

Self Driving Cars The Next Revolution Kpmg

Since the automobile first rolled off the assembly line in River Rouge, Michigan, cars in America have offered independence, mobility, and adventure. Now, profound changes are coming to our roads. Technological advancements are progressing at a rapid pace and fully self-driving cars will be here sooner than we think. We are facing an opportunity to expand the options for transportation by car while also making it smarter and safer. Technological challenges remain, but perhaps the greatest hurdle to the deployment of these vehicles may be a regulatory environment, a patchwork of state and Federal laws unable to keep pace with these evolving technologies. Everything from driver assist functions like lane departure warnings to completely autonomous vehicles will transform transportation and mobility, profoundly affecting safety issues that have confronted society since the invention of the car. In 2014, 32,675 Americans lost their lives due to car accidents. More than 90 percent of these tragedies are linked to human error, driver choices, intoxication, and distraction. Automated vehicles have the potential to reduce that number dramatically. Unlike human drivers, automated vehicles don't get tired, drunk, or distracted. In addition to helping reduce accidents on American roads, autonomous vehicles promise to improve the quality of life for older Americans and members of the disabled community.

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.

Self-Driving Cars The New Way Forward Twenty-First Century Books™

Examines the progress in self-driving cars, looks at the science behind them, and discusses how they will shape our world in the future--

Changing Lives Through Self-Driving Cars

The Future of Self-driving Cars

Playful Rhyming Picture Book about Autonomous Cars for Kids Ages 3-8

Self-Driving Vehicles and Enabling Technologies

Robot, Take the Wheel

Aria and the Self-Driving Car (Tinker Tales)

Explore self-driving car technology using deep learning and artificial intelligence techniques and libraries such as TensorFlow, Keras, and OpenCV Key Features Build and train powerful neural network models to build an autonomous car Implement computer vision, deep learning, and AI techniques to create automotive algorithms Overcome the challenges faced while automating different aspects of driving using modern Python libraries and architectures Book Description Thanks to a number of recent breakthroughs, self-driving car technology is now an emerging subject in the field of artificial intelligence and has shifted data scientists' focus to building autonomous cars that will transform the automotive industry. This book is a comprehensive guide to use deep learning and computer vision techniques to develop autonomous cars. Starting with the basics of self-driving cars (SDCs), this book will take you through the deep neural network techniques required to get up and running with building your autonomous vehicle. Once you are comfortable with the basics, you'll delve into advanced

computer vision techniques and learn how to use deep learning methods to perform a variety of computer vision tasks such as finding lane lines, improving image classification, and so on. You will explore the basic structure and working of a semantic segmentation model and get to grips with detecting cars using semantic segmentation. The book also covers advanced applications such as behavior-cloning and vehicle detection using OpenCV, transfer learning, and deep learning methodologies to train SDCs to mimic human driving. By the end of this book, you'll have learned how to implement a variety of neural networks to develop your own autonomous vehicle using modern Python libraries. What you will learn

Implement deep neural network from scratch using the Keras library

Understand the importance of deep learning in self-driving cars

Get to grips with feature extraction techniques in image processing using the OpenCV library

Design a software pipeline that detects lane lines in videos

Implement a convolutional neural network (CNN) image classifier for traffic signal signs

Train and test neural networks for behavioral-cloning by driving a car in a virtual simulator

Discover various state-of-the-art semantic segmentation and object detection architectures

Who this book is for

If you are a deep learning engineer, AI researcher, or anyone looking to implement deep learning and computer vision techniques to build self-driving blueprint solutions, this book is for you. Anyone who wants to learn how various automotive-related algorithms are built, will also find this book useful. Python programming experience, along with a basic understanding of deep learning, is necessary to get the most of this book.

