AVIS
MAGAZINE

September 2024

No.3

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Table of Contents

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IARA

Table of Contents

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Table of Contents

avis

IARA

Table of Contents

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Empowering the Future: A Message from the Co-Founder of AVIS Group

As we stand on the cusp of a new era in technology, the visionaries behind AVIS Group are proud to lead the charge in shaping the future of intelligent and autonomous systems. Reflecting on the journey that brought us here, our mission has always been clear: to create a dynamic platform where innovation thrives, collaboration flourishes, and the boundaries of technology are continually expanded.

Since its inception, AVIS Group has been driven by a core belief: that technology, when thoughtfully applied, holds the transformative power to revolutionize industries, improve lives, and build a better, more connected world. This philosophy is at the heart of everything we do, fueling our relentless pursuit of excellence in developing systems that are not only cutting-edge but also practical and impactful in real-world scenarios.

The AVIS Challenge stands as a testament to our commitment to these principles. More than just a competition, this international event is a showcase of human ingenuity and technological prowess. It brings together brilliant minds from across the globe, all united by a shared passion for innovation. The diversity of ideas and creativity on display is truly remarkable, offering a glimpse into the future of intelligent and autonomous technologies.

Our achievements would not be possible without the unwavering support of our partners, sponsors, and the talented teams who participate in the AVIS Challenge. Their dedication and hard work are what make this event a success, driving the breakthroughs that will define the next generation of technological advancements.

To all those involved, I extend my deepest gratitude. Your contributions are invaluable, and whether you are a competitor, a collaborator, or a supporter, you are all champions of progress. Together, we are not just imagining the future—we are actively building it, one innovation at a time.

As we continue to push the limits of what is possible, let us remember that the future of technology is in our hands. With collaboration, creativity, and a commitment to excellence, we can achieve extraordinary things.

At AVIS Group, we are excited to be at the forefront of this journey, and we invite you to join us as we continue to explore new frontiers and redefine what is possible in the world of intelligent systems

Together, we are shaping the future.

Sincerely,

Sadeghnejad

Soroush Sadeghnejad
Co-founder, AVIS Group

Empowering Growth: Reflecting on Milestones and Future Horizons for "AVIS Group"

As we reflect on the remarkable journey of AVIS Group over the past year, it's clear that 2023 and 2024 have been defining years for our organization. Our unwavering commitment to excellence and innovation has propelled us to new heights, solidifying our position as a leader in the industry.

One of the most significant milestones we achieved was the successful launch of AVIS Events, a new brand that has already begun to make waves in the market. This initiative has not only broadened our service offerings but has also allowed us to enter new sectors and create more value for our clients and partners. The launch of AVIS Events is a testament to our ability to adapt and innovate, responding to the evolving needs of our customers with agility and foresight.

Beyond this, AVIS Group has continued to expand its influence on a global scale. Our investments in engineering, IT infrastructure, and the education and training of skilled professionals have positioned us as a key player in these critical areas. We have undertaken ambitious projects that have pushed the boundaries of what is possible, delivering cutting-edge solutions that set new industry standards.

In addition to our technical achievements, we have also placed a strong emphasis on building a robust and inclusive community. The expansion of our network of professionals, clients, and partners has been a driving force behind our continued success. We are proud to say that AVIS Group is not just growing in size, but in the depth of our relationships and the breadth of our impact.

As we look to the future, our vision remains clear: to continue leading the way in innovation, excellence, and global reach. We are committed to building on the momentum of the past year, driving forward with the same passion and determination that has brought us to where we are today.

Thank you for your unwavering support and partnership. Together, we will continue to achieve great things.

Sincerely,

Zarif

Amirmohammad Zarif Shahsavan Nejad
CEO, AVIS Group

Leveraging Innovation: The Role of the IARA in Shaping the Future of Technology and AI

In an era where technology and artificial intelligence are at the forefront of global transformation, innovation is not merely a buzzword; it is the driving force behind progress. The International AVIS Researchers Association (IARA) stands at the intersection of this innovation, dedicated to promoting, developing, and educating in the fields of technology and AI. As the President of IARA, I am proud to share the strides we have made and the vision that guides our efforts.

