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Bio-inspired Routing Protocols for Vehicular Ad-Hoc Networks
VANET Telematics

Communication Technologies and Vehicular Networks: Wireless Architectures and Applications
Distributed Computing Innovations for Business, Engineering, and Science
Microservices in Big Data Analytics Modelling, Computation and Optimization in Information Systems and Management Sciences

Networking Simulation for Intelligent Transportation Systems
Simulating Urban Traffic Scenarios
Smart Technologies, Systems and Applications

Algorithms and Protocols for Wireless and Mobile Ad Hoc Networks
Vehicular ad hoc Networks
Proceedings of the ... ACM International Workshop on Vehicular Ad Hoc Networks

Automotive Informatics and Communicative Systems: Principles in Vehicular Networks and Data Exchange
Simulation Technologies in Networking and Communications

Cognitive Vehicular Networks
Bio-inspired Routing Protocols for Vehicular Ad-Hoc Networks
Mobility Modeling for Vehicular Communication Networks
Autonomous, Connected, Electric and Shared Vehicles Information Technology Convergence
Applied Physics, System

Science and Computers Analytical and Stochastic Modeling Techniques and Applications
Streaming Media with Peer-to-Peer Networks: Wireless Perspectives
Complex, Intelligent, and Software Intensive Systems Learning-based VANET

Communication and Security Techniques
Quality, Reliability, Security and Robustness in Heterogeneous Systems
Advances in Vehicular Ad-Hoc Networks: Developments and Challenges
Communication Technologies for Vehicles Internet of Things and Inter-cooperative Computational Technologies for Collective Intelligence
Mobile Ad-Hoc Networks Cloud and IoT-Based Vehicular Ad Hoc Networks Web, Artificial Intelligence and Network Applications

Networking Simulation for Intelligent Transportation Systems
Advances in Intelligent Vehicles
Mobile Ad Hoc Networking
First International Conference on Sustainable Technologies for Computational Intelligence
Progress in Artificial Intelligence Distributed Computing in Sensor Systems
Mobile Ad Hoc Networks Formal Methods: Foundations and Applications
Proceedings of International Conference on

Computational Intelligence and Data Engineering

Quality, Reliability, Security and Robustness in Heterogeneous Systems
Jul 29 2021 This book constitutes the refereed post-conference proceedings of the 13th International Conference on Quality, Reliability, Security and Robustness in Heterogeneous Networks, QShine 2017, held in Dalian, China, in December 2017. The 25 revised full papers were carefully reviewed and selected from 43 submissions. The papers are organized thematically in tracks, starting with mobile and wireless networks, quality and reliability, wireless networking algorithms and protocols, and smart applications.

Analytical and Stochastic Modeling Techniques and Applications
Dec 02 2021 This book constitutes the refereed proceedings of the 19th International Conference on Analytical and Stochastic Modelling Techniques and Applications, ASMTA 2012, held in Grenoble, France, in June 2012. The 20 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on queueing systems; networking applications; Markov chains; stochastic modelling.

Smart Technologies, Systems and Applications

Dec 14 2022 This book constitutes refereed proceedings of the First International Conference on Smart Technologies, Systems and Applications, held in Quito, Ecuador, in December 2019. The 27 full papers and 3 short papers presented were carefully reviewed and selected from 90 submissions. The papers of this volume are organized in topical sections on smart technologies; smart systems; smart trends and applications.

Mobile Ad-Hoc Networks

Mar 25 2021 Being infrastructure-less and without central administration control, wireless ad-hoc networking is playing a more and more important role in extending the coverage of traditional wireless infrastructure (cellular networks, wireless LAN, etc). This book includes state-of-the-art techniques and solutions for wireless ad-hoc networks. It focuses on the following topics in ad-hoc networks: vehicular ad-hoc networks, security and caching, TCP in ad-hoc networks and emerging applications. It is targeted to provide network engineers and researchers with design guidelines for large scale wireless ad hoc networks.

