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MARLEY LUCIANO

Autonomous Technologies Springer Nature

This book sets out a possible trajectory for the co-development of legal responsibility on the one hand and artificial intelligence and the machines and systems driven by it on the other. As autonomous technologies become more sophisticated it will be harder to attribute harms caused by them to the humans who design or work with them. This will put pressure on legal responsibility and autonomous technologies to co-evolve. Mark Chinen illustrates how these factors strengthen incentives to develop even more advanced systems, which in turn strengthens nascent calls to grant legal and moral status to autonomous machines. This book is a valuable resource for scholars and practitioners of legal doctrine, ethics, and autonomous technologies.

Perspectives on Digital Humanism GRIN Verlag

The technology and engineering behind autonomous driving is advancing at pace. This book presents the latest technical advances and the economic, environmental and social impact driverless cars will have on individuals and the automotive industry.

The Work of the Future Artech House

For years, we've assumed that we are headed toward a world where vehicles will be autonomous and shared, assuring hassle-free and seamless mobility. But is this a "double leap" too big to accept? What hurdles stand in the way of shared autonomy, and what steps do we need to take to overcome them?

Autonomous Ground Vehicles Brookings Institution Press

This book aims to teach the core concepts that make Self-driving vehicles (SDVs) possible. It is aimed at people who want to get their teeth into self-driving vehicle technology, by providing genuine technical insights where other books just skim the surface. The book tackles everything from sensors and perception to functional safety and cybersecurity. It also passes on some practical know-how and discusses concrete SDV applications, along with a discussion of where this technology is heading. It will serve as a good starting point for software developers or professional engineers who are eager to pursue a career in this exciting field and want to learn more about the basics of SDV algorithms. Likewise, academic researchers, technology enthusiasts, and journalists will also find the book useful. Key Features: Offers a comprehensive technological walk-through of what really matters in SDV development: from hardware, software, to functional safety and cybersecurity. Written by an active practitioner with extensive experience in series development and research in the fields of Advanced Driver Assistance Systems (ADAS) and Autonomous Driving Covers theoretical fundamentals of state-of-the-art SLAM, multi-sensor data fusion, and other SDV algorithms. Includes practical information and hands-on material with Robot Operating System (ROS) and Open Source Car Control (OSCC). Provides an overview of the strategies, trends, and applications which companies are pursuing in this field at present as well as other technical insights from the industry.

Our Robots, Ourselves Emerald Group Publishing

This book takes a look at fully automated, autonomous vehicles and discusses many open questions: How can autonomous vehicles be integrated into the current transportation system with diverse users and human drivers? Where do automated vehicles fall under current legal frameworks? What risks are associated with automation and how will society respond to these risks? How will the marketplace react to automated vehicles and what changes may be necessary for companies? Experts from Germany and the United States define key societal, engineering, and mobility issues related to the automation of vehicles. They discuss the decisions programmers of automated vehicles must make to enable vehicles to perceive their environment, interact with other road users, and choose actions that may have ethical consequences. The authors further identify expectations

and concerns that will form the basis for individual and societal acceptance of autonomous driving. While the safety benefits of such vehicles are tremendous, the authors demonstrate that these benefits will only be achieved if vehicles have an appropriate safety concept at the heart of their design. Realizing the potential of automated vehicles to reorganize traffic and transform mobility of people and goods requires similar care in the design of vehicles and networks. By covering all of these topics, the book aims to provide a current, comprehensive, and scientifically sound treatment of the emerging field of "autonomous driving".

