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Applications To Traffic Engineering By Maurizio  
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## ***Artificial Intelligence Applications To Traffic Engineering By Maurizio Bielli***

This book presents various recent applications of Artificial Intelligence in Information and Communication Technologies such as Search and Optimization methods, Machine Learning, Data Representation and Ontologies, and Multi-agent Systems. The main aim of this book is to help Information and Communication Technologies (ICT) practitioners in managing efficiently their platforms using AI tools and methods and to provide them with sufficient Artificial Intelligence background to deal with real-life problems.

This book brings together papers presented at the International

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Conference on Artificial Intelligence in China (ChinaAI) 2019, which provided a venue for disseminating the latest advances and discussing the interactions and links between the various subfields of AI. Addressing topics that cover virtually all aspects of AI and the latest developments in China, the book is chiefly intended for undergraduate and graduate students in Electrical Engineering, Computer Science, and Mathematics, for researchers and engineers from academia and industry, and for government employees (e.g. at the NSF, DOD, and DOE).

This book gathers the refereed proceedings of the Artificial Intelligence and Industrial Applications (A2IA'2020), the first installment of an annual international conference organized by the ENSAM-Meknes at Moulay Ismail University, Morocco. The 30 papers presented here were carefully reviewed and selected from

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141 submissions by an international scientific committee. They address various aspects of artificial intelligence such as smart manufacturing, smart maintenance, smart supply chain management, supervised learning, unsupervised learning, reinforcement learning, graph-based and semi-supervised learning, neural networks, deep learning, planning and optimization, and other AI applications. The book is intended for AI experts, offering them a valuable overview of the status quo and a global outlook for the future, with many new and innovative ideas and recent important developments in AI applications, both of a foundational and practical nature. It will also appeal to non-experts who are curious about this timely and important subject.

Second Edition

Advanced Intelligent Computing Theories and Applications. With

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Aspects of Artificial Intelligence

9th IFIP WG 12.5 International Conference, AIAI 2013, Paphos,  
Cyprus, September 30 -- October 2, 2013, Proceedings

Artificial Intelligence Applications in Information and  
Communication Technologies

Ethics and Applications

18th International Conference on Industrial and Engineering  
Applications of Artificial Intelligence and Expert Systems, IEA/AIE  
2005, Bari, Italy, June 22-24, 2005, Proceedings

*This book contributes to the progress  
towards intelligent transportation. It  
emphasizes new data management and machine  
learning approaches such as big data, deep*

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*learning and reinforcement learning. Deep learning and big data are very energetic and vital research topics of today's technology. Road sensors, UAVs, GPS, CCTV and incident reports are sources of massive amount of data which are crucial to make serious traffic decisions. Herewith this substantial volume and velocity of data, it is challenging to build reliable prediction models based on machine learning methods and traditional relational database. Therefore, this book includes recent research works on big*

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*data, deep convolution networks and IoT-based smart solutions to limit the vehicle's speed in a particular region, to support autonomous safe driving and to detect animals on roads for mitigating animal-vehicle accidents. This book serves broad readers including researchers, academicians, students and working professional in vehicles manufacturing, health and transportation departments and networking companies.*

*Artificial intelligence algorithms have entered the transportation sector in all*

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*its forms, individual and collective, private and public, ground and air, and there are multiple applications of artificial intelligence in each of the advanced economies ... to the benefits that artificial intelligence can provide to the transportation sector*

*Smart cities operate under more resource-efficient management and economy than ordinary cities. As such, advanced business models have emerged around smart cities, which led to the creation of smart enterprises and organizations that depend*

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*on advanced technologies. This book includes 21 selected and peer-reviewed articles contributed in the wide spectrum of artificial intelligence applications to smart cities. Chapters refer to the following areas of interest: vehicular traffic prediction, social big data analysis, smart city management, driving and routing, localization, safety, health, and life quality.*

*Artificial Intelligence  
Application-based Network Traffic  
Generator for Networking Ai Model*