Bio-inspired Routing Protocols for Vehicular Ad-Hoc Networks

May 07 2022 Vehicular Ad-Hoc Networks (VANETs) play a key role to develop Intelligent Transportation Systems (ITS) aiming to achieve road safety and to guaranty needs of drivers and passengers, in addition to improve the

transportation productivity. One of the most important challenges of this kind of networks is the data routing between VANET nodes which should be routed with high level of Quality of Service (QoS) to ensure receiving messages in the time. Then, the driver can take the appropriate decision to improve the road safety. In the literature, there are several routing protocols for VANETs which are more or less reliable to reach safety requirements. In this book, we start by describing all VANET basic concepts such as VANET definition, VANET versus Mobile ad-Hoc Network (MANET), architectures, routing definition and steps, Quality of Service (QoS) for VANET Routing, Metrics of evaluation, Experimentation, and simulation of VANETs, mobility patterns of VANET etc. Moreover, different routing protocols for routing in VANETs will be described. We propose two main categories to be presented: classical routing and bio-inspired routing. Concerning classical VANET, main principles and all phases will be overviewed, as well as, their two sub-categories which are topological and geographical protocols. After that, we propose a new category called bio-inspired routing which is inspired by natural phenomenon such as Ant colony, Bee life, Genetic operators etc. We present also, some referential protocols as example of each category. In this book, we focus on the idea of how to apply bio-inspired principle into VANET routing to improve road safety, and to

ensure QoS of vehicular applications.

Vehicular ad hoc Networks Oct 12 2022 This book presents vehicular ad-hoc networks (VANETs) from their onset, gradually going into technical details, providing a clear understanding of both theoretical foundations and more practical investigation. The editors gathered top-ranking authors to provide comprehensiveness and timely content; the invited authors were carefully selected from a list of who's who in the respective field of interest: there are as many from Academia as from Standardization and Industry sectors from around the world. The covered topics are organized around five Parts starting from an historical overview of vehicular communications and standardization/harmonization activities (Part I), then progressing to the theoretical foundations of VANETs and a description of the day-one standard-compliant solutions (Part II), hence going into details of vehicular networking and security (Part III) and to the tools to study VANETs, from mobility and channel models, to network simulators and field trial methodologies (Part IV), and finally looking into the future of VANETs by investigating alternative, complementary communication technologies, innovative networking paradigms and visionary applications (Part V). The way the content is organized, with a differentiated level of technical details, makes the book a valuable reference

for a large pool of target readers ranging from undergraduate, graduate and PhD students, to wireless scientists and engineers, to service providers and stakeholders in the automotive, ITS, ICT sectors.

Information Technology Convergence

Feb 04 2022

Information technology and its convergence issue is emerging rapidly as an exciting new paradigm with user-centric environment to provide computing and communication services. This area will be the most comprehensive topics with various aspects of advances in information technology and its convergence services. This book covers all topics as computational science and applications, electronics engineering, manufacturing technology, services, technical skill to control the robot, automatic operation and application, simulation and testing communication and many more.

Proceedings of the ... ACM International Workshop on Vehicular Ad Hoc Networks

Sep 11 2022

First International Conference on Sustainable Technologies for

Computational Intelligence

Sep 18 2020 This book gathers high-quality papers presented at the First International Conference on Sustainable Technologies for Computational Intelligence (ICTSCI 2019), which was organized by Sri Balaji College of Engineering and Technology, Jaipur, Rajasthan, India, on March 29-30, 2019. It covers emerging topics in

computational intelligence and effective strategies for its implementation in engineering applications.

Applied Physics, System Science and Computers Jan 03 2022 This book reports on advanced theories and methods in three related fields of research: applied physics, system science and computers. It is organized in two main parts, the first of which covers applied physics topics, including lasers and accelerators; condensed matter, soft matter and materials science; nanoscience and quantum engineering; atomic, molecular, optical and plasma physics; as well as nuclear and high-energy particle physics. It also addresses astrophysics, gravitation, earth and environmental science, as well as medical and biological physics. The second part focuses on advances in system science and computers, exploring automatic circuit control, power systems, computer communication, fluid mechanics, simulation and modeling, software engineering, data structures and applications of artificial intelligence among other areas. Offering a collection of contributions presented at the 1st International Conference on Applied Physics, System Science and Computers (APSAC 2016), the book bridges the gap between applied physics and electrical engineering. It not only presents new methods, but also promotes collaborations between different communities working on related topics at

the interface between physics and engineering, with a special focus on communication, data modeling and visualization, quantum information, applied mechanics as well as bio and geophysics.