Internet of Things in Autonomous Car Industry. An Overview FriesenPress

The truth of the matter is that our deficiency does not lie in the want of well-verified "facts." What we lack is our bearings. The contemporary experience of things technological has repeatedly confounded our vision, our expectations, and our capacity to make intelligent judgments. Categories, arguments, conclusions, and choices that would have been entirely obvious in earlier times are obvious no longer. Patterns of perceptive thinking that were entirely reliable in the past now lead us systematically astray. Many of our standard conceptions of technology reveal a disorientation that borders on dissociation from reality. And as long as we lack the ability to make our situation intelligible, all of the "data" in the world will make no difference. From the Introduction *Advancing Autonomous Systems* National Academies Press

The automobile industry is one of Germany's strongest and most important industries. But while German carmakers still struggle with the diesel emission scandal, the whole sector is facing a great revolution. Various companies are working intensively on the development of the next major milestone in mobility that incorporates the megatrends of electric, connected, shared and autonomous driving. The combination of these trends can reduce CO2 emissions and eliminate a significant portion of traffic jams while increasing mobility and space utilization in urban areas. The technology of autonomous driving is perceived to be disruptive and thus many challenges and obstacles remain before the new technology becomes superior to human drivers. Jan Kachelmaier explores the status quo of the development of autonomous vehicles at German Manufacturers. The author identifies future impediments until market entrance and recommends managerial actions. Keywords: - Autuonomous Vehicles; - Artificial Intelligence; - Germany; - Transportation; - Car Sharing

Elsevier

Autonomous Vehicle TechnologyRand Corporation

Autonomous Driving Springer Nature

The automotive industry appears close to substantial change engendered by "self-driving" technologies. This technology offers the possibility of significant benefits to social welfare—saving lives; reducing crashes, congestion, fuel consumption, and pollution; increasing mobility for the disabled; and ultimately improving land use. This report is intended as a guide for state and federal policymakers on the many issues that this technology raises.

Being Driven Autonomous Vehicle Technology

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

respecting universal human rights. It is a call to shaping technologies in accordance with human values and needs.

Autonomous Vehicles Springer Nature

This book is the first technical overview of autonomous vehicles written for a general computing and engineering audience. The authors share their practical experiences of creating autonomous vehicle systems. These systems are complex, consisting of three major subsystems: (1) algorithms for localization, perception, and planning and control; (2) client systems, such as the robotics operating system and hardware platform; and (3) the cloud platform, which includes data storage, simulation, high-definition (HD) mapping, and deep learning model training. The algorithm subsystem extracts meaningful information from sensor raw data to understand its environment and make decisions about its actions. The client subsystem integrates these algorithms to meet real-time and reliability requirements. The cloud platform provides offline computing and storage capabilities for autonomous vehicles. Using the cloud platform, we are able to test new algorithms and update the HD map—plus, train better recognition, tracking, and decision models. This book consists of nine chapters. Chapter 1 provides an overview of autonomous vehicle systems; Chapter 2 focuses on localization technologies; Chapter 3 discusses traditional techniques used for perception; Chapter 4 discusses deep learning based techniques for perception; Chapter 5 introduces the planning and control sub-system, especially prediction and routing technologies; Chapter 6 focuses on motion planning and feedback control of the planning and control subsystem; Chapter 7 introduces reinforcement learning-based planning and control; Chapter 8 delves into the details of client systems design; and Chapter 9 provides the details of cloud platforms for autonomous driving. This book should be useful to students, researchers, and practitioners alike. Whether you are an undergraduate or a graduate student interested in autonomous driving, you will find herein a comprehensive overview of the whole autonomous vehicle technology stack. If you are an autonomous driving practitioner, the many practical techniques introduced in this book will be of interest to you. Researchers will also find plenty of references for an effective, deeper exploration of the various technologies.