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*Development*

*Proceedings of the International  
Conference on Artificial Intelligence in  
China*

*Artificial Intelligence in China*

*The Handbook of Road Safety Measures*

*Road Vehicle Automation 3*

This book constitutes the refereed proceedings of the 9th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2013, held in Paphos, Cyprus, in September/October 2013. The 26 revised full papers presented together with a keynote speech at the main event and 44 papers of 8

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collocated workshops were carefully reviewed and selected for inclusion in the volume. The papers of the main event are organized in topical sections on data mining, medical informatics and biomedical engineering, problem solving and scheduling, modeling and decision support systems, robotics, and intelligent signal and image processing.

Urban mobility is not only one of the pillars of modern economic systems, but also a key issue in the quest for equality of opportunity, once it can improve access to other services. Currently, however, there are a number of negative issues related to traffic, especially in mega-cities, such as economical issues (cost of opportunity caused by delays), environmental

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(externalities related to emissions of pollutants), and social (traffic accidents). Solutions to these issues are more and more closely tied to information and communication technology. Indeed, a search in the technical literature (using the keyword "urban traffic" to filter out articles on data network traffic) retrieved the following number of articles (as of December 3, 2013): 9,443 (ACM Digital Library), 26,054 (Scopus), and 1,730,000 (Google Scholar). Moreover, articles listed in the ACM query relate to conferences as diverse as MobiCom, CHI, PADS, and AAMAS. This means that there is a big and diverse community of computer scientists and computer engineers who tackle research that is connected to

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the development of intelligent traffic and transportation systems. It is also possible to see that this community is growing, and that research projects are getting more and more interdisciplinary. To foster the cooperation among the involved communities, this book aims at giving a broad introduction into the basic but relevant concepts related to transportation systems, targeting researchers and practitioners from computer science and information technology. In addition, the second part of the book gives a panorama of some of the most exciting and newest technologies, originating in computer science and computer engineering, that are now being employed in projects related to car-to-car communication,

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interconnected vehicles, car navigation, platooning, crowd sensing and sensor networks, among others. This material will also be of interest to engineers and researchers from the traffic and transportation community.

This book constitutes the refereed proceedings of six International Workshops held as parallel events of the 17th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2021, virtually and in Hersonissos, Crete, Greece, in June 2021: the 6th Workshop on 5G-Putting Intelligence to the Network Edge, 5G-PINE 2021; Artificial Intelligence in Biomedical Engineering and Informatics Workshop, AI-BIO 2021; Workshop on

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Defense Applications of AI, DAAI 2021; Distributed AI for Resource-Constrained Platforms Workshop, DARE 2021; Energy Efficiency and Artificial Intelligence Workshop, EEAI 2021; and the 10th Mining Humanistic Data Workshop, MHDW 2021. The 24 full papers and 16 short papers presented at these workshops were carefully reviewed and selected from 72 submissions. The papers presented at 5G-PINE focus on the latest AI applications in the telecommunication industry and AI in modern 5G-oriented telecommunications infrastructures. The papers chosen for AI-BIO 2021 present research on the subject of AI, in its broadest sense, in biomedical engineering and health informatics. The DAAI 2021

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papers aim at presenting recent evolutions in artificial intelligence applicable to defense and security applications. The papers selected for DARE 2021 address a variety of pertinent and challenging topics within the scope of distributed AI for resource-constrained platforms. The papers presented at EEAI 2021 aim to bring together interdisciplinary approaches that focus on the application of AI-driven solutions for increasing and improving energy efficiency of residential and tertiary buildings and of occupant behavior. The MHDW papers focus on topics such as recommendation systems, sentiment analysis, pattern recognition, data mining, and time series.