Innovation is the cornerstone of advancement. It fuels the creation of new technologies, opens doors to uncharted possibilities, and addresses challenges that were once thought insurmountable. At IARA, we recognize that fostering innovation is essential not only for the growth of technology but for its responsible and ethical application. Our mission is to ensure that innovation serves humanity as a whole, creating solutions that are inclusive, sustainable, and beneficial.

Since our inception, IARA has remained committed to this mission. We have cultivated a community of over 500 members, each of whom brings a unique perspective and expertise to our collective work. Our members—comprising researchers, educators, professionals, and enthusiasts —are united by a shared goal: to push the boundaries of what is possible in the realms of technology and AI.

Through our extensive network, IARA facilitates the exchange of ideas, the dissemination of cutting-edge research, and the development of new methodologies. Our conferences and workshops are not just events; they are incubators of innovation, where the brightest minds come together to collaborate, challenge, and inspire one another. These gatherings are complemented by our publications, which serve as a platform for sharing groundbreaking research and insights with a global audience.

But innovation is more than just new ideas; it is about implementing those ideas in ways that make a tangible impact. IARA is dedicated to translating research into real-world applications, ensuring that the advancements in technology and AI are used to address societal challenges, improve quality of life, and drive economic growth. Whether it's through developing new AI algorithms, creating more efficient technologies, or exploring the ethical implications of these advancements, our members are at the forefront of turning innovation into action.

As we look to the future, the role of IARA becomes even more critical. The rapid pace of technological advancement brings with it a host of new opportunities and challenges. It is our responsibility to guide these developments in a way that maximizes benefits while minimizing risks. This requires a commitment to ethical considerations, inclusivity, and sustainability— principles that are at the core of everything we do at IARA.

The path ahead is both exciting and challenging, but with the continued support of our members and the broader community, IARA is well-positioned to lead the way. We will continue to expand our reach, support our members, and foster the kind of innovation that not only advances technology but also enhances the human experience.

I invite all who share our vision to join us in this journey. Together, we can harness the power of innovation to shape a future that is brighter, more equitable, and filled with possibilities

Thank you for your continued support and dedication to our mission.

Amirmahdi Zarif Shahsavan Nejad
President, International AVIS Researchers Association (IARA)

Introduction to AVIS Engine

The AVIS Engine is a fast and robust autonomous vehicle simulator that fully satisfies the diverse needs of the development and implementation of autonomous vehicles. It provides developers with the tools to create and refine their algorithms while considering a broad range of real-world scenarios and challenges that autonomous vehicles may encounter. The simulator is seamlessly integrated with both Python and C++, allowing a wide array of developers to work with it effectively, regardless of their preferred programming language.

One of the most notable features of this simulator is its exceptional speed and compatibility with low-end computers, ensuring that even those with limited hardware resources can take advantage of its capabilities. In our pursuit of creating a highly realistic simulation experience, we have meticulously designed various aspects such as physics, control and drive mechanics, lighting, and outdoor environments. These elements collectively contribute to providing developers with the most accurate and reliable results when testing their algorithms in a variety of situations.

Furthermore, the simulator is highly optimized, delivering real-time sensor and camera outputs with remarkably low latency. This feature is crucial for developers who require immediate feedback and precise data during their testing processes. As part of our ongoing commitment to enhancing the simulator, we plan to incorporate advanced sensors such as LIDAR, RADAR, and GPS in future updates. These additions will enable developers to work on complex tasks related to perception, path planning, and localization, further expanding the simulator's utility in the field of autonomous vehicle development.