Telematics Communication Technologies and Vehicular Networks: Wireless Architectures and Applications

Jun 20 2023 "This book examines critical issues involved with telematics such as vehicular network infrastructure, vehicular network communication protocols, and vehicular services and applications"-- Provided by publisher.

Simulating Urban Traffic

Scenarios Jan 15 2023 This contributed volume contains the conference proceedings of the Simulation of Urban Mobility (SUMO) conference 2015, Berlin. The included papers cover a wide range of topics in traffic planning and simulation, including intermodal simulation, intermodal transport, vehicular communication, modeling urban mobility, open data as well as autonomous driving. The target audience primarily comprises researchers and experts in the field of mobility research, but the book may also be beneficial for graduate students.

VANET Jul 21 2023 VANET (vehicular ad hoc network) is a subgroup of MANET (mobile ad hoc network). It enables communication among vehicles on the road and between related infrastructures. This book addresses the basic elements of VANET along with components involved in the

communication with their functionalities and configurations. It contains numerous examples, case studies, technical descriptions, scenarios, procedures, algorithms, and protocols, and addresses the different services provided by VANET with the help of a scenario showing a network tackling an emergency. Features:

- Covers all important concepts of VANET for beginners and different road scenarios in VANET
- Covers essential communication protocols in VANET
- Introduces approaches for VANET implementation using simulators
- Provides a classification of messages and a priority-based message forwarding strategy

This book is aimed at undergraduates, postgraduates, industry, researchers, and research scholars in information and communications technology.

[Microservices in Big Data Analytics](#) Apr 18 2023 These proceedings gather cutting-edge papers exploring the principles, techniques, and applications of Microservices in Big Data Analytics. The ICETCE-2019 is the latest installment in a successful series of annual conferences that began in 2011. Every year since, it has significantly contributed to the research community in the form of numerous high-quality research papers. This year, the conference's focus was on the highly relevant area of Microservices in Big Data Analytics.

Web, Artificial Intelligence and Network Applications

Jan 23 2021 This proceedings book presents the latest research findings, and theoretical and practical perspectives on innovative methods and development techniques related to the emerging areas of Web computing, intelligent systems and Internet computing. The Web has become an important source of information, and techniques and methodologies that extract quality information are of paramount importance for many Web and Internet applications. Data mining and knowledge discovery play a key role in many of today's major Web applications, such as e-commerce and computer security. Moreover, Web services provide a new platform for enabling service-oriented systems. The emergence of large-scale distributed computing paradigms, such as cloud computing and mobile computing systems, has opened many opportunities for collaboration services, which are at the core of any information system. Artificial intelligence (AI) is an area of computer science that builds intelligent systems and algorithms that work and react like humans. AI techniques and computational intelligence are powerful tools for learning, adaptation, reasoning and planning, and they have the potential to become enabling technologies for future intelligent networks. Research in the field of intelligent systems, robotics, neuroscience, artificial intelligence and cognitive sciences is vital for the future

development and innovation of Web and Internet applications. Chapter "An Event-Driven Multi Agent System for Scalable Traffic Optimization" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Learning-based VANET Communication and Security Techniques Aug 30 2021 This timely book provides broad coverage of vehicular ad-hoc network (VANET) issues, such as security, and network selection. Machine learning based methods are applied to solve these issues. This book also includes four rigorously refereed chapters from prominent international researchers working in this subject area. The material serves as a useful reference for researchers, graduate students, and practitioners seeking solutions to VANET communication and security related issues. This book will also help readers understand how to use machine learning to address the security and communication challenges in VANETs. Vehicular ad-hoc networks (VANETs) support vehicle-to-vehicle communications and vehicle-to-infrastructure communications to improve the transmission security, help build unmanned-driving, and support booming applications of onboard units (OBUs). The high mobility of OBUs and the large-scale dynamic network with fixed roadside units (RSUs) make the VANET vulnerable to jamming. The anti-jamming communication of VANETs can be significantly improved by

using unmanned aerial vehicles (UAVs) to relay the OBU message. UAVs help relay the OBU message to improve the signal-to-interference-plus-noise-ratio of the OBU signals, and thus reduce the bit-error-rate of the OBU message, especially if the serving RSUs are blocked by jammers and/or interference, which is also demonstrated in this book. This book serves as a useful reference for researchers, graduate students, and practitioners seeking solutions to VANET communication and security related issues.

