Industrial assets (such as railway lines, roads, pipelines) are usually huge, span long distances, and can be divided into clusters or segments that provide different levels of functionality subject to different loads, degradations and environmental conditions, and their efficient management is necessary.
The aim of the book is to give comprehensive understanding about the use of autonomous vehicles (context of robotics) for the utilization of inspection and maintenance activities in industrial asset management in different accessibility and hazard levels. The usability of deploying inspection vehicles in an autonomous manner is explained with the emphasis on integrating the total process. Key Features Aims for solutions for maintenance and inspection problems provided by robotics, drones, unmanned air vehicles and unmanned ground vehicles Discusses integration of autonomous vehicles for inspection and maintenance of industrial assets Covers the industrial approach to inspection needs and presents what is needed from the infrastructure end Presents the requirements for robot designers to design an autonomous inspection and maintenance system Includes practical case studies from industries.

2013 International Conference on Electrical, Control and Automation Engineering (ECAE2013) aims to provide a forum for accessing to the most up-to-date and authoritative knowledge from both Electrical, Control and Automation Engineering. ECAE 2013 features unique mixed topics of Electrical Engineering, Automation, Control Engineering and so on. The goal of this conference is to bring researchers, engineers, and students to the areas of Electrical, Control and Automation Engineering to share experiences and original research contributions on those topics. Researchers and practitioners are invited to submit their contributions to ECAE 2013.

This book presents the outcomes of the 2017 International Conference on Applications and Techniques in Cyber Security and Intelligence, which focused on all aspects of techniques and applications in cyber and electronic security and intelligence research. The conference provides a forum for presenting and discussing innovative ideas, cutting-edge research findings, and novel techniques, methods and applications on all aspects of cyber and electronic security and intelligence.

The 2016 International Conference on Energy Science and Applied Technology (ESAT 2016) held on June 25-26 in Wuhan, China aimed to provide a platform for researchers, engineers, and academicians, as well as industrial professionals, to present their research results and development activities in energy science and engineering and its applied technology. The themes presented in Energy Science and Applied Technology ESAT 2016 are: Technologies in Geology, Mining, Oil and Gas; Renewable Energy, Bio-Energy and Cell Technologies; Energy Transfer and Conversion, Materials and Chemical Technologies; Environmental Engineering and Sustainable Development; Electrical and Electronic Technology, Power System Engineering; Mechanical, Manufacturing, Process Engineering; Control and Automation; Communications and Applied Information Technologies; Applied and Computational Mathematics; Methods and Algorithms Optimization;
The objective of this dissertation is to develop a Multi-Camera Lane Departure Warning (MCLDW) system and a framework to evaluate it. A Lane Departure Warning (LDW) system is a safety feature that is included in a few luxury automobiles. Using a single camera, it performs the task of informing the driver if a lane change is imminent. The core component of an LDW system is a lane detector, whose objective is to find lane markers on the road. Therefore, we start this dissertation by explaining the requirements of an ideal lane detector, and then present several algorithmic implementations that meet these requirements. After selecting the best implementation, we present the MCLDW methodology. Using a multi-camera setup, the MCLDW system combines the detected lane marker information from each camera's view to estimate the immediate distance between the vehicle and the lane marker, and signals a warning if this distance is under a certain threshold. Next, we introduce a procedure to create ground truth and a database of videos which serve as the framework for evaluation. Ground truth is created using an efficient procedure called Time-Slicing that allows the user to quickly annotate the true locations of the lane markers in each frame of the videos. Subsequently, we describe the details of a database of driving videos that has been put together to help establish a benchmark for evaluating existing lane detectors and LDW systems. Finally, we conclude the dissertation by citing the contributions of the research and discussing the avenues for future work.