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Introduction to Intelligent Systems in Traffic and Transportation

Explainable Artificial Intelligence for Intelligent Transportation Systems

16th IFIP WG 12.5 International Conference, AIAI 2020, Neos Marmaras, Greece, June 5–7, 2020, Proceedings, Part II

Society 5.0: Smart Future Towards Enhancing the Quality of Society

Artificial Intelligence Applications to Smart City and Smart Enterprise

Artificial Intelligence Applications to Traffic Engineering

***Congestion continues to grow in America's***



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***urban areas. This report presents details on the 2004 trends, findings and what can be done to address the growing transportation problems. Trend data from 1982 to 2002 for 85 urban areas provides both a local view and a national perspective on the growth and extent of traffic congestion. The 2004 Report provides clear evidence that the time for improvements has arrived. Communicating the congestion levels and the need for improvements is a goal of this report. The decisions about which, and how much, improvement to fund will be made at the local level according to a variety of goals, but there are some broad conclusions that can be***

***drawn from this database. Tables.***

***Transportation typically entails crucial “life-death” choices, delegating crucial decisions to an AI algorithm without any explanation poses a serious threat. Hence, explainability and responsible AI is crucial in the context of intelligent transportation. In Intelligence Transportation System (ITS) implementations such as traffic management systems and autonomous driving applications, AI-based control mechanisms are gaining prominence. Explainable artificial intelligence for intelligent transportation system tackling certain challenges in the field of autonomous vehicle,***

***traffic management system, data integration and analytics and monitor the surrounding environment. The book discusses and inform researchers on explainable Intelligent Transportation system. It also discusses prospective methods and techniques for enabling the interpretability of transportation systems. The book further focuses on ethical considerations apart from technical considerations.***

***Building effective and user-friendly transportation systems is one of the big challenges for engineers in the 21st century. There is an increasing need to understand,***

***model, and govern such systems at both, the individual and the society level. Traffic and transportation scenarios are extraordinarily appealing for Distributed Artificial Intelligence, and (multi-)agent technology in particular. This book gives an overview of recent advances in agent-based transportation systems.***

***Artificial Intelligence and Its Potential  
Application to Air Traffic Control***

***Urban Mobility Report (2004)***

***DRIVE Project. WP310***

***International Conference on Artificial  
Intelligence Applications in Transportation  
Engineering***

***DRIVE Project. WP210***

***AIAI 2018 IFIP WG 12.5 International  
Workshops, SEDSEAL, 5G-PINE, MHDW, and  
HEALTHIOT, Rhodes, Greece, May 25-27, 2018,  
Proceedings***

Artificial Intelligence: Technologies, Applications, and Challenges is an invaluable resource for readers to explore the utilization of Artificial Intelligence, applications, challenges, and its underlying technologies in different applications areas. Using a series of present and future applications, such as indoor-outdoor securities, graphic signal processing, robotic surgery, image processing, character recognition, augmented reality, object detection and tracking, intelligent traffic

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monitoring, emergency department medical imaging, and many more, this publication will support readers to get deeper knowledge and implementing the tools of Artificial Intelligence. The book offers comprehensive coverage of the most essential topics, including: Rise of the machines and communications to IoT (3G, 5G).

Tools and Technologies of Artificial Intelligence Real-time applications of artificial intelligence using machine learning and deep learning. Challenging Issues and Novel Solutions for realistic applications Mining and tracking of motion based object data image processing and analysis into the unified framework to understand both IoT and Artificial Intelligence-based applications. This book will be an ideal resource for IT

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professionals, researchers, under or post-graduate students, practitioners, and technology developers who are interested in gaining insight to the Artificial Intelligence with deep learning, IoT and machine learning, critical applications domains, technologies, and solutions to handle relevant challenges.

With the emergence of smart technology and automated systems in today ' s world, artificial intelligence (AI) is being incorporated into an array of professions. The aviation and aerospace industry, specifically, is a field that has seen the successful implementation of early stages of automation in daily flight operations through flight management systems and autopilot. However, the effectiveness of aviation systems and the provision of

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flight safety still depend primarily upon the reliability of aviation specialists and human decision making. The Handbook of Research on Artificial Intelligence Applications in the Aviation and Aerospace Industries is a pivotal reference source that explores best practices for AI implementation in aviation to enhance security and the ability to learn, improve, and predict. While highlighting topics such as computer-aided design, automated systems, and human factors, this publication explores the enhancement of global aviation security as well as the methods of modern information systems in the aeronautics industry. This book is ideally designed for pilots, scientists, engineers, aviation operators, air crash investigators, teachers,



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academicians, researchers, and students seeking current research on the application of AI in the field of aviation.