Distributed Computing in Sensor Systems Jul 17 2020

The book constitutes the refereed proceedings of the 4th International Conference on Distributed Computing in Sensor Systems, DCOSS 2008, held on Santorini Island, Greece, in June 2008. The 29 revised full papers and 12 revised short papers presented were carefully reviewed and selected from 116 submissions. The papers propose a multitude of novel algorithmic design and analysis techniques, systematic approaches and application development methodologies for distributed sensor networking. The papers cover aspects including energy management, communication, coverage and tracking, time synchronization and scheduling, key establishment and authentication, compression, medium access control, code update, and mobility.

Communication Technologies for Vehicles May 27 2021

This book constitutes the joint refereed proceedings of the Third

International Workshop on Communication Technologies for Vehicles, Nets4Cars 2011 and the First International Workshop on Communication Technologies for Vehicles in the Railway Transportation, Nets4Trains 2011, held in Oberpfaffenhofen, Germany, in March 2011. The 7 full papers of the rail track and 12 full papers of the road track presented together with a keynote were carefully reviewed and selected from 13 and 21 submissions respectively. They provide an overview over the latest technologies and research in the field of intra- and inter-vehicle communication and present original research results in areas relating to communication protocols and standards, mobility and traffic models, experimental and field operational testing, and performance analysis.

Mobile Ad Hoc Networks Jun 15 2020 Guiding readers through the basics of these rapidly emerging networks to more advanced concepts and future expectations, this book examines the most pressing research issues in Mobile Ad hoc Networks (MANETs). Leading researchers, industry professionals, and academics provide an authoritative perspective of the state of the art in MANETs. The book includes surveys of recent publications that investigate key areas of interest such as limited resources and the mobility of mobile nodes. It considers routing, multicast, energy, security, channel assignment, and ensuring quality of service.

Modelling, Computation and Optimization in Information Systems and Management Sciences Mar 17 2023

Constitutes the refereed proceedings of the Second International Conference MCO 2008, Metz, France, September 2008. This title organizes the papers in topical sections on optimization and decision making; data mining theory, systems and applications; computer vision and image processing; and computer communications and networks.

Autonomous, Connected, Electric and Shared Vehicles Mar 05 2022

We are at the beginning of the next major disruptive cycle caused by computing. In transportation, the term Autonomous, Connected, Electric, and Shared (ACES) has been coined to represent the enormous innovations enabled by underlying electronics technology. The benefits of ACES vehicles range from improved safety, reduced congestion, and lower stress for car occupants to social inclusion, lower emissions, and better road utilization due to optimal integration of private and public transport. ACES is creating a new automotive and industrial ecosystem that will disrupt not only the technical development of transportation but also the management and supply chain of the industry. Disruptions caused by ACES are prompted by not only technology but also by a shift from a traditional to a software-based mindset, embodied by the arrival of a new generation of automotive industry workforce. In

Autonomous, Connected, Electric and Shared Vehicles: Disrupting the Automotive and Mobility Sectors, Umar Zakir Abdul Hamid provides an overview of ACES technology for cross-disciplinary audiences, including researchers, academics, and automotive professionals. Hamid bridges the gap among the book's varied audiences, exploring the development and deployment of ACES vehicles and the disruptions, challenges, and potential benefits of this new technology. Topics covered include:

- Recent trends and progress stimulating ACES growth and development
- ACES vehicle overview
- Automotive and mobility industry disruptions caused by ACES
- Challenges of ACES implementation
- Potential benefits of the ACES ecosystem

While market introduction of ACES vehicles that are fully automated and capable of unsupervised driving in an unstructured environment is still a long-term goal, the future of mobility will be ACES, and the transportation industry must prepare for this transition.