Introduction to AVIS Engine

High performance

Fast and powerful emulation compatible with low-spec PCs

High frame rate

In the Avis Engine simulator, data (image, sensors, speed, etc.) is transferred at a maximum speed of 40 frames per second.

real environment

Realistic environment and realistic physics without occupying system resources

Low latency

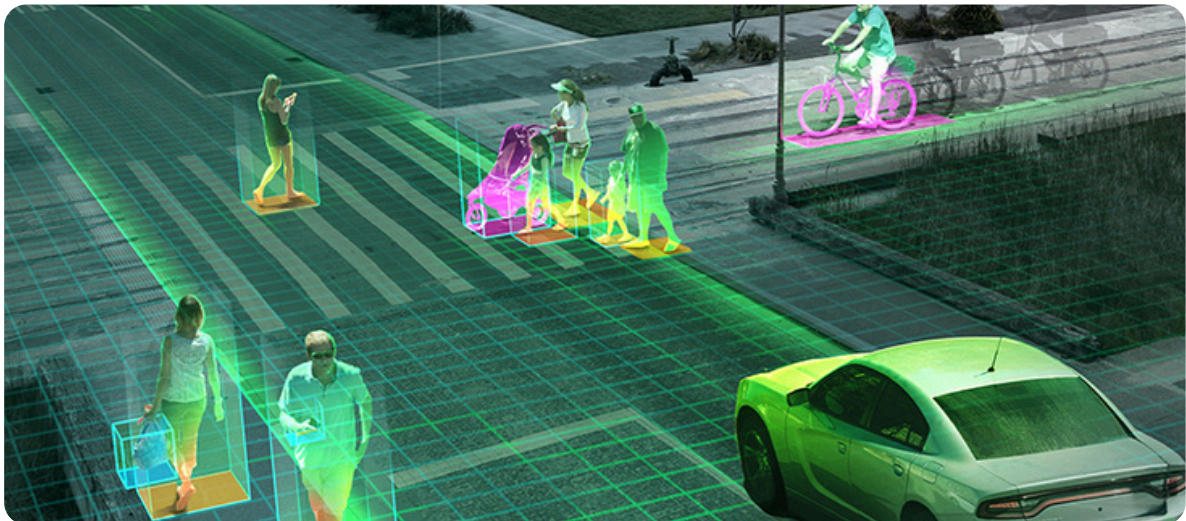Vehicle or system control is performed without delay.
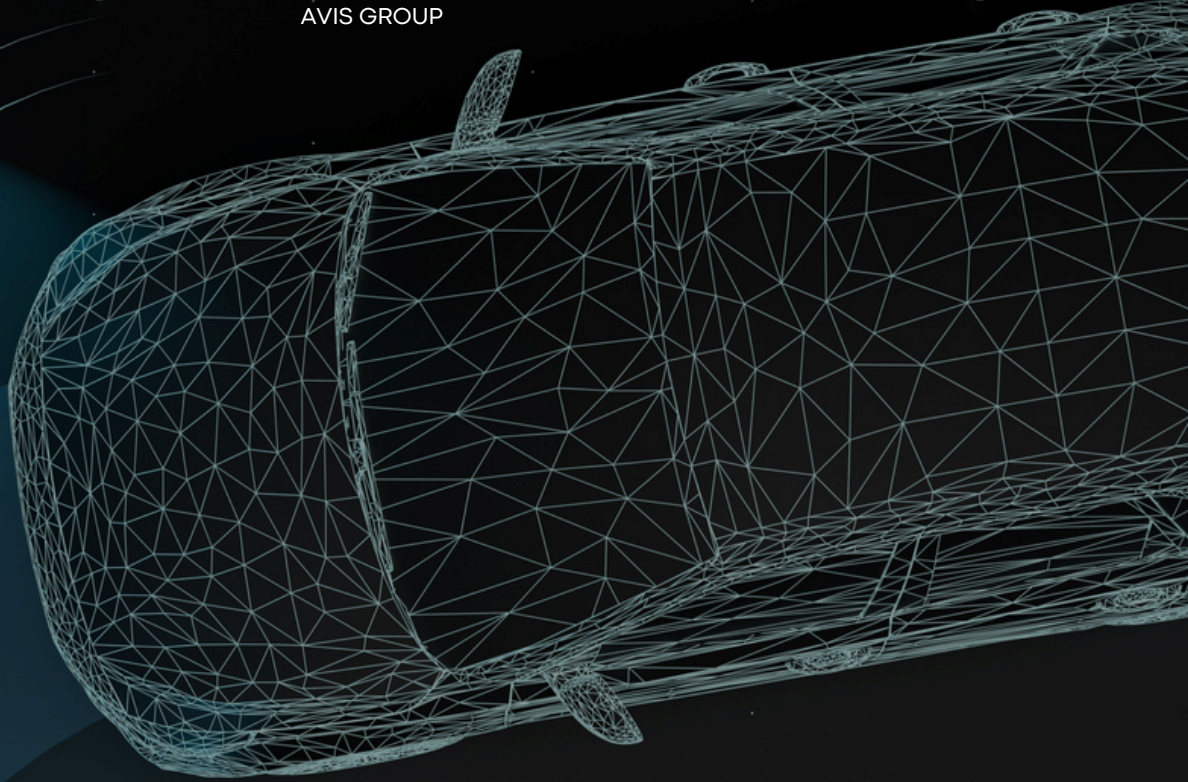
Cross platform