“ Intelligent systems are those which produce intelligent outputs.” AI researchers have been focusing on developing and employing strong methods that are capable of solving complex real-life problems. The 18th International Conference on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA/AIE 2005) held in Bari, Italy presented such work performed by many scientists worldwide. The Program Committee selected long papers from contributions presenting more complete work and posters from those reporting ongoing research. The Committee enforced

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the rule that only original and unpublished work could be considered for inclusion in these proceedings. The Program Committee selected 116 contributions from the 271 submitted papers which cover the following topics: artificial systems, search engines, intelligent interfaces, knowledge discovery, knowledge-based technologies, natural language processing, machine learning applications, reasoning technologies, uncertainty management, applied data mining, and technologies for knowledge management. The contributions oriented to the technological aspects of AI and the quality of the papers are witness to a research activity clearly aimed at consolidating the theoretical results that have already been achieved.

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The conference program also included two invited lectures, by Katharina Morik and Roberto Pieraccini. Many people contributed in different ways to the success of the conference and to this volume. The authors who continue to show their enthusiastic interest in applied intelligence research are a very important part of our success. We highly appreciate the contribution of the members of the Program Committee, as well as others who reviewed all the submitted papers with efficiency and dedication.

State of the art in AI with respect to traffic engineering : [report M 2 1 A] / [ed. Marco Boero. Contributors Giorgio Ambrosino ...]. WP 210  
Recent Advances

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Applications of Artificial Intelligence and Machine Learning

Artificial Intelligence and Its Applications

Innovations in Applied Artificial Intelligence

5G-PINE 2021, AI-BIO 2021, DAAI 2021, DARE 2021, EEAI 2021, and MHDW 2021, Hersonissos, Crete, Greece, June 25 – 27, 2021, Proceedings

**This edited book comprises papers about the impacts, benefits and challenges of connected and automated cars. It is the third volume of the LNMOB series dealing with Road Vehicle Automation. The book comprises contributions from researchers, industry practitioners and**

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**policy makers, covering perspectives from the U.S., Europe and Japan. It is based on the Automated Vehicles Symposium 2015 which was jointly organized by the Association of Unmanned Vehicle Systems International (AUVSI) and the Transportation Research Board (TRB) in Ann Arbor, Michigan, in July 2015. The topical spectrum includes, but is not limited to, public sector activities, human factors, ethical and business aspects, energy and technological perspectives, vehicle systems and transportation infrastructure. This book is an**

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**indispensable source of information for academic researchers, industrial engineers and policy makers interested in the topic of road vehicle automation.**

**As industries are rapidly being digitalized and information is being more heavily stored and transmitted online, the security of information has become a top priority in securing the use of online networks as a safe and effective platform. With the vast and diverse potential of artificial intelligence (AI) applications, it has become easier than ever to identify cyber vulnerabilities,**

**potential threats, and the identification of solutions to these unique problems. The latest tools and technologies for AI applications have untapped potential that conventional systems and human security systems cannot meet, leading AI to be a frontrunner in the fight against malware, cyber-attacks, and various security issues. However, even with the tremendous progress AI has made within the sphere of security, it's important to understand the impacts, implications, and critical issues and challenges of AI applications along with the**

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**many benefits and emerging trends in this essential field of security-based research. Research Anthology on Artificial Intelligence Applications in Security seeks to address the fundamental advancements and technologies being used in AI applications for the security of digital data and information. The included chapters cover a wide range of topics related to AI in security stemming from the development and design of these applications, the latest tools and technologies, as well as the utilization of AI and what challenges and impacts have been**