Autonomous, Connected, Electric and Shared Vehicles is a necessary resource for anyone interested in the successful and reliable implementation of ACES. "ACES are destined to be a game changers on the roads, altering the face of mobility." Daniel Watzenig, Professor Graz University of Technology, Austria

Networking Simulation for Intelligent Transportation Systems Dec 22 2020 This book

studies the simulation of wireless networking in the domain of Intelligent Transportation Systems (ITS) involving aircraft, railway and vehicular communication. On this subject, particular focus is placed on effective communication channels, mobility modeling, multi-technology simulation and global ITS simulation frameworks. *Networking Simulation for Intelligent Transportation Systems* addresses the mixing of IEEE802.11p and LTE into a dedicated simulation environment as well as the links between ITS and IoT; aeronautical mobility and VHD Data Link (VDL) simulation; virtual co-simulation for railway communication and control-command; realistic channel simulation, mobility modeling and autonomic simulation for VANET and quality metrics for VANET. The authors intend for this book to be as useful as possible to the reader as they provide examples of methods and tools for running realistic and reliable simulations in the domain of communications for ITS.

Proceedings of International Conference on Computational Intelligence and Data Engineering Apr 13 2020 This book is a collection of high-quality research work on cutting-edge technologies and the most-happening areas of computational intelligence and data engineering. It includes selected papers from the International Conference on Computational Intelligence and Data Engineering (ICCIDE

2020). It covers various topics, including collective intelligence, intelligent transportation systems, fuzzy systems, Bayesian network, ant colony optimization, data privacy and security, data mining, data warehousing, big data analytics, cloud computing, natural language processing, swarm intelligence and speech processing.

Cognitive Vehicular

Networks Jun 08 2022 A

comprehensive text on both current and emerging areas of cognitive vehicular networks, this book focuses on a new class of mobile ad hoc networks. It uses a pedagogical approach utilizing cognitive aspects applied to vehicular environments and comprises contributions from well-known and high profile researchers in their respective specialties. The book provides significant technical and practical insights on different perspectives, starting from a basic background on cognitive radio, interrelated technologies, application to vehicular networks, technical challenges, and future trends.

Distributed Computing Innovations for Business, Engineering, and Science May 19 2023 "This book is a

collection of widespread research providing relevant theoretical frameworks and research findings on the applications of distributed computing innovations to the business, engineering and science fields"--Provided by publisher.

Mobile Ad Hoc Networking Oct 20 2020 "An excellent book for those who are interested in

learning the current status of research and development . . . [and] who want to get a comprehensive overview of the current state-of-the-art." —E-Streams This book provides up-to-date information on research and development in the rapidly growing area of networks based on the multihop ad hoc networking paradigm. It reviews all classes of networks that have successfully adopted this paradigm, pointing out how they penetrated the mass market and sparked breakthrough research. Covering both physical issues and applications, *Mobile Ad Hoc Networking: Cutting Edge Directions* offers useful tools for professionals and researchers in diverse areas wishing to learn about the latest trends in sensor, actuator, and robot networking, mesh networks, delay tolerant and opportunistic networking, and vehicular networks. Chapter coverage includes: Multihop ad hoc networking Enabling technologies and standards for mobile multihop wireless networking Resource optimization in multiradio multichannel wireless mesh networks QoS in mesh networks Routing and data dissemination in opportunistic networks Task farming in crowd computing Mobility models, topology, and simulations in VANET MAC protocols for VANET Wireless sensor networks with energy harvesting nodes Robot-assisted wireless sensor networks: recent applications and future challenges Advances in underwater acoustic

networking Security in wireless ad hoc networks Mobile Ad Hoc Networking will appeal to researchers, developers, and students interested in computer science, electrical engineering, and telecommunications.

Advances in Vehicular Ad-Hoc Networks: Developments and Challenges Jun 27 2021 "This book tackles the prevalent research challenges that hinder a fully deployable vehicular network, presenting a unified treatment of the various aspects of VANETs and is essential for not only university professors, but also for researchers working in the automobile industry"--Provided by publisher.