A practical guide to learning visual perception for self-driving cars for computer vision and autonomous system engineers

Key Features

Explore the building blocks of the visual perception system in self-driving cars

Identify objects and lanes to define the boundary of driving surfaces using open-source tools like OpenCV and Python

Improve the object detection and classification capabilities of systems with the help of neural networks

Book Description

The visual perception capabilities of a self-driving car are powered by computer vision. The work relating to self-driving cars can be broadly classified into three components - robotics, computer vision, and machine learning. This book provides existing computer vision engineers and developers with the unique opportunity to be associated with this booming field. You will learn about computer vision, deep learning, and depth perception applied to driverless cars. The book provides a structured and thorough introduction, as making a real self-driving car is a huge cross-functional effort. As you progress, you will cover relevant cases with working code, before going on to understand how to use OpenCV, TensorFlow and Keras to analyze video streaming from car cameras. Later, you will learn how to interpret and make the most of lidars (light detection and ranging) to identify obstacles and localize your position. You'll even be able to tackle core challenges in self-driving cars such as finding lanes, detecting pedestrian and crossing lights, performing semantic segmentation, and writing a PID controller. By the end of this book, you'll be equipped with the

skills you need to write code for a self-driving car running in a driverless car simulator, and be able to tackle various challenges faced by autonomous car engineers. What you will learn

- Understand how to perform camera calibration
- Become well-versed with how lane detection works in self-driving cars using OpenCV
- Explore behavioral cloning by self-driving in a video-game simulator
- Get to grips with using lidars
- Discover how to configure the controls for autonomous vehicles
- Use object detection and semantic segmentation to locate lanes, cars, and pedestrians
- Write a PID controller to control a self-driving car running in a simulator

Who this book is for This book is for software engineers who are interested in learning about technologies that drive the autonomous car revolution. Although basic knowledge of computer vision and Python programming is required, prior knowledge of advanced deep learning and how to use sensors (lidar) is not needed.

Cars have come a long way thanks to technology, from Model T cars to cars that drive themselves. In *Self-Driving Cars in the Disruptors in Tech* series, readers will discover how autonomous driving technology has and continues to disrupt industries from car manufacturers to city infrastructures. Series includes a table of contents, tech-forward sidebars, a timeline, glossary, index, and author biography.

The fight for the future of the city street between pedestrians, street railways, and promoters of the automobile between 1915 and 1930. Before the advent of the automobile, users of city streets were diverse and included children at play and pedestrians at large. By 1930, most streets were primarily a motor thoroughfares where children did not belong and where pedestrians were condemned as "jaywalkers." In *Fighting Traffic*, Peter Norton argues that to accommodate automobiles, the American city required not only a physical change but also a social one: before the city could be reconstructed for the sake of motorists, its streets had to be socially reconstructed as places where motorists belonged. It was not an evolution, he writes, but a bloody and sometimes violent revolution. Norton describes how street users struggled to define and redefine what streets were for. He examines developments in the crucial transitional years from the 1910s to the 1930s, uncovering a broad anti-automobile campaign that reviled motorists as "road hogs" or "speed demons" and cars as "juggernauts" or "death cars." He considers the perspectives of all users—pedestrians, police (who had to become "traffic cops"), street railways, downtown businesses, traffic engineers (who often saw cars as the problem, not the solution), and automobile promoters. He finds that pedestrians and parents campaigned in moral terms, fighting for "justice." Cities and downtown businesses tried to regulate traffic in the name of "efficiency." Automotive interest groups, meanwhile, legitimized their claim to the streets by invoking "freedom"—a rhetorical stance of particular power in the United States. *Fighting Traffic* offers a new look at both the origins of the automotive city in America and how social groups shape technological change.

Applied Deep Learning and Computer Vision for Self-Driving Cars
New Advances in AI Autonomous Driverless Self-Driving Cars

Ghost Road: Beyond the Driverless Car

Practical Advances in Artificial Intelligence (AI) and Machine Learning

The Future is Autonomous

The Tech Behind Self-Driving Cars

This is a ground breaking book by industry thought leader and global AI expert, Dr. Lance Eliot, and is based on his popular AI Insider series and podcasts. This fascinating book provides next wave advances for the advent of AI self-driving driverless cars. Included too are keen insights about the practical application of Artificial Intelligence (AI) and Machines Learning (ML).

When human drivers let intelligent software take the wheel: the beginning of a new era in personal mobility.

Self-driving cars mark the next great shift in mass transportation. Learn about early attempts at self-driving technology, the benefits of driverless cars, controversies surrounding the new technology, innovations that make self-driving cars possible, and the industry's major players. This emerging "disruptive" technology has its roots in the work of engineers and futurists dating back decades. Author Michael Fallon traces how the software and hardware for self-driving vehicles developed through the years, including major milestones, notable misfires, and efforts from the public and private sectors. He also spotlights recent breakthroughs that have made self-driving vehicles viable on a mass scale, along with the public debate that these breakthroughs have created. This ground-breaking and insider look at cybernetic self-driving cars provides a state-of-the-art exploration of how advances in AI and machine learning are enabling the advent of self-driving cars.