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**discovered along the way. This resource work is a critical exploration of the latest research on security and an overview of how AI has impacted the field and will continue to advance as an essential tool for security, safety, and privacy online. This book is ideally intended for cyber security analysts, computer engineers, IT specialists, practitioners, stakeholders, researchers, academicians, and students interested in AI applications in the realm of security research. This volume discusses recent advances in**

**Artificial Intelligence (AI) applications in smart, internet-connected societies, highlighting three key focus areas. The first focus is on intelligent sensing applications. This section details the integration of Wireless Sensing Networks (WSN) and the use of intelligent platforms for WSN applications in urban infrastructures, and discusses AI techniques on hardware and software systems such as machine learning, pattern recognition, expert systems, neural networks, genetic algorithms, and intelligent control in transportation and communications**

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**systems. The second focus is on AI-based Internet of Things (IoT) systems, which addresses applications in traffic management, medical health, smart homes and energy. Readers will also learn about how AI can extract useful information from Big Data in IoT systems. The third focus is on crowdsourcing (CS) and computing for smart cities. this section discusses how CS via GPS devices, GIS tools, traffic cameras, smart cards, smart phones and road deceleration devices enables citizens to collect and share data to make cities smart, and**

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**how these data can be applied to address urban issues including pollution, traffic congestion, public safety and increased energy consumption. This book will of interest to academics, researchers and students studying AI, cloud computing, IoT and crowdsourcing in urban applications.**

**Fourth International Conference on Intelligent Computing, ICIC 2008 Shanghai, China, September 15-18, 2008, Proceedings  
Data-Driven Solutions to Transportation Problems**

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## **An IoT Approach**

## **Research Anthology on Artificial Intelligence**

## **Applications in Security**

## **Enabling Technologies and Future Trends**

## **Artificial Intelligence for Autonomous Networks**

This book is the eight volume of a sub-series on Road Vehicle Automation, published as part of the Lecture Notes in Mobility. Written by researchers, engineers and analysts from around the globe, the contributions are based on oral and poster presentations from the Automated Vehicles Symposium (AVS) 2020, held on July 27–30, 2020, as a fully virtual event. The book

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explores public sector activities, human factors aspects, vehicle systems and other related technological developments, as well as transportation infrastructure planning, which are expected to foster and support road vehicle automation.

Contains summaries of the knowledge regarding the effects of 128 road safety measures. This title covers various areas of road safety including: traffic control; vehicle inspection; driver training; publicity campaigns; police enforcement; and, general policy instruments. It also covers topics such as post-accident care, and speed cameras.

The International Conference on Intelligent Computing

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(ICIC) was formed to provide an annual forum dedicated to the emerging and challenging topics in artificial intelligence, machine learning, bioinformatics, and computational biology, etc. It aims to bring together researchers and practitioners from both academia and industry to share ideas, problems and solutions related to the multifaceted aspects of intelligent computing. ICIC 2008, held in Shanghai, China, September 15–18, 2008, constituted the 4th International Conference on Intelligent Computing. It built upon the success of ICIC 2007, ICIC 2006 and ICIC 2005 held in Qingdao, Kunming and Hefei, China, 2007, 2006 and 2005, respectively. This year, the conference concentrated

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mainly on the theories and methodologies as well as the emerging applications of intelligent computing. Its aim was to unify the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications. Therefore, the theme for this conference was “Emerging Intelligent Computing Technology and Applications”. Papers focusing on this theme were solicited, addressing theories, methodologies, and applications in science and technology.

