have been selected after a double-blind review process. Academic pioneering researchers, scientists, industrial engineers and students will find this series useful to gain insight into the current research and next-generation information science and communication technologies. This book discusses the aspects of communication, data science, ambient intelligence, networking, computing, security and Internet of things, from classical to intelligent scope. The authors hope that readers find the volume interesting and valuable; it gathers chapters addressing state-of-the-art intelligent methods and techniques for solving real-world problems along with a vision of the future research.

ai in network management: *Future Intent-Based Networking* Mikhailo Klymash, Mykola Beshley, Andriy Luntovskyy, 2021-12-09 So-called Intent-Based Networking (IBN) is founded on well-known SDN (Software-Defined Networking) and represents one of the most important emerging network infrastructure opportunities. The IBN is the beginning of a new era in the history of networking, where the network itself translates business intentions into appropriate network configurations for all devices. This minimizes manual effort, provides an additional layer of network monitoring, and provides the ability to perform network analytics and take full advantage of machine learning. The centralized, software-defined solution provides process automation and proactive

problem solving as well as centralized management of the network infrastructure. With software-based network management, many operations can be performed automatically using intelligent control algorithms (artificial intelligence and machine learning). As a result, network operation costs, application response times and energy consumption are reduced, network reliability and performance are improved, network security and flexibility are enhanced. This will be a benefit for existing networks as well as evolved LTE-based mobile networks, emerging Internet of Things (IoT), Cloud systems, and soon for the future 5G/6G networks. The future networks will reach a whole new level of self-awareness, self-configuration, self-optimization, self-recovery and self-protection. This volume consists of 28 chapters, based on recent research on IBN. The volume is a collection of the most important research for the future intent-based networking deployment provided by different groups of researchers from Ukraine, Germany, Slovak Republic, Switzerland, South Korea, China, Czech Republic, Poland, Brazil, Belarus and Israel. The authors of the chapters from this collection present in depth extended research results in their scientific fields. The presented contents are highly interesting while still being rather practically oriented and straightforward to understand. Herewith we would like to wish all our readers a lot of inspiration by studying of the volume!

ai in network management: Integrated Network Management VIII Germán Goldszmidt, Schönwälder Jürgen, 2013-06-05 Welcome to 1M 2003, the eighth in a series of the premier international technical conference in this field. As IT management has become mission critical to the economies of the developed world, our technical program has grown in relevance, strength and quality. Over the next few years, leading IT organizations will gradually move from identifying infrastructure problems to providing business services via automated, intelligent management systems. To be successful, these future management systems must provide global scalability, for instance, to support Grid computing and large numbers of pervasive devices. In Grid environments, organizations can pool desktops and servers, dynamically creating a virtual environment with huge processing power, and new management challenges. As the number, type, and criticality of devices connected to the Internet grows, new innovative solutions are required to address this unprecedented scale and management complexity. The growing penetration of technologies, such as WLANs, introduces new management challenges, particularly for performance and security. Management systems must also support the management of business processes and their supporting technology infrastructure as integrated entities. They will need to significantly reduce the amount of adventitious, bootless data thrown at consoles, delivering instead a cogent view of the system state, while leaving the handling of lower level events to self-managed, multifarious systems and devices. There is a new emphasis on autonomic computing, building systems that can perform routine tasks without administrator intervention and take prescient actions to rapidly recover from potential software or hardware failures.

ai in network management: Network Management and Control A. Kershenbaum, Manu Malek, M. Wall, 2013-11-11 Like the 120 volt standard for electricity, the appearance of standards in network management heralds new opportunities for creativity and achievement. As one example, within the framework of these evolving standards, consider a system of local area networks connecting computing equipment from different vendors. A bridge 1qc. k:8 up because of a transient caused by a repeater failure. The result is a massive disconnection of virtual circuits. What is the role of the manager and the network management system in solving the problem? How does the vendor implement the solution? How does the user use it? What measurements should be made? How should they be displayed? How much of the diagnosis and correction should be automated? How does the solution change with different hardware and software? In the IEEE Communications Magazine, I recently reported a timely illustration in the area of problems in fault management. At the workshop hotel, I was waiting for a room assignment at the reception desk, when my attendant left the counter for a moment. Upon returning, he took one look at his screen and whined an accusatory question at everyone in sight, 'Who logged out my terminal?' Who indeed! It wasn't any of us. It was the system.

ai in network management: AI*IA 2003: Advances in Artificial Intelligence Amedeo Cappelletti, Franco Turini, 2003-10-24 This book constitutes the refereed proceedings of the 8th Congress of the Italian Association for Artificial Intelligence, AI*IA 2003, held in Pisa, Italy in September 2003. The 44 revised full papers presented were carefully reviewed and selected from 91 submissions. The papers are organized in topical sections on knowledge representation and reasoning, soft computing, machine learning, data mining, intelligent agents, planning, robotics, natural language processing, and applications in various fields.