Artificial Intelligence and Machine Learning

How the Driverless Revolution will Change the World

Have You Seen a Self-Driving Car?

Autonomous Vehicle Technology

Autonomous Vehicle Driverless Self-Driving Cars and Artificial Intelligence

The Next Wave AI Self-Driving Cars

Top expert Dr. Lance B. Eliot provides the latest new insights about AI Autonomous Vehicles (AV) that are emerging as driverless self-driving cars and are progressively appearing on our roadways and byways. Vital issues he addresses include present and future technological advances, societal readiness, business aspects, economic considerations, and other ramifications about how this disruptive innovation will transform the world. Referred to as the "AI Insider" and currently serving as the Executive Director of the Cybernetic Self-

Driving Car Institute for Techbrium Inc., he provides a no-holds-barred analysis of how Artificial Intelligence and Machine Learning are both a strength and a potential weakness in the effort toward developing true SAE Level 5 self-driving cars.

Readers get acquainted with the people behind today's most cutting-edge technologies in the self-driving car tech field--from bright ideas to cool new products--and inspires readers to consider a high-tech future career. Careers in Self-Driving Car Technology introduces six exciting careers and features sidebar activities that invite readers to Imagine That! and Dig Deeper! Includes table of contents, glossary, index, and supplementary backmatter.

Most people spend a lot of time driving. But what if they could simply choose a destination and relax, not needing to pay attention to speed limits, traffic, or other worries on the road? Some of today's most forward-thinking engineers are working to

Once considered a possibility of the distant future, the technology for self-driving vehicles may soon be fully realized and widely available. In this timely resource, young readers will discover how self-driving cars work, how they move safely about the road, and how these amazing innovations have evolved from the automobile as we know it.

No One at the Wheel

How Self-Driving Cars Will Impact Society

The US and China Race to Develop the Driverless Car

Explore visual perception, lane detection, and object classification with Python 3 and OpenCV 4

Technical, Legal and Social Aspects

Intelligent Cars and the Road Ahead

Within the next decade, cars are expected to steer, accelerate, brake, and perform all other tasks on their own with no assistance from passengers behind the wheel. But there are many hurdles yet to overcome before completely autonomous vehicles are common. Some of these hurdles involve developing new technology, but others include convincing people that self-driving cars will be safe and reliable.

Self Driving Cars offer new alternatives to the way we look at driving. From advances in computers, cameras, and technologies; Self Driving cars offer many benefits to drivers and passengers. Correlates with STEM instruction. Includes glossary, websites, and bibliography for further reading. Correlations available on publisher's website.

From Amazon KDP Select All-Star Award Winning Tinker Toddler Series! VROOM VROOM! BEEP BEEP! Follow Aria on this rhyming

adventure as they take their first ride in a self-driving car and encounter circumstances that are ...well...unplanned. **Key Features:** **EARLY LEARNING:** Great for your budding genius (and you) to learn about emerging technology that will become part of your child's everyday life! **Bolded key words** to grow your child's vocabulary throughout the story. Recommended for ages 3-8 (preschool-first graders and for those new to the topic). Great for those interested in early **STEM** learning. **VIBRANT ILLUSTRATIONS:** Simple, bold, and colorful illustrations to grab the child's attention. **RHYMING STORY:** Playful, fun and engaging story introducing various challenges self-driving cars face and how they navigate them (all told in rhyme). When read multiple times, parents can prompt children to remember key words that were part of the rhyme. **GLOSSARY:** Kid friendly glossary provided in the back for parents to support (and enhance) the child's learning every time the book is read. **ACTIVITY:** Drawing activity in the back of the book inspiring kids to think about their own self-driving car and all the features they would want built in. **RELEVANT:** Self-driving cars are both our present and our future. This book will introduce basic concepts, key technology (**RADAR, LIDAR, Level 0-5, etc**), and challenges (traffic jams, storms, parking, etc), self-driving cars must face (Elon Musk's Tesla, Amazon's Zoox, NuTonomy, Google's Waymo, etc) in a very simple, fun, picture book story format easily digestible by kids 3-8. "In the city of Smartville, one cool winter day, young Aria is eager to get on her way. We'll have an adventure! This trip will be grand! I can't wait for the things I have planned. Traveling far? Yes, we certainly are! On our trip, we will take the new self-driving car!" The colorful, beautiful, and visually stimulating illustrations and easy to understand rhyming text will encourage the child's sense of wonder, adventure, and curiosity (and might stimulate your senses too)! As Google and Apple join the race to deliver the first self-driving cars and next-level electric vehicles, conventional automakers are being forced to compete -- and collaborate -- in new and innovative ways. Auto manufacturing heavyweights are partnering with telecom providers, Internet companies, universities and government agencies to share ideas, resources and costs, and accelerate the pace of delivery. The appetite for change is robust, with the global vehicle