Ability to install and run on Mac, Windows and Linux operating systems

Real world challenges

Developing an autonomous vehicle ready to face real-world challenges

"AVIS Engine, a trailblazer in developing cutting-edge simulation software for autonomous systems."

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FIRA Autonomous Cars Challenge

The primary objective of the FIRA Autonomous Cars competition is to motivate and inspire researchers and developers to advance the field of autonomous driving technology by creating self-driving cars that can operate independently and effectively in various environments. The competition is structured around two distinct environments where autonomous cars are pitted against each other in a series of challenges designed to test their capabilities. These environments are carefully crafted to simulate real-world conditions and present unique challenges that autonomous vehicles must overcome.

The first environment is a high-speed racing circuit, where the focus is on speed, precision, and control. In this setting, autonomous vehicles must navigate the race track autonomously, completing laps as quickly and accurately as possible. This environment is designed to test the cars' ability to handle high-speed maneuvers, maintain control at elevated speeds, and make split-second decisions to optimize their performance on the track.

Tasks in the urban environment include following road signs, obeying traffic signals, and avoiding obstacles, designed to assess the vehicle's ability to operate safely in real-world conditions.

The competition is divided into two stages: the preliminary stage and the final stage. In the preliminary stage, teams compete to achieve the highest scores in both environments. Scores are reset for the final stage, ensuring all teams start on equal footing. Participation order is determined by a random draw, adding fairness and unpredictability.

This competition comprehensively evaluates autonomous vehicles' capabilities, with the "Autonomous Race" testing speed and agility, and "Autonomous Urban Driving" focusing on safety and rule adherence. It offers researchers a significant opportunity to showcase and advance their autonomous driving technology.
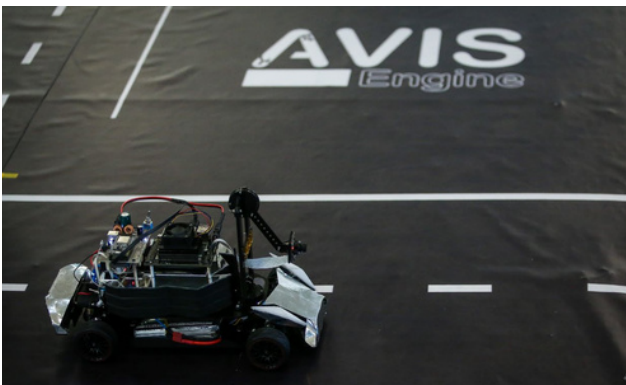
International Robotics Excellence Showcased at Iran FIRA Roboworld Cup 2023

The Iran FIRA Roboworld Cup 2023, a prestigious international robotics competition, was held at the Shahr-e Aftab Exhibition Center in Tehran, showcasing the talents of robotics teams from around the world. Organized by the National Robotics Committee of FIRA Iran, the event took place over several days, drawing participants from countries such as Turkey, Malaysia, Indonesia, and many others.