Intelligent Road Vehicles examines specific aspects of intelligent vehicles such as enabling technologies, human factors and an analysis of social and economic impacts. The book is an invaluable resource for those pursuing deeper knowledge in the intelligent vehicles field, providing readers with an idea of current and future technologies, current projects and developments and the future of intelligent vehicles. Intelligent road vehicles are becoming a challenging area of research worldwide. Apart from the final applications and systems in vehicles, there are many enabling technologies that should be introduced. Communications and automation are two key areas for future automobiles. This book benefits from collaboration on the Thematic Network on Intelligent Vehicles led by Felipe Jimenez. Provides a general overview of different aspects related to intelligent road vehicles (sensors, applications, communications, automation, human factors, etc.) Addresses the different components and building blocks of intelligent vehicles in a single, comprehensive reference Explains how sensors are interpreted, including how different sensor readings are fused Addresses issues involved with avoiding collisions and other factors such as pot holes, unclear road lines or markings, and unexpected weather conditions.
In the twentieth century, logic finally found a number of important applications and various new areas of research originated then, especially after the development of computing and the progress of the correlated domains of knowledge (artificial intelligence, robotics, automata, logical programming, hypercomputation, etc.). This happened not only in the field of classical logics, but also in the general field of non-classical logics. This reveals an interesting trait of the history of logic: despite its theoretical character, it constitutes, at present, an extraordinarily important tool in all domains of knowledge, in the same way as philosophy, mathematics, natural science, the humanities and technology. Moreover, certain new logics were inspired by the needs of specific areas of knowledge, and various new techniques and methods have been created, in part influenced and guided by logical views. Advances in Technological Applications of Logical and Intelligent Systems contains papers on relevant technological applications of logical methods and some of their extensions and gives a clear idea of some current applications of logical (and similar) methods to numerous problems, including relevant new concepts and results, in particular those related to paraconsistent logic. This book is of interest to a wide audience: pure logicians, applied logicians, mathematicians, philosophers and engineers.

Unmanned ground vehicles (UGV) are expected to play a key role in the Army’s Objective Force structure. These UGVs would be used for weapons platforms, logistics carriers, and reconnaissance, surveillance, and target acquisition among other things. To examine aspects of the Army’s UGV program, assess technology readiness, and identify key issues in implementing UGV systems, among other questions, the Deputy Assistant Secretary of the Army for Research and Technology asked the National Research Council (NRC) to conduct a study of UGV technologies. This report discusses UGV operational requirements, current development efforts, and technology integration and roadmaps to the future. Key recommendations are presented addressing technical content, time lines, and milestones for the UGV efforts.

Proceedings of the FISITA 2012 World Automotive Congress are selected from nearly 2,000 papers submitted to the 34th FISITA World Automotive Congress, which is held by Society of Automotive Engineers of China (SAE-China) and the International Federation of Automotive Engineering Societies (FISITA). This proceedings focus on solutions for sustainable mobility in all areas of passenger car, truck and bus transportation. Volume 12: Intelligent Transport System (ITS) & Internet of Vehicles focuses on: •Driver Assistance System •V2X Communication Technology •Telematics and Navigation Systems •Eco Driving Technology •Harmonization and Regulation of ITS Systems Above all researchers, professional engineers and graduates in fields of automotive engineering, mechanical engineering and electronic engineering will benefit from this book. SAE-China is a national academic organization composed of enterprises and
professionals who focus on research, design and education in the fields of automotive and related industries. FISITA is the umbrella organization for the national automotive societies in 37 countries around the world. It was founded in Paris in 1948 with the purpose of bringing engineers from around the world together in a spirit of cooperation to share ideas and advance the technological development of the automobile.

This book presents best selected papers presented at the International Conference on Emerging Trends and Technologies on Intelligent Systems (ETTIS 2021) held from 4 – 5 March 2021 in online mode at C-DAC, Noida, India. The book includes current research works in the areas of artificial intelligence, big data, cyber-physical systems, and security in industrial/real-world settings. The book illustrates on-going research results, projects, surveying works, and industrial experiences that describe significant advances in all of the related areas.