industry spending US\$102 billion annually on R&D. Projects that plan to deliver the first self-driving cars by 2020 are incorporating a spate of sensor and connectivity features that drivers could use to control smart-home features or communicate with drones from their cars. Already, self-driving mass transit buses have completed test runs in China, Greece and Singapore.

Why Self-Driving Car Technology Will Usher in a New Age of Prosperity and Disruption

Autonorama

Autonomous Driving

Disrupting Traffic

The Race to Create the Autonomous Car

A Guide for Policymakers

As the technology behind self-driving cars gets better and better, these vehicles could soon change the way people travel. With this book, students learn about the past, present, and future of technological innovation. Fun, engaging text introduces readers to new ideas and builds on technology concepts they may already know. Additional tools, including a glossary and an index, help students learn new vocabulary and locate information.

No longer a part of science fiction, self-driving cars are a reality. Is there an object blocking the way? Sensors will see it and apply the brakes. Drifting out of a lane? The car will steer you back. Complex computer systems continually monitor data and act. Take readers on journey through the technology currently in self-driving cars and where engineers want to go in the future.

From the witty senior editor of Jalopnik, Gizmodo Media's acclaimed website devoted to cars, technology, and more, comes a revealing, savvy, and humorous look at self-driving cars. Self-driving cars sound fantastical and futuristic and yet they'll soon be on every street in America. Whether it's Tesla's Autopilot, Google's Waymo, Mercedes's Distronic, or Uber's 24,000 modified Volvos, companies across industries and throughout the world are developing autonomous cars. Even Apple, not to be outdone, is rumored to be creating its own technology too. In *Robot, Take the Wheel*, Jason Torchinsky explores the state of the automotive industry. Through wit and wisdom, he explains why autonomous cars are being made and what the future of automated cars is.

Torchinsky encourages us to consider autonomous cars as an

entirely new machine, something beyond cars as we understand them today. He considers how we'll get along with these robots that will take over our cars' jobs, what they will look like, what sorts of jobs they may do, what we can expect of them, how they should act, ethically, how we can have fun with them, and how we can make sure there's still a place for those of us who love to drive with manual or automatic transmission. This unique and highly readable volume is brimming with industry insider information and destined to be a conversation starter. It's a must-have for car lovers, technology geeks, and everyone who wants to know what's on the road ahead.

Fully automated or autonomous vehicles (AVs) hold great promise for the future of transportation, with Google and other auto manufacturers intending on introducing self-driving cars to the public by 2020. New automation functionalities will produce dramatic transportation system changes, across safety, mobility, travel behavior, and the built environment. This work's results indicate that AVs may save the U.S. economy up to \$37.7 billion from safety, mobility and parking improvements at the 10% market penetration level (in terms of system-wide vehicle-miles traveled [VMT]), and up to \$447.1 billion with 90% market penetration. With only 10% market share, over 1,000 lives could be saved annually. However, realizing these potential benefits while avoiding pitfalls requires overcoming significant barriers including AV costs, liability, security, privacy, and missing research. Additionally, once fully self-driving vehicles can safely and legally drive unoccupied, a new personal travel transportation mode looks set to arrive. This new mode is the shared automated vehicle (SAV), combining on-demand service features with self-driving capabilities. This work simulates a fleet of SAVs operating within Austin, Texas, first using an idealized grid-based representation, and next using Austin's actual transportation network and travel demand flows. This second model incorporates dynamic ride-sharing (DRS), allowing two or more travelers with similar origins, destinations and departure times to share a ride. Model results indicate that each SAV could replace around 10 conventionally-owned household vehicles while serving over 56,000 person-trips. SAVs' ability to relocate unoccupied between serving one traveler and the next may cause an increase of 7-10% more