ai in network management: Network Evolution and Applications Vikas Kumar Jha, Bishwajeet Kumar Pandey, Ciro Rodriguez, 2022-11-14 Network Evolution and Applications provides a comprehensive, integrative, and easy approach to understanding the technologies, concepts, and milestones in the history of networking. It provides an overview of different aspects involved in the networking arena that includes the core technologies that are essential for communication and important in our day-to-day life. It throws some light on certain past networking concepts and technologies that have been revolutionary in the history of science and technology and have been highly impactful. It expands on various concepts like Artificial Intelligence, Software Defined Networking, Cloud Computing, and Internet of Things, which are very popular at present. This book focuses on the evolutions made in the world of networking. One can't imagine the world without the Internet today; with the Internet and the present-day networking, distance doesn't matter at all. The COVID-19 pandemic has resulted in a tough time worldwide, with global lockdown, locked homes, empty streets, stores without consumers, and offices with no or fewer staff. Thanks to the modern digital networks, the culture of work from home (WFH) or working remotely with the network/Internet connection has come to the fore, with even school and university classes going online. Although WFH is not new, the COVID-19 pandemic has given it a new look, and industries are now willfully exploring WFH to extend it in the future. The aim of this book is to present the timeline of networking to show the developments made and the milestones that were achieved due to these developments.

ai in network management: Artificial Intelligence in Construction Engineering and Management Limao Zhang, Yue Pan, Xianguo Wu, Mirosław J. Skibniewski, 2021-06-18 This book highlights the latest technologies and applications of Artificial Intelligence (AI) in the domain of construction engineering and management. The construction industry worldwide has been a late bloomer to adopting digital technology, where construction projects are predominantly managed with a heavy reliance on the knowledge and experience of construction professionals. AI works by combining large amounts of data with fast, iterative processing, and intelligent algorithms (e.g., neural networks, process mining, and deep learning), allowing the computer to learn automatically from patterns or features in the data. It provides a wide range of solutions to address many challenging construction problems, such as knowledge discovery, risk estimates, root cause analysis, damage assessment and prediction, and defect detection. A tremendous transformation has taken place in the past years with the emerging applications of AI. This enables industrial participants to operate projects more efficiently and safely, not only increasing the automation and productivity in construction but also enhancing the competitiveness globally.

ai in network management: Responsible AI and Analytics for an Ethical and Inclusive Digitized Society Denis Dennehy, Anastasia Griva, Nancy Pouloudi, Yogesh K. Dwivedi, Ilias Pappas, Matti Mäntymäki, 2021-08-25 This volume constitutes the proceedings of the 20th IFIP WG 6.11 Conference on e-Business, e-Services, and e-Society, I3E 2021, held in Galway, Ireland, in September 2021.* The total of 57 full and 8 short papers presented in these volumes were carefully reviewed and selected from 141 submissions. The papers are organized in the following topical sections: AI for Digital Transformation and Public Good; AI & Analytics Decision Making; AI Philosophy, Ethics & Governance; Privacy & Transparency in a Digitized Society; Digital Enabled Sustainable Organizations and Societies; Digital Technologies and Organizational Capabilities; Digitized Supply Chains; Customer Behavior and E-business; Blockchain; Information Systems Development; Social Media & Analytics; and Teaching & Learning. *The conference was held

virtually due to the COVID-19 pandemic.

ai in network management: Artificial Intelligence in Healthcare Adam Bohr, Kaveh Memarzadeh, 2020-06-21 Artificial Intelligence (AI) in Healthcare is more than a comprehensive introduction to artificial intelligence as a tool in the generation and analysis of healthcare data. The book is split into two sections where the first section describes the current healthcare challenges and the rise of AI in this arena. The ten following chapters are written by specialists in each area, covering the whole healthcare ecosystem. First, the AI applications in drug design and drug development are presented followed by its applications in the field of cancer diagnostics, treatment and medical imaging. Subsequently, the application of AI in medical devices and surgery are covered as well as remote patient monitoring. Finally, the book dives into the topics of security, privacy, information sharing, health insurances and legal aspects of AI in healthcare. - Highlights different data techniques in healthcare data analysis, including machine learning and data mining - Illustrates different applications and challenges across the design, implementation and management of intelligent systems and healthcare data networks - Includes applications and case studies across all areas of AI in healthcare data

ai in network management: Applications of Artificial Intelligence in Wireless Communication Systems Kumar, Karan, 2023-06-05 The application of artificial intelligence technology to 5G wireless communications is now appropriate to address the design of optimized physical layers, complicated decision-making, network management, and resource optimization tasks within networks. In exploring 5G wireless technologies and communication systems, artificial intelligence is a powerful tool and a research topic with numerous potential fields of application that require further study. Applications of Artificial Intelligence in Wireless Communication Systems explores the applications of artificial intelligence for the optimization of wireless communication systems, including channel models, channel state estimation, beamforming, codebook design, signal processing, and more. Covering key topics such as neural networks, deep learning, and wireless systems, this reference work is ideal for computer scientists, industry professionals, researchers, academicians, scholars, practitioners, instructors, and students.