Army of None: Autonomous Weapons and the Future of War Clever Books

Self-driving cars are no longer in the realm of science fiction, thanks to the integration of numerous automotive technologies that have matured over many years. Technologies such as adaptive cruise control, forward collision warning, lane departure warning, and V2V/V2I communications are being merged into one complex system. The papers in this compendium were carefully selected to bring the reader up to date on successful demonstrations of autonomous vehicles, ongoing projects, and what the future may hold for this technology. It is divided into three sections: overview, major design and test collaborations, and a sampling of autonomous vehicle research projects. The comprehensive overview paper covers the current state of autonomous vehicle research and development as well as obstacles to overcome and a possible roadmap for major new technology developments and collaborative relationships. The section on major design and test collaborations covers Sartre, DARPA contests, and the USDOT and the Crash Avoidance Metrics Partnership-Vehicle Safety Communications (CAMP-VSC2) Consortium. The final section presents seven SAE papers on significant recent and ongoing research by individual companies on a variety of approaches to autonomous vehicles. This book will be of interest to a wide range of readers: engineers at automakers and electronic component suppliers; software engineers; computer systems analysts and architects; academics and researchers within the electronics, computing, and automotive industries; legislators, managers, and other decision-makers in the government highway sector; traffic safety professionals; and insurance and legal practitioners.

Autonomous Vehicles Rand Corporation

Autonomous vehicles (AVs) have been used in military operations for more than 60 years, with torpedoes, cruise missiles, satellites, and target drones being early examples.¹ They have also been widely used in the civilian sector—for example, in the disposal of explosives, for work and measurement in radioactive environments, by various offshore industries for both creating and maintaining undersea facilities, for atmospheric and undersea research, and by industry in automated and robotic manufacturing. Recent military experiences with AVs have consistently demonstrated their value in a wide range of missions, and anticipated developments of AVs hold promise for increasingly significant roles in future naval operations. Advances in AV capabilities are enabled (and limited) by progress in the technologies of computing and robotics, navigation, communications and networking, power sources and propulsion, and materials. *Autonomous Vehicles in Support of Naval Operations* is a forward-looking discussion of the naval operational environment and vision for the Navy and Marine Corps and of naval mission needs and potential applications and limitations of AVs. This report considers the potential of AVs for naval operations, operational needs and technology issues, and opportunities for improved operations.

Autonomous Technology and Political Thought CRC Press

Why the United States lags behind other industrialized countries in sharing the benefits of innovation with workers and how we can remedy the problem. The United States has too many low-quality, low-wage jobs. Every country has its share, but those in the United States are especially poorly paid and often without benefits. Meanwhile, overall productivity increases steadily and new technology has transformed large parts of the economy, enhancing the skills and paychecks of higher paid knowledge workers. What's wrong with this picture? Why have so many workers benefited so little from decades of growth? *The Work of the Future* shows that technology is neither the problem nor the solution. We can build better jobs if we create institutions that leverage technological innovation and also support workers through long cycles of technological transformation. Building on findings from the multiyear MIT Task Force on the Work of the Future, the book argues that we must foster institutional innovations that complement technological change. Skills programs that emphasize work-based and hybrid learning (in person and online), for example, empower workers to become

and remain productive in a continuously evolving workplace. Industries fueled by new technology that augments workers can supply good jobs, and federal investment in R&D can help make these industries worker-friendly. We must act to ensure that the labor market of the future offers benefits, opportunity, and a measure of economic security to all.

Introduction to Self-Driving Vehicle Technology Rand Corporation

Take a look at the vehicle sitting in your driveway. It may be the last one you ever own. With an estimated 33 million fully autonomous cars and taxis projected to hit the road by 2040, an automotive renaissance is soon to be upon us. Personal car ownership currently costs the average medium-sized sedan owner \$9,282 annually. But personal car ownership may soon be a thing of the past. The A.I.-powered machines of the future will be doing the driving for us. Autonomous vehicles will be the most disruptive technology ever deployed by mankind.