travel; however, DRS can result in reduced overall VMT, given enough SAV-using travelers willing to ride-share. Furthermore, using DRS results in overall lower wait and service times for travelers, particularly from pooling rides during peak demand. SAVs should produce favorable emissions outcomes, with an estimated 16% less energy use and 48% lower volatile organic compound (VOC) emissions, per person-trip compared to conventional vehicles. Finally, assuming SAVs cost \$70,000 each, an SAV fleet in Austin could provide a 19% return on investment, when charging \$1 per trip-mile served. In summary, this new paradigm holds much promise that technological advances may soon realized.

Fighting Traffic

How Autonomous Vehicles Will Change the World

Hands Off

Hands-On Vision and Behavior for Self-Driving Cars

Self-Driving Cars

*"The foundation has been laid for fully autonomous," Elon Musk announced in 2016, when he assured the world that Tesla would have a driverless fleet on the road in 2017. "It's twice as safe as a human, maybe better." Promises of technofuturistic driving utopias have been ubiquitous wherever tech companies and carmakers meet. In *Autonorama: The Illusory Promise of High-Tech Driving*, technology historian Peter Norton argues that driverless cars cannot be the safe, sustainable, and inclusive "mobility solutions" that tech companies and automakers are promising us. The salesmanship behind the driverless future is distracting us from investing in better ways to get around that we can implement now. Unlike autonomous vehicles, these alternatives are inexpensive, safe, sustainable, and inclusive. Norton takes the reader on an engaging ride—from the GM Futurama exhibit to "smart" highways and vehicles—to show how we are once again being sold car dependency in the guise of mobility. He argues that we cannot see what tech companies are selling us except in the light of history. With driverless cars, we're promised that new technology will solve the problems that car dependency gave us—zero crashes! zero emissions! zero congestion! But these are the same promises that have kept us on a treadmill of car dependency for 80 years.*

Autonorama is hopeful, advocating for wise, proven, humane mobility that we can invest in now, without waiting for technology that is forever just out of reach. Before intelligent systems, data, and technology can serve us, Norton suggests, we need wisdom. Rachel Carson warned us that when we seek technological solutions instead of ecological balance, we can make our problems worse. With this wisdom, Norton contends, we can meet our mobility needs with what we have right now. 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.

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".

Who will win the race to develop the autonomous vehicle? Making predictions about technology, particularly technology as revolutionary as the autonomous vehicle, can be challenging. The Future is Autonomous: The U.S. and China Race to Develop the Driverless Car explores a number of key factors that will decide who will emerge victorious. In this book you will learn about: The major technological difficulties that must be overcome for a self-driving car to drive safely. The innovative companies that are creating new business models to commercialize autonomous vehicles. The political hurdles that both the U.S. and China must face to establish a common set of standards for autonomous vehicles both domestically and globally. And so much more! This book is a must read for anyone interested in the future of the automotive industry, cutting-edge technology, and keen political analysis. There is little doubt

that whoever wins the race to develop the autonomous vehicle will have substantial influence in the industry for decades. No matter which superpower comes out on top, the biggest winner of all will be the consumer.

Third International Conference, ITAP 2017, Held as Part of HCI International 2017, Vancouver, BC, Canada, July 9-14, 2017, Proceedings, Part I

Human Aspects of IT for the Aged Population. Aging, Design and User Experience

Introduction to Self-Driving Vehicle Technology

How Self-Driving Cars Work

The Future of Fully Automated Vehicles

Autonomous Vehicles

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.