This year's competition featured various challenging leagues, including the Autonomous Vehicle League, Flying Robots League, and more. Teams competed fiercely, demonstrating their expertise in robotics design, programming, and system integration. The event highlighted the significant advancements in robotics and AI technology, fostering innovation and international collaboration.

AVIS Engine was the principal sponsor of the Iran FIRA Roboworld Cup 2023, continuing its tradition of supporting top-tier robotics competitions. Their contribution was vital to the event's success, particularly in providing and maintaining the simulation software crucial for the competition's various leagues. AVIS Engine's ongoing partnership with FIRA Iran underscores their commitment to advancing robotics and supporting the next generation of innovators.

The Iran FIRA Roboworld Cup 2023 was a remarkable success, bringing together the global robotics community in a spirit of competition and cooperation. The event not only served as a platform for showcasing cutting-edge technology but also as an important meeting point for exchanging ideas and knowledge in the rapidly growing field of robotics.

International Robotics Excellence Showcased at Iran FIRA Roboworld Cup 2023
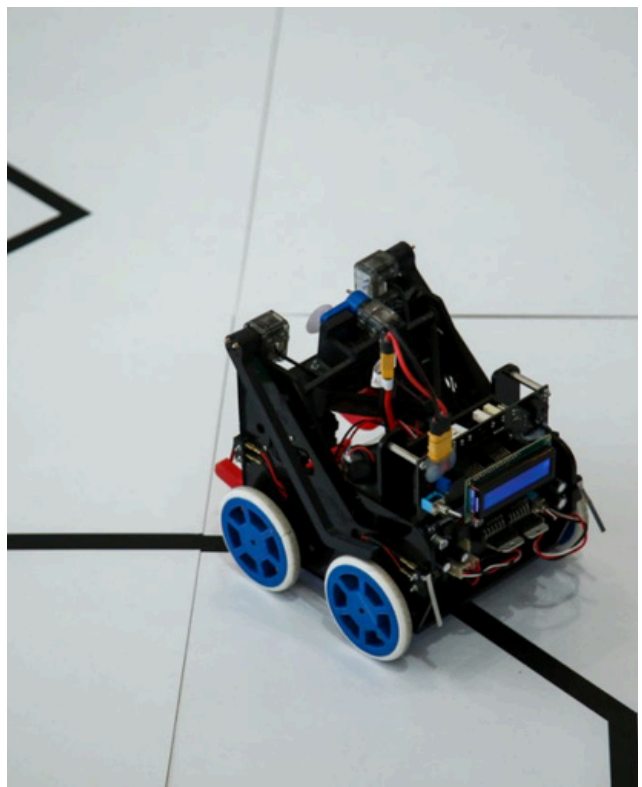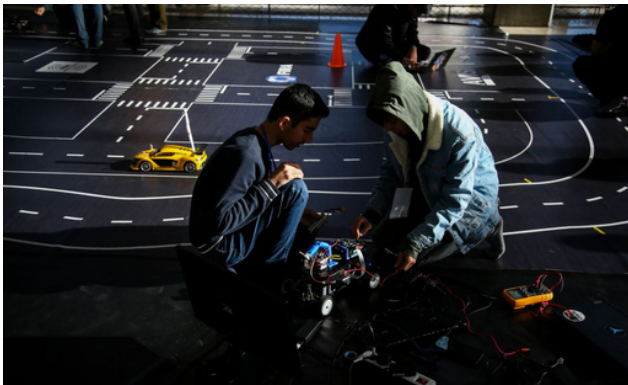
Global Robotics Innovation Shines at the 17th FIRA Malaysia Cup 2024

The 17th FIRA Malaysia Cup, an esteemed international robotics competition, was successfully held from April 21 to 26, 2024, at Politeknik Sultan Azlan Shah in Malaysia. Organized by the National Robotics Committee of FIRA Malaysia, this event attracted participants from around the globe, competing in various leagues, including the Huro Cup, Autonomous Vehicle League, and the Flying Robots League.