Autonomous Vehicles in Support of Naval Operations Troubador Publishing Ltd

This edited book aims to address challenges facing the deployment of autonomous vehicles. Autonomous vehicles were predicted to hit the road by 2017. Even though a high degree of automation may have been achieved, vehicles that can drive autonomously under all circumstances are not yet commercially available, and the predictions have been adjusted. Now, experts even say that we are still decades away from fully autonomous vehicles. In this volume, the authors form a multidisciplinary team of experts to discuss some of the reasons behind this delay. The focus is on three areas: business, technology, and law. The authors discuss how the traditional car manufacturers have to devote numerous resources to the development of a new business model, in which the sole manufacturing of vehicles may no longer be sufficient. In addition, the book seeks to introduce how technological challenges are creating a shift toward connected autonomous vehicles. Further, it provides insight into how regulators are responding to the insufficiently tested technology and how lawyers try to answer the liability question for accidents with these autonomous vehicles.

Law and Autonomous Machines SAE International

This book sets out a possible trajectory for the co-development of legal responsibility on the one hand and artificial intelligence and the machines and systems driven by it on the other. As autonomous technologies become more sophisticated it will be harder to attribute harms caused by them to the humans who design or work with them. This will put pressure on legal responsibility and autonomous technologies to co-evolve. Mark Chinen illustrates how these factors strengthen incentives to develop even more advanced systems, which in turn inspire nascent calls to grant legal and moral status to autonomous machines. This book is a valuable resource for scholars and practitioners of legal doctrine, ethics and autonomous technologies, as well as legislators and policy makers, and engineers and designers who are interested in the broader implications of their work.

Autonomous Technologies WIPO

Autonomous Vehicles and Future Mobility presents novel methods for examining the long-term effects on individuals, society, and on the environment for a wide range of forthcoming transport scenarios, such as self-driving vehicles, workplace mobility plans, demand responsive transport analysis, mobility as a service, multi-source transport data provision, and door-to-door mobility. With the development and realization of new mobility options comes change in long-term travel behavior and transport policy. This book addresses these impacts, considering such key areas as the attitude of users towards new services, the consequences of introducing new mobility forms, the impacts of changing work related trips, and more. By examining and contextualizing innovative transport solutions in this rapidly evolving field, the book provides insights into the current implementation of these potentially sustainable solutions. It will serve as a resource of general guidelines and best practices for researchers, professionals and policymakers. Covers hot topics, including travel behavior change, autonomous vehicle impacts, intelligent solutions, mobility planning, mobility as a service, sustainable solutions, and more Examines up-to-date models and applications using novel technologies Contains contributions from leading scholars around the globe Includes case studies with the latest research results

Autonomous Vehicles Plus Springer Nature

"The book I had been waiting for. I can't recommend it highly enough." —Bill Gates The era of autonomous weapons has arrived. Today around the globe, at least thirty nations have weapons that can search for and destroy enemy targets all on their own. Paul Scharre, a leading expert in next-generation warfare, describes these and other high tech weapons systems—from Israel's Harpy drone to the American submarine-hunting robot ship Sea Hunter—and examines the legal and ethical issues surrounding their use. "A smart primer to what's to come in warfare" (Bruce Schneier), *Army of None* engages military history, global policy, and cutting-edge science to explore the implications of giving weapons the freedom to make life and death decisions. A former soldier himself, Scharre argues that we must embrace technology where it can make war more precise and humane, but when the choice is life or death, there is no replacement for the human heart.

Autonomous Vehicles and the Law John Wiley & Sons

In the near future, we will witness vehicles with the ability to provide drivers with several advanced safety and performance assistance features. Autonomous technology in ground vehicles will afford us capabilities like intersection collision warning, lane change warning, backup parking, parallel parking aids, and bus precision parking. Providing you with a practical understanding of this technology area, this innovative resource focuses on basic autonomous control and feedback for stopping and steering ground vehicles. Covering sensors, estimation, and sensor fusion to percept the vehicle motion and surrounding objects, this unique book explains the key aspects that makes autonomous vehicle behavior possible. Moreover, you find detailed examples of fusion and Kalman filtering. From maps, path planning, and obstacle avoidance scenarios...to cooperative mobility among autonomous vehicles, vehicle-to-vehicle communication, and vehicle-to-infrastructure communication, this forward-looking book presents the most critical topics in the field today.

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