When human drivers let intelligent software take the wheel: the beginning of a new era in personal mobility. “ Smart, wide-ranging, [and] nontechnical. ” —Los Angeles Times “ Anyone who wants to understand what's coming must read this fascinating book. ” —Martin Ford, New York Times bestselling author of Rise of the Robots In the year 2014, Google fired a shot heard all the way to Detroit. Google's newest driverless car had no steering wheel and no brakes. The message was clear: cars of the future will be born fully autonomous, with no human driver needed. In the coming decade, self-driving cars will hit the streets, rearranging established industries and reshaping cities, giving us new choices in where we live and how we work and play. In this book, Hod Lipson and Melba Kurman offer readers insight into the risks and benefits of driverless cars and a lucid and engaging explanation of the enabling technology. Recent advances in software and robotics are toppling long-standing technological barriers that for decades have confined self-driving cars to the realm of fantasy. A new kind of artificial intelligence software called deep learning gives cars rapid and accurate visual perception. Human drivers can relax and take their eyes off the road. When human drivers let intelligent software take the wheel, driverless cars will offer billions of people all over the world a safer, cleaner, and more convenient mode of transportation. Although the technology is nearly ready, car companies and policy makers may not be. The authors make a compelling case for why government, industry, and consumers need to work together to make the development of driverless cars our society's next “ Apollo moment. ”

Alex Davies tells the dramatic, colorful story of the quest to develop driverless cars—and the fierce competition between Google, Uber, and other companies in a race to revolutionize our lives. The self-driving car has been one of the most vaunted technological breakthroughs of recent years. But early promises that these autonomous vehicles would soon be on the roads have proven premature. Alex Davies follows the twists and turns of this story from its origins to today. The story starts with the Defense Advanced Research Projects Agency (DARPA), which was charged with developing a land-based equivalent to the drone, a vehicle that could operate in war zones without risking human lives. DARPA issued a series of three “ Grand Challenges ” that attracted visionaries, many of them students and amateurs, who took the technology from Jetsons-style fantasy to near-reality. The young stars of the Challenges soon connected with Silicon Valley giants Google and Uber, intent on delivering a new way of driving to the civilian world. Soon the automakers joined the quest, some on their own, others in partnership with the tech titans. But as road testing progressed, it became clear that the challenges of driving a car without human assistance were more formidable than anticipated. Davies profiles the industry ’ s key players from the early enthusiasm of the DARPA days to their growing awareness that while this spin on artificial intelligence isn ’ t yet ready for rush-hour traffic, driverless cars are poised to remake how the world moves. Driven explores this exciting quest to transform transportation and change our lives.

This book examines the development and technical progress of self-driving vehicles in the context of the Vision Zero project from the European Union, which aims to eliminate highway system fatalities and serious accidents by 2050. It presents the concept of Autonomous Driving (AD) and discusses its applications in transportation, logistics, space, agriculture, and industrial and home automation.

The New Way Forward

Build autonomous vehicles using deep neural networks and behavior-cloning techniques

Driven

Advances in AI and Autonomous Vehicles: Cybernetic Self-Driving Cars

Building Better Jobs in an Age of Intelligent Machines

Driverless

A penetrating look at near-future disruption as truly autonomous vehicles arrive. For decades we have dreamed of building an automobile that can drive itself. But as that dream of autonomy draws close, we are discovering that the driverless car is a red herring. When self-driving technology infects buses, bikes, delivery vans, and even buildings...a wild, woollier, future awaits. Technology will transform life behind the wheel into a high-def video game that makes our ride safer, smoother, and more efficient. Meanwhile, autonomous vehicles will turbocharge our appetite for the instant delivery of goods, making the future as much about moving things as it is about moving people. Giant corporations will link the automated machines that move us to the cloud, raising concerns about mobility monopolies and privatization of streets and sidewalks. The pace of our daily lives and the fabric of our cities and towns will change dramatically as automated vehicles reprogram the way we work, shop, and play. Ghost Road is both a beacon and a warning; it explains where we might be headed together in driverless vehicles, and the choices we must make as societies and individuals to shape that future.

The country's leading transport expert describes how the driverless vehicle revolution will transform highways, cities, workplaces and laws not just here, but across the globe. Our time at the wheel is done. Driving will become illegal, as human drivers will be demonstrably more dangerous than cars that pilot themselves. Is this an impossible future, or a revolution just around the corner? Sam Schwartz, America's most celebrated transportation guru, describes in this book the revolution in self-driving cars. The ramifications will be dramatic, and the transition will be far from seamless. It will overturn the job market for the one in seven Americans who work in the trucking industry. It will cause us to grapple with new ethical dilemmas-if a car will hit a person or a building, endangering the lives of its passengers, who will decide what it does? It will further erode our privacy, since the vehicle can relay our location at any moment. And, like every other computer-controlled device, it can be vulnerable to hacking. Right now, every major car maker here and abroad is working on bringing autonomous vehicles to consumers. The fleets are getting ready to roll and nothing will ever be the same, and this book shows us what the future has in store.