Artificial intelligence applications in the transportation sector



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DRIVE Project. WP110

Survey of potential application of artificial intelligence to  
solving traffic engineering problems

Technologies, Applications, and Challenges

Proceeding of the 2nd International Conference on  
Artificial Intelligence and Its Applications (2021)

Select Proceedings of ICAAAIML 2020

*Seminar paper from the year 2019 in the subject  
Computer Sciences - Artificial Intelligence, grade: 2,0,  
University of the Federal Armed Forces München,  
language: English, abstract: AI is taking on more and  
more tasks in the everyday world. Talking devices and  
digital assistants, such as Amazon's Alexa or Apple's*

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*Siri give consumers easy access to various forms of AI in order to simplify their everyday lives. The distinction between digital chatbots and people are also getting increasingly more difficult. In this paper, the focus will be on the positive reinforcement of society, for the simple reason that writing about the drawbacks as well, will extend the length of this paper beyond the given guidelines. By way of example, which regulations are needed to ensure the protection of the public and fairness in economic competition and how will employment rates be influenced? Likewise, the history of the development of AI will be left out for the same reason. Initially, the author will present definitions of intelligence and a description of*

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*AI and its abilities. The subsequent description of functions and various forms of AI are intended to give an overview of the potential of AI. A Practical example of the implementation of AI in the Road transport sector, as well as a conclusion, are bringing the paper to a close.*

*This book constitutes the refereed proceedings of 4 workshops held at the 14th IFIP WG 12.5 International Conference on Artificial Intelligence Applications and Innovations, AIAI 2018, held in Rhodes, Greece, in May 2018. The workshops were the Workshop on Semantics in the Deep: Semantic Analytics for Big Data, SEDSEAL 2018; the Third Workshop on 5G - Putting Intelligence to the Network Edge, 5G-PINE*

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*2018; the 7th Mining Humanistic Data Workshop, MHDW 2018; and the Workshop on Intelligent Cloud and IOT Paradigms in EHealth, HEALTHIOT 2018. The 19 full papers and 5 short papers presented were carefully reviewed and selected from a total of 53 submissions: SEDSEAL accepted 2 full papers out of 5 submissions, 5G-PINE 6 full and one short paper out of 24, MHDW 7 full and 4 short papers out of 15, and HEALTHIOT 4 full papers out of 9. The papers cover topics such as AI in 5G and telecommunications, AI and e-health services, AI in 5G networks, incremental learning, clustering, AI in text mining, visual data analytics, AI in molecular biology, DNA, RNA, proteins, big data analytics, Internet of Things and*

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*recommender systems, and AI in biomedical applications.*

*The book presents a collection of peer-reviewed articles from the International Conference on Advances and Applications of Artificial Intelligence and Machine Learning - ICAAAIML 2020. The book covers research in artificial intelligence, machine learning, and deep learning applications in healthcare, agriculture, business, and security. This volume contains research papers from academicians, researchers as well as students. There are also papers on core concepts of computer networks, intelligent system design and deployment, real-time systems, wireless sensor networks, sensors and sensor nodes,*

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*software engineering, and image processing. This book will be a valuable resource for students, academics, and practitioners in the industry working on AI applications.*

*Application of Artificial Intelligence and Expert Systems to Traffic Control*

*June 20-24, 1992, San Buenaventura, California, USA : Conference Preprints*

*Artificial Intelligence Applications and Innovations  
Road Vehicle Automation 8*

*Artificial Intelligence Applications and Innovations.*

*AIAI 2021 IFIP WG 12.5 International Workshops*

*Artificial Intelligence and Industrial Applications*

**Artificial Intelligence Applications to Traffic**

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## **EngineeringVSP**

**Artificial Intelligence for Autonomous Networks** introduces the autonomous network by juxtaposing two unique technologies and communities: Networking and AI. The book reviews the technologies behind AI and software-defined network/network function virtualization, highlighting the exciting opportunities to integrate those two worlds. Outlining the new frontiers for autonomous networks, this book highlights their impact and benefits to consumers and enterprise

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**customers. It also explores the potential of the autonomous network for transforming network operation, cyber security, enterprise services, 5G and IoT, infrastructure monitoring and traffic optimization, and finally, customer experience and care. With contributions from leading experts, this book will provide an invaluable resource for network engineers, software engineers, artificial intelligence, and machine learning researchers.**