ai in network management: Social Media Analytics, Strategies and Governance Hamid Jahankhani, Stefan Kendzierskyj, Reza Montasari, Nishan Chelvachandran, 2022-08-18 Social media has spread rapidly on the global stage, driving consumers' attention and influence, both consciously and subconsciously. Whilst this type of platform may have been initially designed as a tool for open communication and expression, it is also being utilized as a digital tool, with widescale use cases. The intelligence explosion, information overload and disinformation play a significant part regarding individual, group and country perceptions. The complex nature of this data explosion created an increasing demand and use of artificial intelligence (AI) and machine learning (ML), to help provide 'big insights' to 'big data'. AI and ML enable the analysis and dissemination of vast amounts of data, however the ungoverned pace at which AI and autonomous systems have been deployed, has created unforeseen problems. Many algorithms and AI systems have been trained on limited or unverified datasets, creating inbuilt and unseen biases. Where these algorithmic tools have been deployed in high impact systems, there are documented occurrences of disastrous decision making and outcomes that have negatively impacted people and communities. Little to no work had been conducted in its vulnerability and ability to exploit AI itself. So, AI and autonomous systems, whilst being a force for societal good, could have the potential to create and exacerbate societies greatest challenges. This is a cohesive volume that addresses challenging problems and presents a range of innovative approaches and discussion.

ai in network management: Artificial Intelligence for Intelligent Systems Inam Ullah Khan, Mariya Ouaisa, Mariyam Ouaisa, Muhammad Fayaz, Rehmat Ullah, 2024-07-31 The aim of this book is to highlight the most promising lines of research, using new enabling technologies and methods based on AI/ML techniques to solve issues and challenges related to intelligent and computing systems. Intelligent computing easily collects data using smart technological applications like IoT-based wireless networks, digital healthcare, transportation, blockchain, 5.0 industry and

deep learning for better decision making. AI enabled networks will be integrated in smart cities' concept for interconnectivity. Wireless networks will play an important role. The digital era of computational intelligence will change the dynamics and lifestyle of human beings. Future networks will be introduced with the help of AI technology to implement cognition in real-world applications. Cyber threats are dangerous to encode information from network. Therefore, AI-Intrusion detection systems need to be designed for identification of unwanted data traffic. This book: Provides a better understanding of artificial intelligence-based applications for future smart cities Presents a detailed understanding of artificial intelligence tools for intelligent technologies Showcases intelligent computing technologies in obtaining optimal solutions using artificial intelligence Discusses energy-efficient routing protocols using artificial intelligence for Flying ad-hoc networks (FANETs) Covers machine learning-based Intrusion detection system (IDS) for smart grid It is primarily written for senior undergraduate, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, and computer engineering.

ai in network management: Advances in Artificial Intelligence - IBERAMIA 2002

Francisco J. Garijo, José C. Riquelme, Miguel Toro Bonilla, 2003-06-30 The 8th Ibero-American Conference on Artificial Intelligence, IBERAMIA 2002, took place in Spain for the second time in 14 years; the first conference was organized in Barcelona in January 1988. The city of Seville hosted this 8th conference, giving the participants the opportunity of enjoying the richness of its historical and cultural atmosphere. Looking back over these 14 years, key aspects of the conference, such as its structure, organization, the quantity and quality of submissions, the publication policy, and the number of attendants, have significantly changed. Some data taken from IBERAMIA'88 and IBERAMIA 2002 may help to illustrate these changes. IBERAMIA'88 was planned as an initiative of three Ibero-American AI associations: the Spanish Association for AI (AEPIA), the Mexican Association for AI (SMIA), and the Portuguese Association for AI (APIA). The conference was organized by the AEPIA staff, including the AEPIA president, José Cuena, the secretary, Felisa Verdejo, and other members of the AEPIA board. The proceedings of IBERAMIA'88 contain 22 full papers grouped into six areas: knowledge representation and reasoning, learning, AI tools, expert systems, language, and vision. Papers were written in the native languages of the participants: Spanish, Portuguese, and Catalan. Twenty extended abstracts describing ongoing projects were also included in the proceedings.

ai in network management: Data Processing Techniques and Applications for Cyber-Physical Systems (DPTA 2019) Chuanchao Huang, Yu-Wei Chan, Neil Yen, 2020-02-03 This book covers cutting-edge and advanced research on data processing techniques and applications for Cyber-Physical Systems. Gathering the proceedings of the International Conference on Data Processing Techniques and Applications for Cyber-Physical Systems (DPTA 2019), held in Shanghai, China on November 15-16, 2019, it examines a wide range of topics, including: distributed processing for sensor data in CPS networks; approximate reasoning and pattern recognition for CPS networks; data platforms for efficient integration with CPS networks; and data security and privacy in CPS networks. Outlining promising future research directions, the book offers a valuable resource for students, researchers and professionals alike, while also providing a useful reference guide for newcomers to the field.

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