This year's competition was marked by intense rivalry and innovation, as teams showcased their cutting-edge technologies and advanced robotics solutions. Participants demonstrated exceptional skills in robotics design, programming, and problem-solving, reflecting the global advancements in artificial intelligence and automation.

AVIS Engine proudly served as the official sponsor of this prestigious event for the third consecutive year.

Their continued support was instrumental in the success of the competition, particularly in providing and maintaining the simulation software essential for various leagues. The collaboration between AVIS Engine and the FIRA Malaysia Cup has significantly contributed to the event's growing reputation as a leading platform for robotics innovation and excellence.

Overall, the 17th FIRA Malaysia Cup was a resounding success, highlighting the remarkable talents of the global robotics community and fostering international collaboration in this rapidly evolving field. The event not only provided a stage for competition but also served as a hub for knowledge exchange and technological advancement, reinforcing the importance of robotics in shaping the future.

Canada FIRA RoboWorld Cup Open 2024: A Global Convergence of Innovation and Robotics Excellence

The Canada FIRA RoboWorld Cup Open 2024, an internationally renowned robotics competition, took place in May 2024 at Simon Fraser University in Vancouver. Organized by the prestigious French National Centre for Scientific Research (CNRS), this event gathered a diverse array of participants, ranging from high school students to university researchers, all of whom showcased their innovative solutions in the field of robotics.

As a truly global event, the Canada FIRA RoboWorld Cup Open attracted teams from across the world, including North America, Europe, Asia, and beyond. The event provided a unique platform for participants to compete, collaborate, and share knowledge on a global scale. This international dimension not only fostered cross-cultural exchanges but also facilitated the exchange of ideas and technologies across borders, enriching the robotics community worldwide.

The event was generously supported by AVIS Engine, which served as the primary sponsor. This partnership was instrumental in ensuring the success of the competition. Furthermore, the Canada FIRA RoboWorld Cup Open 2024 marked a significant milestone in the integration of technology with event management, being the first event to be fully registered and managed through the AVIS Events platform. This innovative platform allowed participants from various countries to seamlessly register, track, and manage their participation, highlighting the effectiveness of digital tools in enhancing the experience of international competitions.

One of the key highlights of the event was the diversity of leagues and challenges that catered to different age groups and expertise levels. The competition featured several leagues, including Autonomous Vehicles, Flying Robots, Humanoid Robots, and more.

High school students, university teams, and professional researchers all had the opportunity to demonstrate their technical prowess and creativity. The inclusion of younger participants was particularly noteworthy, as it encouraged early engagement with STEM (Science, Technology, Engineering, and Mathematics) fields, fostering a new generation of innovators.

The Autonomous Vehicles league, for example, challenged participants to design and program self-driving cars capable of navigating complex environments autonomously. This league was not only a test of technical skill but also a demonstration of the potential future applications of autonomous technology in real-world scenarios. The Flying Robots league saw participants design drones and other aerial robots, pushing the boundaries of what is possible in terms of flight control, stability, and automation.

Throughout the event, innovation was at the forefront, with participants introducing groundbreaking solutions and showcasing advancements in artificial intelligence, machine learning, and robotics engineering. The competition also served as a networking hub, allowing participants to exchange ideas, form collaborations, and learn from one another, further advancing the field of robotics.

In summary, the Canada FIRA RoboWorld Cup Open 2024 was not just a competition but a celebration of global innovation and collaboration. It brought together a wide range of participants from different age groups and countries, all united by their passion for robotics and technology. The event, supported by AVIS Engine and facilitated through the AVIS Events platform, set a new benchmark for future international robotics competitions, highlighting the importance of fostering innovation from a young age and across all levels of expertise.