This book constitutes the third part of the refereed proceedings of the International Conference on Life System Modeling and Simulation, LSM S 2014, and of the International Conference on Intelligent Computing for Sustainable Energy and Environment, ICSEE 2014, held in Shanghai, China, in September 2014. The 159 revised full papers presented in the three volumes of CCIS 461-463 were carefully reviewed and selected from 572 submissions. The papers of this volume are organized in topical sections on computational intelligence in utilization of clean and renewable energy resources, including fuel cell, hydrogen, solar and winder power, marine and biomass; intelligent modeling, control and supervision for energy saving and pollution reduction; intelligent methods in developing electric vehicles, engines and equipment; intelligent computing and control in distributed power generation systems; intelligent modeling, simulation and control of power electronics and power networks; intelligent road management and electricity marketing strategies; intelligent water treatment and waste management technologies; integration of electric vehicles with smart grid.

This book is open access under a CC BY 4.0 license. It relates to the III Annual Conference hosted by The Ministry of Education and Science of the Russian Federation in December 2016. This event has summarized, analyzed and discussed the interim results, academic outputs and scientific achievements of the Russian Federal Targeted Programme “Research and Development in Priority Areas of Development of the Russian Scientific and Technological Complex for 2014–2020.” It contains 75 selected papers from 6 areas.
considered priority by the Federal Targeted Programme: computer science, ecology & environment sciences; energy and energy efficiency; lifesciences; nanoscience & nanotechnology and transport & communications. The chapters report the results of the 3-years research projects supported by the Programme and finalized in 2016.

Mathematics—Advances in Research and Application: 2013 Edition is a ScholarlyBrief™ that delivers timely, authoritative, comprehensive, and specialized information about additional Research in a concise format. The editors have built Mathematics—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews™. You can expect the information about additional Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Mathematics—Advances in Research and Application: 2013 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

This book contains the selected, peer-reviewed manuscripts presented at the Conference on Multidisciplinary Engineering and Technology (COMET 2019), held at the University Kuala Lumpur Malaysian Spanish Institute (UniKL MSI), Kedah, Malaysia, from September 18 to 19, 2019. This event presented research being carried out in the field of mechanical, manufacturing, electrical and electronics for engineering and technology. This book also contains the manuscripts from the System Engineering and Energy Laboratory (SEELAB) research cluster, UniKL, which is actively doing research mainly focused on artificial intelligence, Internet of things, metal air batteries, advanced battery materials and energy material modelling fields. This book is the fourth edition of the progress in engineering technology, Advanced Structured Materials which provides in-depth ongoing research activities among academia of UniKL MSI.

"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.

This book presents the latest research findings, methods and development techniques related to Ubiquitous
and Pervasive Computing (UPC) as well as challenges and solutions from both theoretical and practical perspectives with an emphasis on innovative, mobile and internet services. With the proliferation of wireless technologies and electronic devices, there is a rapidly growing interest in Ubiquitous and Pervasive Computing (UPC). UPC makes it possible to create a human-oriented computing environment where computer chips are embedded in everyday objects and interact with physical world. It also allows users to be online even while moving around, providing them with almost permanent access to their preferred services. Along with a great potential to revolutionize our lives, UPC also poses new research challenges.

This book comprises the select proceedings of the International Conference on Power Engineering Computing and Control (PECCON) 2019. This volume covers several important topics such as optimal data selection and error-free data acquiring via artificial intelligence and machine learning techniques, information and communication technologies for monitoring and control of smart grid components, and data security in smart grid network. In addition, it also focuses on economics of renewable electricity generation, policies for distributed generation, smart eco-structures and systems. This book can be useful for beginners, researchers as well as professionals interested in the area of smart grid technology.

This book presents selected papers from the 10th International Workshop of Advanced Manufacturing and Automation (IWAMA 2020), held in Zhanjiang, Guangdong province, China, on October 12-13, 2020. Discussing topics such as novel techniques for manufacturing and automation in Industry 4.0 and smart factories, which are vital for maintaining and improving economic development and quality of life, it offers researchers and industrial engineers insights into implementing the concepts and theories of Industry 4.0, in order to effectively respond to the challenges posed by the 4th industrial revolution and smart factories.