Algorithms and Protocols for Wireless and Mobile Ad Hoc Networks Nov 13 2022 Learn the fundamental algorithms and protocols for wireless and mobile ad hoc networks Advances in wireless networking and mobile communication technologies, coupled with the proliferation of portable computers, have led to development efforts for wireless and mobile ad hoc networks. This book focuses on several aspects of wireless ad hoc networks, particularly algorithmic methods and distributed computing with mobility and computation capabilities. It covers everything readers need to build a foundation for the design of future mobile ad hoc networks: Establishing an efficient communication infrastructure Robustness control for network-wide broadcast The taxonomy of

routing algorithms Adaptive backbone multicast routing The effect of inference on routing Routing protocols in intermittently connected mobile ad hoc networks and delay tolerant networks Transport layer protocols ACK-thinning techniques for TCP in MANETs Power control protocols Power saving in solar powered WLAN mesh networks Reputation and trust-based systems Vehicular ad hoc networks Cluster interconnection in 802.15.4 beacon enabled networks The book is complemented with a set of exercises that challenge readers to test their understanding of the material. Algorithms and Protocols for Wireless and Mobile Ad Hoc Networks is appropriate as a self-study guide for electrical engineers, computer engineers, network engineers, and computer science specialists. It also serves as a valuable supplemental textbook in computer science, electrical engineering, and network engineering courses at the advanced undergraduate and graduate levels. [Networking Simulation for Intelligent Transportation Systems](#) Feb 16 2023 This book studies the simulation of wireless networking in the domain of Intelligent Transportation Systems (ITS) involving aircraft, railway and vehicular communication. On this subject, particular focus is placed on effective communication channels, mobility modeling, multi-technology simulation and global ITS simulation frameworks. Networking

Simulation for Intelligent Transportation Systems addresses the mixing of IEEE802.11p and LTE into a dedicated simulation environment as well as the links between ITS and IoT; aeronautical mobility and VHD Data Link (VDL) simulation; virtual co-simulation for railway communication and control-command; realistic channel simulation, mobility modeling and autonomic simulation for VANET and quality metrics for VANET. The authors intend for this book to be as useful as possible to the reader as they provide examples of methods and tools for running realistic and reliable simulations in the domain of communications for ITS.

Internet of Things and Inter-cooperative Computational Technologies for Collective Intelligence

Apr 25 2021 Over the past two decades, we have witnessed unprecedented innovations in the development of miniaturized electromechanical devices and low-power wireless communication making practical the embedding of networked computational devices into a rapidly widening range of material entities. This trend has enabled the coupling of physical objects and digital information into cyber-physical systems and it is widely expected to revolutionize the way resource computational consumption and provision will occur. Specifically, one of the core ingredients of this vision, the so-called Internet of Things (IoT), demands the provision of networked services to support

interaction between conventional IT systems with both physical and artificial objects. In this way, IoT is seen as a combination of several emerging technologies, which enables the transformation of everyday objects into smart objects. It is also perceived as a paradigm that connects real world with digital world. The focus of this book is exactly on the novel collective and computational intelligence technologies that will be required to achieve this goal. While, one of the aims of this book is to discuss the progress made, it also prompts future directions on the utilization of inter-operable and cooperative next generation computational technologies, which supports the IoT approach, that being an advanced functioning towards an integrated collective intelligence approach for the benefit of various organizational settings.

Advances in Intelligent

Vehicles Nov 20 2020 Advances in Intelligent Vehicles presents recent advances in intelligent vehicle technologies that enhance the safety, reliability, and performance of vehicles and vehicular networks and systems. This book provides readers with up-to-date research results and cutting-edge technologies in the area of intelligent vehicles and transportation systems. Topics covered include virtual and staged testing scenarios, collision avoidance, human factors, and modeling techniques. The Series in Intelligent Systems publishes titles that cover state-of-the-art

knowledge and the latest advances in research and development in intelligent systems. Its scope includes theoretical studies, design methods, and real-world implementations and applications. Provides researchers and engineers with up-to-date research results and state-of-the art technologies in the area of intelligent vehicles and transportation systems Covers hot topics, including driver assistance systems; cooperative vehicle-highway systems; collision avoidance; pedestrian protection; image, radar and lidar signal processing; and V2V and V2I communications