**The growing demands for communication**



**and complex network infrastructure relay on overcoming the network measurement and management challenges. Lately, artificial intelligence (AI) algorithms have considered to improve the network system, e.g., AI-based network traffic classification, traffic prediction, intrusion detection system, etc. Most of the development of networking AI models require abundant traffic data samples to have a proper measuring or managing. However, such databases are rare to be found publicly. To counter this issue, we develop a real-time**

**network traffic generator to be used by network AI models. This network traffic generator has a data enabler that reads data from real applications and establishes packet payload database and a traffic pattern database. The packet payload database has the data packets of real application, where network traffic generator locates the payload in the capture file (PCAP). The other database is traffic pattern database that contains the traffic patterns of a real application. This database depends on the timestamp in each packet**

**and the number of packets in the traffic sample to form a traffic database. The network traffic generator has a built-in network simulator that allows to mimic the real application network traffic flows using these databases to simulate the real-traffic application. The simulator provides a configurable network environment as an interface. To assess our work, we tested the network traffic generator on two network AI models based on simulated traffic, i.e., AI classification model, and AI traffic prediction. The simulation performance and**

**the evaluation result showed improvement in networking AI models using the proposed network traffic generator, which reduce time consuming and data efficiency challenges.**

**Identification of key areas in the field of road traffic, transport and safety engineering : [report M 3 1] / [ed. Marco Boero. Contributors Giorgio Ambrosino ...].**

**WP 310**

**Machine Learning for Smart  
Environments/Cities**

**Survey of Potential Applications of Artificial**

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## **Intelligence to Solving Traffic Engineering Problems**

### **What Benefits Can Artificial Intelligence Bring to the Road Transportation Sector? An Overview**

### **Applications of Agent Technology in Traffic and Transportation**

### **Smart Operation Management**

*Data-Driven Solutions to Transportation  
Problems explores the fundamental  
principle of analyzing different types  
of transportation-related data using*

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*methodologies such as the data fusion model, the big data mining approach, computer vision-enabled traffic sensing data analysis, and machine learning. The book examines the state-of-the-art in data-enabled methodologies, technologies and applications in transportation. Readers will learn how to solve problems relating to energy efficiency under connected vehicle environments, urban travel behavior, trajectory data-based travel pattern*

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*identification, public transportation analysis, traffic signal control efficiency, optimizing traffic networks network, and much more. Synthesizes the newest developments in data-driven transportation science Includes case studies and examples in each chapter that illustrate the application of methodologies and technologies employed Useful for both theoretical and technically-oriented researchers In recent years the applications of*

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*advanced information technologies in the field of transportation have affected both road infrastructures and vehicle technologies. The development of advanced transport telematics systems and the implementation of a new generation of technological options in the transport environment have had a significant impact on improved traffic management, efficiency and safety. This volume contains contributions from scientific and academic centres which*



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*have been active in this field of research and provides an overview of applications of AI technology in the field of traffic control and management. The topics covered are: -- current status of AI in transport -- AI applications in traffic engineering -- in-vehicle AI*

*This 2 volume-set of IFIP AICT 583 and 584 constitutes the refereed proceedings of the 16th IFIP WG 12.5 International Conference on Artificial*

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*Intelligence Applications and Innovations, AIAI 2020, held in Neos Marmaras, Greece, in June 2020.\* The 70 full papers and 5 short papers presented were carefully reviewed and selected from 149 submissions. They cover a broad range of topics related to technical, legal, and ethical aspects of artificial intelligence systems and their applications and are organized in the following sections: Part I: classification; clustering -*

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*unsupervised learning -analytics; image processing; learning algorithms; neural network modeling; object tracking - object detection systems; ontologies - AI; and sentiment analysis - recommender systems. Part II: AI ethics - law; AI constraints; deep learning - LSTM; fuzzy algebra - fuzzy systems; machine learning; medical - health systems; and natural language. \*The conference was held virtually due to the COVID-19 pandemic.*

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*Handbook of Research on Artificial  
Intelligence Applications in the  
Aviation and Aerospace Industries  
Deep Learning and Big Data for  
Intelligent Transportation  
Artificial Intelligence Applications  
for Smart Societies*