This book constitutes the thoroughly refereed post-conference proceedings of the 7th Pacific Rim Symposium on Image and Video Technology, PSIVT 2015, held in Auckland, New Zealand, in November 2015. The total of 61 revised papers was carefully reviewed and selected from 133 submissions. The papers are organized in topical sections on color and motion, image/video coding and transmission, computational photography and arts, computer vision and applications, image segmentation and classification, video surveillance, biomedical image processing and analysis, object and pattern recognition, computer vision
and pattern recognition, image/video processing and analysis, and pattern recognition.

We welcome you to the First International Conference on Arts and Technology (ArtsIT 2009), hosted by CSIE of the National Ilan University and co-organized by the National Science Council, ICST, College of EECS at National Ilan University, Software Simulation Society in Taiwan, ISAC, TCA, NCHC, CREATE-NET, and Institute for Information Industry. ArtsIT 2009 was held in Yilan, Taiwan, during September 24–25, 2009. The conference comprised the following themes: • New Media Technologies (Evolutionary systems that create arts or display art works, such as tracking sensors, wearable computers, mixed reality, etc.) • Software Art (Image processing or computer graphics techniques that create arts, including algorithmic art, mathematic art, advanced modeling and rendering, etc.) • Animation Techniques (2D or 3D computer animations, AI-based animations, etc.) • Multimedia (Integration of different media, such as virtual reality systems, audio, performing arts, etc.) • Interactive Methods (Vision-based tracking and recognition, interactive art, etc.) The conference program started with an opening ceremony, followed by three keynote speeches and four technical sessions distributed over a period of two days. Two poster sessions, one hour each, were scheduled before the afternoon oral sessions. An Interactive Arts Exhibition was held in conjunction with ArtsIT 2009. Twelve well-known digital arts teams from Taiwan exhibited 15 artworks in this event, including 10 interactive installation arts, 4 video arts, and 1 digital print. The conference received around 50 submissions from 15 different countries.

This book constitutes the refereed proceedings of the 17th International Conference on Advanced Concepts for Intelligent Vision Systems, ACIVS 2016, held in Lecce, Italy, in October 2016. The 64 revised full papers presented in this volume were carefully selected from 137 submissions. They deal with classical low-level image processing techniques; image and video compression; 3D; security and forensics; and evaluation methodologies.

Cyber-Physical Systems (CPS) integrate computing and communication capabilities by monitoring and controlling the physical systems via embedded hardware and computers. This book brings together new and futuristic findings on IoT, Cyber Physical Systems and Robotics leading towards Automation and solving issues of various critical applications in Real-time. The book initially overviews the concepts of IoT, IIoT and Cyber Physical Systems followed by various critical applications and discusses the latest designs and developments that provide common solutions for the convergence of technologies. In addition, the book specifies methodologies, algorithms and other relevant architectures in various fields that include Automation, Robotics, Smart Agriculture and Industry 4.0. The book is intended for practitioners,
enterprise representatives, scientists, students and Ph.D Scholars in hopes of steering research further towards cyber physical systems design and development and implementation across various domains. Additionally, this book can be used as a secondary reference, or rather one-stop guide, by professionals for real-life implementation of cyber physical systems. The book highlights: "A Critical Coverage of various domains: IoT, Cyber Physical Systems, Industry 4.0, Smart Automation and related critical applications. "Advanced elaborations for target audiences to understand the conceptual methodology and future directions of cyber physical systems and IoT. "An approach towards Research Orientations to enable researchers to point out areas and scope for implementation of Cyber Physical Systems in several domains for better productivity.