Based on their systems expertise and their state-of-the-art research, the authors of this outstanding book explore practical and forward-thinking aspects about the emergence of driverless self-driving cars. Artificial Intelligence (AI) and Machine Learning are explored as a key to breakthroughs for self-driving car high-tech innovations. In addition, the authors cover the business, economic, and societal considerations about these autonomous vehicles. This duo has combined their key talents into a vital book packed with new insights and transformational ideas.

The two-volume set LNCS 10297 + 10298 constitutes the refereed proceedings of the Third International Conference on Human Aspects of IT for the Aged Population, ITAP 2017, held as part of HCI International 2017 in Vancouver, BC, Canada. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The 83 papers presented in the two volumes of ITAP 2017 were organized in topical sections as follows: Part I: aging and technology acceptance; user-centred design for the elderly; product design for the elderly; aging and user experience; digital literacy and training. Part II: mobile and wearable interaction for the elderly; aging and social media; silver and intergenerational gaming; health care and assistive technologies and services for the elderly; aging and learning, working and leisure.

Practical Advances in AI and Machine Learning

The Road to Economic Growth?

For Next-gen Vehicles to Hit the Road, Project Managers Must Take the Wheel

The Road to Autonomous Cars and the Lost Art of Driving

Careers in Self-Driving Car Technology

The Dawn of the Motor Age in the American City

Have You Seen a Self-Driving Car? The answer is probably no - but not for long!

The future is almost upon us, and soon self-driving driverless cars will be as common around your neighbourhood as regular old cars are now. Is your child ready for autonomous driving? In Have You Seen a Self-Driving Car?, engineer Anna Prakash-Ashton, Ph.D. and Elaina Ashton embark upon an exciting journey to explain just how self-driving cars work, their benefits, challenges and what they mean for you and me. Fully illustrated and filled to the brim with fun, futuristic, and educational information your children will love reading through. Have You Seen a Self-Driving Car? is the perfect way to prepare your children for the world of tomorrow while, at the same time, planting in them a curiosity for technology that may one day grow into a fully-fledged passion. Have You Seen a Self-Driving Car? is suitable for ages 5+.

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.

Better public policies can make the road smoother for self-driving vehicles and the society that soon will depend on them. Whether you find the idea of autonomous vehicles to be exciting or frightening, the truth is that they will soon become a significant everyday presence on streets and highways—not just a novel experiment attracting attention or giggles and sparking fears of runaway self-driving cars. The emergence of these vehicles represents a watershed moment in the history of transportation. If properly encouraged, this innovation promises not only to vastly improve road travel and generate huge benefits to travelers and businesses, but to also benefit the entire economy by reducing congestion and virtually eliminating vehicle accidents. The impacts of autonomous vehicles on land use, employment, and public finance are likely to

be mixed. But widely assumed negative effects are generally overstated because they ignore plausible adjustments by the public and policymakers that could ameliorate them. This book by two transportation experts argues that policy analysts can play an important and constructive role in identifying and analyzing important policy issues and necessary steps to ease the advent of autonomous vehicles. Among the actions that governments must take are creating a framework for vehicle testing, making appropriate investments in the technology of highway networks to facilitate communication involving autonomous vehicles, and reforming pricing and investment policies to enable operation of autonomous vehicles to be safe and efficient. The authors argue that policymakers at all levels of government must address these and other issues sooner rather than later. Prompt and effective actions outlined in this book are necessary to ensure that autonomous vehicles will be safe and efficient when the public begins to adopt them as replacements for current vehicles.

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.

The Work of the Future

Opportunities for Vehicle- and Ride-sharing, with Cost and Emission Savings

Driverless Cars and the Road of the Future

The Illusory Promise of High-Tech Driving

Practical Innovations in AI and Machine Learning

Self-Driving Car