Cloud and IoT-Based Vehicular Ad Hoc Networks

Feb 21 2021 CLOUD AND IOT-BASED VEHICULAR AD HOC NETWORKS This book details the architecture behind smart cars being fitted and connected with vehicular cloud computing, IoT and VANET as part of the intelligent transport system (ITS). As technology continues to weave itself more tightly into everyday life, socioeconomic development has become intricately tied to ever-evolving innovations. An example of this is the technology being developed to address the massive increase in the number of vehicles on the road, which has resulted in more traffic congestion and road accidents. This challenge is being addressed by developing new technologies to optimize traffic management operations. This book describes the state-of-the-art of the recent developments of Internet of Things (IoT) and

cloud computing-based concepts that have been introduced to improve Vehicular Ad-Hoc Networks (VANET) with advanced cellular networks such as 5G networks and vehicular cloud concepts. 5G cellular networks provide consistent, faster and more reliable connections within the vehicular mobile nodes. By 2030, 5G networks will deliver the virtual reality content in VANET which will support vehicle navigation with real time communications capabilities, improving road safety and enhanced passenger comfort. In particular, the reader will learn: A range of new concepts in VANETs, integration with cloud computing and IoT, emerging wireless networking and computing models New VANET architecture, technology gap, business opportunities, future applications, worldwide applicability, challenges and drawbacks Details of the significance of 5G Networks in VANET, vehicular cloud computing, edge (fog) computing based on VANET. Audience The book will be widely used by researchers, automotive industry engineers, technology developers, system architects, IT specialists, policymakers and students.

Formal Methods:

Foundations and

Applications May 15 2020

This book constitutes the thoroughly refereed post-conference proceedings of the 17th Brazilian Symposium on Formal Methods, SBMF 2014, held in Maceió, Brazil, in September/October 2014. The 9 revised full papers presented

together with 2 invited talks were carefully reviewed and selected from 34 submissions. SBMF is an event devoted to the dissemination of the development and use of formal methods for the construction of high quality computational systems, aiming to promote opportunities for researchers with interests in formal methods to discuss the recent advances in this area. *Automotive Informatics and Communicative Systems: Principles in Vehicular Networks and Data Exchange* Aug 10 2022 Advances the understanding of management methods, information technology, and their joint application in business processes.

Simulation Technologies in Networking and Communications

Jul 09 2022

Simulation is a widely used mechanism for validating the theoretical models of networking and communication systems. Although the claims made based on simulations are considered to be reliable, how reliable they really are is best determined with real-world implementation trials. *Simulation Technologies in Networking and Communications: Selecting the Best Tool for the Test* addresses the spectrum of issues regarding the different mechanisms related to simulation technologies in networking and communications fields. Focusing on the practice of simulation testing instead of the theory, it presents the work of more than 50 experts from around the world. Considers

superefficient Monte Carlo simulations Describes how to simulate and evaluate multicast routing algorithms Covers simulation tools for cloud computing and broadband passive optical networks Reports on recent developments in simulation tools for WSNs Examines modeling and simulation of vehicular networks The book compiles expert perspectives about the simulation of various networking and communications technologies. These experts review and evaluate popular simulation modeling tools and recommend the best tools for your specific tests. They also explain how to determine when theoretical modeling would be preferred over simulation. This book does not provide a verdict on the best suitable tool for simulation. Instead, it supplies authoritative analyses of the different kinds of networks and systems. Presenting best practices and insights from global experts, the book provides you with an understanding of what to simulate, where to simulate, whether to simulate or not, when to simulate, and how to simulate for a wide range of issues.

Mobility Modeling for Vehicular Communication Networks

Apr 06 2022 This brief presents a stochastic microscopic mobility model that describes the temporal changes of intervehicle distances. The model is consistent with simulated and empirical vehicle traffic patterns. Using stochastic lumpability methods, the

proposed mobility model is mapped into an aggregated mobility model that describes the mobility of a group of vehicles. In addition, the proposed mobility model is used to analyze the spatiotemporal VANET topology. Two metrics are proposed to characterize the impact of vehicle mobility on VANET topology: the time period between successive changes in communication link state (connection and disconnection) and the time period between successive changes in node's one-hop neighborhood. Using the proposed lumped group mobility model, the two VANET topology metrics are probabilistically characterized for different vehicular traffic flow conditions. Furthermore, the limiting behavior of a system of two-hop vehicles and the overlap-state of their coverage ranges is modeled, and the steady-state number of common vehicle neighbors between the two vehicles is approximately derived. The proposed mobility model will facilitate mathematical analysis in VANETs. The spatiotemporal VANET topology analysis provides a useful tool for the development of mobility-aware vehicular network protocols.

Mobility Modeling for Vehicular Communication Networks is designed for researchers, developers, and professionals involved with vehicular communications. It is also suitable for advanced-level students interested in communications, transport infrastructure, and infotainment applications.