This book gathers a collection of high-quality, peer-reviewed research papers presented at the International Conference on Intelligent Computing, Communication and Devices (ICCD 2018), which address three core dimensions of the intelligent sciences—intelligent computing, intelligent communication, and intelligent devices. Intelligent computing includes areas such as intelligent and distributed computing, intelligent grid and cloud computing, Internet of Things, soft computing and engineering applications, data mining and knowledge discovery, semantic and web technology, hybrid systems, agent computing, bioinformatics, and recommendation systems. In turn, intelligent communication is concerned with communication and network technologies, such as mobile broadband and all-optical networks, which are the key to groundbreaking advances in intelligent communication technologies. It includes communication hardware, software and networked intelligence, mobile technologies, machine-to-machine communication networks, speech and natural language processing, routing techniques and network analytics, wireless ad hoc and sensor networks, communications and information security, signal, image and video processing, network management, and traffic engineering. Lastly, intelligent devices refer to any equipment, instruments, or machines that have their own computing capability, and covers areas such as embedded systems, radiofrequency identification (RFID), radiofrequency microelectromechanical systems (RF MEMS), very large-scale integration (VLSI) design and electronic devices, analog and mixed-signal integrated circuit (IC) design and testing, microelectromechanical systems (MEMS) and Microsystems, solar cells and photonics, nanodevices, single electron and spintronic devices, space electronics, and intelligent robotics.

In the last few years the automobile design process is required to become more responsible and
responsibly related to environmental needs. Basing the automotive design not only on the appearance, the visual appearance of the vehicle needs to be thought together and deeply integrated with the power developed by the engine. The purpose of this book is to try to present the new technologies development scenario, and not to give any indication about the direction that should be given to the research in this complex and multi-disciplinary challenging field.

This book constitutes the refereed proceedings of the Third International Conference on Information, Communication and Computing Technology, ICICCT 2018, held in New Delhi, India, in May 2018. The 18 revised full papers presented in this volume were carefully reviewed and selected from 295 submissions. The papers are organized in topical sections on communication and network systems and emerging computing technologies.

The two volume set LNCS 5358 and LNCS 5359 constitutes the refereed proceedings of the 4th International Symposium on Visual Computing, ISVC 2008, held in Las Vegas, NV, USA, in December 2008. The 102 revised full papers and 70 poster papers presented together with 56 full and 8 poster papers of 8 special tracks were carefully reviewed and selected from more than 340 submissions. The papers are organized in topical sections on computer graphics, visualization, shape/recognition, video analysis and event recognition, virtual reality, reconstruction, motion, face/gesture, and computer vision applications. The 8 additional special tracks address issues such as object recognition, real-time vision algorithm implementation and application, computational bioimaging and visualization, discrete and computational geometry, soft computing in image processing and computer vision, visualization and simulation on immersive display devices, analysis and visualization of biomedical visual data, as well as image analysis for remote sensing data.

ICIAR 2004, the International Conference on Image Analysis and Recognition, was the 1st ICIAR conference, and was held in Porto, Portugal. ICIAR will be organized annually, and will alternate between Europe and North America. ICIAR 2005 will take place in Toronto, Ontario, Canada. The idea of offering these conferences came as a result of discussion between researchers in Portugal and Canada to encourage collaboration and exchange, mainly between these two countries, but also with the open participation of other countries, addressing recent advances in theory, methodology and applications. The response to the call for papers for ICIAR 2004 was very positive. From 316 full papers submitted, 210 were accepted (97 oral presentations, and 113 - sters). The review process was carried out by the Program Committee members and other reviewers; all are experts in various image analysis and recognition areas. Each paper was
reviewed by at least two reviewing parties. The high quality of the papers in these proceedings is attributed first to the authors, and second to the quality of the reviews provided by the experts. We would like to thank the authors for responding to our call, and we wholeheartedly thank the reviewers for their excellent work in such a short amount of time. We are especially indebted to the Program Committee for their efforts that allowed us to set up this publication. We were very pleased to be able to include in the conference, Prof. Murat Kunt from the Swiss Federal Institute of Technology, and Prof. Mario Figueiredo, of the Instituto Superior Tecnicno, in Portugal.

The aim of the book is to provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to the emerging areas of Web Computing, Intelligent Systems and Internet Computing. As the Web has become a major source of information, techniques and methodologies that extract quality information are of paramount importance for many Web and Internet applications. Data mining and knowledge discovery play key roles in many of today’s prominent Web applications such as e-commerce and computer security. Moreover, the outcome of Web services delivers 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 build intelligent systems and algorithms that work and react like humans. The AI techniques and computational intelligence are powerful tools for learning, adaptation, reasoning and planning. They have the potential to become enabling technologies for the future intelligent networks. Recent research in the field of intelligent systems, robotics, neuroscience, artificial intelligence and cognitive sciences are very important for the future development and innovation of Web and Internet applications.

This book and its companion volume, LNCS vols. 7928 and 7929 constitute the proceedings of the 4th International Conference on Swarm Intelligence, ICSI 2013, held in Harbin, China in June 2013. The 129 revised full papers presented were carefully reviewed and selected from 268 submissions. The papers are organized in 22 cohesive sections covering all major topics of swarm intelligence research and developments. The topics covered in this volume are: hybrid algorithms, swarm-robot and multi-agent systems, support vector machines, data mining methods, system and information security, intelligent control, wireless sensor network, scheduling and path planning, image and video processing, and other applications.
The Proceedings of The Third International Conference on Communications, Signal Processing and Systems provides the state-of-art developments of Communications, Signal Processing and Systems. The conference covered such topics as wireless communications, networks, systems, signal processing for communications. This book is a collection of contributions coming out of Third International Conference on Communications, Signal Processing and Systems held on July 2014 in Hohhot, Inner Mongolia, China.

These proceedings showcase the best papers selected from more than 500 submissions, and introduce readers to the latest research topics and developmental trends in the theory and application of M M E S E. The integrated research topic Man–Machine–Environment System Engineering (M M E S E) was first established in China by Professor Shengzhao Long in 1981, with direct support from one of the greatest modern Chinese scientists, Xuesen Qian. In a letter to Long from October 22nd, 1993, Qian wrote: “You have created a very important modern science and technology in China!” M M E S E studies the optimum combination of man–machine–environment systems. In this system, “man” refers to the people in the workplace (e.g. operators, decision-makers); “machine” is the general name for any object controlled by man (including tools, machinery, computers, systems and technologies), and “environment” describes the specific working conditions under which man and machine interact (e.g. temperature, noise, vibration, hazardous gases, etc.). The three main goals of optimizing man–machine–environment systems are to ensure safety, efficiency and economy. These proceedings present interdisciplinary studies on concepts and methods from physiology, psychology, system engineering, computer science, environmental science, management, education, and other related disciplines. They offer a valuable resource for all researchers and professionals whose work involves interdisciplinary areas touching on M M E S E subjects.

The 30-volume set, comprising the LNCS books 12346 until 12375, constitutes the refereed proceedings of the 16th European Conference on Computer Vision, ECCV 2020, which was planned to be held in Glasgow, UK, during August 23-28, 2020. The conference was held virtually due to the COVID-19 pandemic. The 1360 revised papers presented in these proceedings were carefully reviewed and selected from a total of 5025 submissions. The papers deal with topics such as computer vision; machine learning; deep neural networks; reinforcement learning; object recognition; image classification; image processing; object detection; semantic segmentation; human pose estimation; 3d reconstruction; stereo vision; computational photography; neural networks; image coding; image reconstruction; object recognition; motion estimation.

Advanced Driver Intention Inference: Theory and Design describes one of the most important function for future ADAS, namely, the driver intention inference. The book contains the state-of-art knowledge on the
construction of driver intention inference system, providing a better understanding on how the human
driver intention mechanism will contribute to a more naturalistic on-board decision system for automated
vehicles. Features examples of using machine learning/deep learning to build industry products Depicts
future trends for driver behavior detection and driver intention inference Discuss traffic context
perception techniques that predict driver intentions such as Lidar and GPS

This book covers advances in system, control and computing. This book gathers selected high-quality
research papers presented at the International Conference on Advances in Systems, Control and Computing
(AISCC 2020), held at MNIT Jaipur during February 27–28, 2020. The first part is advances in systems and
it is dedicated to applications of the artificial neural networks, evolutionary computation, swarm
intelligence, artificial immune systems, fuzzy system, autonomous and multi-agent systems, machine
learning, other intelligent systems and related areas. In the second part, machine learning and other
intelligent algorithms for design of control/control analysis are covered. The last part covers
advancements, modifications, improvements and applications of intelligent algorithms.

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