Streaming Media with Peer-to-Peer Networks: Wireless Perspectives Nov 01 2021 The number of users who rely on the Internet to deliver multimedia content has grown significantly in recent years. As this consumer demand grows, so, too, does our dependency on a wireless and streaming infrastructure which delivers videos, podcasts, and other multimedia. **Streaming Media with Peer-to-Peer Networks: Wireless Perspectives** offers insights into current and future communication technologies for a converged Internet that promises soon to be dominated by multimedia applications, at least in terms of bandwidth consumption. The book will be of interest to industry managers, and will also serve as a valuable resource to students and researchers looking to grasp the dynamic issues surrounding video streaming and wireless network development.

Complex, Intelligent, and Software Intensive Systems Sep 30 2021 This book provides a platform of scientific interaction between the three challenging and closely linked areas of ICT-enabled-application research and development: software intensive systems, complex systems and intelligent systems. Software intensive systems strongly interact with other systems, sensors, actuators, devices, other software systems and users. More and more domains are using software intensive systems, e.g. automotive and telecommunication systems, embedded systems in general,

industrial automation systems and business applications. Moreover, web services offer a new platform for enabling software intensive systems. Complex systems research is focused on the overall understanding of systems rather than their components. Complex systems are characterized by the changing environments in which they interact. They evolve and adapt through internal and external dynamic interactions. The development of intelligent systems and agents, which are increasingly characterized by their use of ontologies and their logical foundations, offer impulses for both software intensive systems and complex systems. Recent research in the field of intelligent systems, robotics, neuroscience, artificial intelligence, and cognitive sciences are vital for the future development and innovation of software intensive and complex systems.

Progress in Artificial Intelligence Aug 18 2020 This book contains a selection of higher quality and reviewed papers of the 14th Portuguese Conference on Artificial Intelligence, EPIA 2009, held in Aveiro, Portugal, in October 2009. The 55 revised full papers presented were carefully reviewed and selected from a total of 163 submissions. The papers are organized in topical sections on artificial intelligence in transportation and urban mobility (AITUM), artificial life and evolutionary algorithms (ALEA), computational methods in bioinformatics and systems biology (CMBSB),

computational logic with applications (COLA), emotional and affective computing (EAC), general artificial intelligence (GAI), intelligent robotics (IROBOT), knowledge discovery and business intelligence (KDBI), multi-agent systems (MASTA) social simulation and modelling (SSM), text mining and application (TEMA) as well as web and network intelligence (WNI).

Bio-inspired Routing Protocols for Vehicular Ad-Hoc Networks

Aug 22 2023 Vehicular Ad-Hoc Networks (VANETs) play a key role to develop Intelligent Transportation Systems (ITS) aiming to achieve road safety and to guaranty needs of drivers and passengers, in addition to improve the transportation productivity. One of the most important challenges of this kind of networks is the data routing between VANET nodes which should be routed with high level of Quality of Service (QoS) to ensure receiving messages in the time. Then, the driver can take the appropriate decision to improve the road safety. In the literature, there are several routing protocols for VANETs which are more or less reliable to reach safety requirements. In this book, we start by describing all VANET basic concepts such as VANET definition, VANET versus Mobile ad-Hoc Network (MANET), architectures, routing definition and steps, Quality of Service (QoS) for VANET Routing, Metrics of evaluation, Experimentation, and simulation of VANETs, mobility patterns of VANET etc.

Moreover, different routing protocols for routing in VANETs will be described. We propose two main categories to be presented: classical routing and bio-inspired routing. Concerning classical VANET, main principles and all phases will be overviewed, as well as, their two sub-categories which are topological and geographical protocols. After that, we propose a new category called bio-inspired routing which is inspired by natural phenomenon such as Ant colony, Bee life, Genetic operators etc. We present also, some referential protocols as example of each category. In this book, we focus on the idea of how to apply bio-inspired principle into VANET routing to improve road safety, and to ensure QoS of vehicular applications.

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- [VANET](#)
- [Telematics Communication Technologies And Vehicular Networks Wireless Architectures And Applications](#)
- [Distributed Computing Innovations For Business Engineering And Science](#)
- [Microservices In Big Data Analytics](#)
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- [Simulating Urban Traffic](#)

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