Canada FIRA RoboWorld Cup Open 2024: A Global Convergence of Innovation and Robotics Excellence
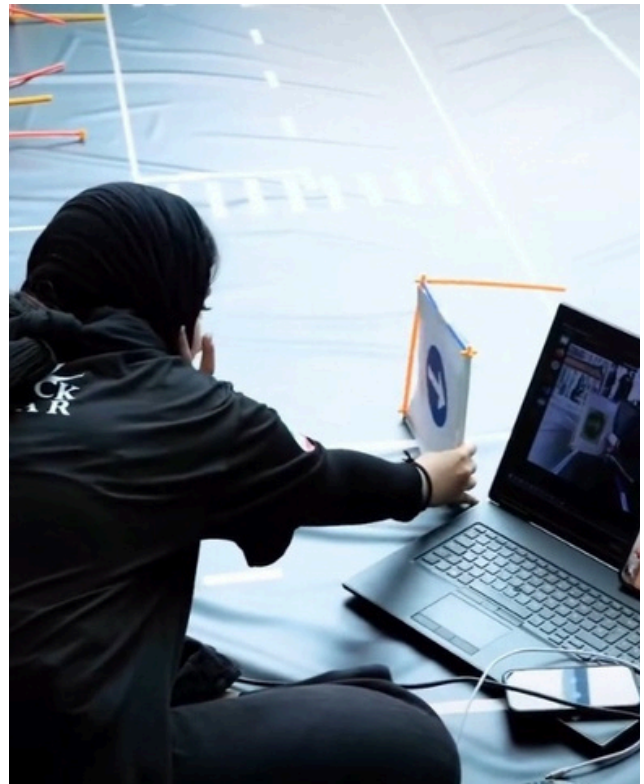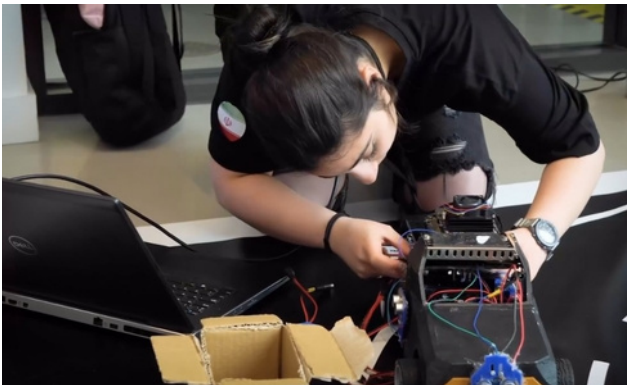
FIRA RoboWorld Cup & Summit 2024: Uniting Global Innovation in São Luís, Brazil

The FIRA RoboWorld Cup & Summit 2024, a premier global robotics event, was successfully held in August 2024 at the Multi Center in São Luís, Brazil. This prestigious competition brought together teams from over 30 countries, showcasing the best of robotics innovation and engineering from around the world.

The event was jointly organized by the FIRA Brazil National Robotics Committee, the IEMA Schools Group, and the state of Maranhão, with the support of AVIS Engine and AVIS Events as key sponsors. The collaboration between these organizations ensured that the event was executed with the highest level of professionalism and innovation, making it an unforgettable experience for all participants.

The FIRA RoboWorld Cup & Summit 2024 was a truly global event, highlighting the importance of international cooperation and knowledge exchange in advancing the field of robotics. Teams from diverse backgrounds and regions came together to compete, share ideas, and push the boundaries of what is possible in robotics technology.

The competition featured a variety of leagues, each designed to challenge participants and inspire innovation. From autonomous vehicles to humanoid robots, the event offered a platform for participants to demonstrate their cutting-edge solutions to complex technical problems. The high level of creativity and technical skill on display was a testament to the global reach and impact of the FIRA RoboWorld Cup.

The support from AVIS Engine and the use of the AVIS Events platform played a significant role in the success of the event. AVIS Events provided a seamless registration and event management system, enabling teams from across the globe to participate easily and efficiently. This technological integration was particularly important given the scale of the competition, ensuring that the event ran smoothly and that all participants had a positive experience.

The FIRA RoboWorld Cup & Summit 2024 was not just a competition; it was a celebration of global innovation and the power of robotics to bring people together. The event's high standards of organization, combined with its focus on innovation and creativity, made it one of the most successful and memorable editions of the RoboWorld Cup to date.

In conclusion, the FIRA RoboWorld Cup & Summit 2024 in São Luís was a resounding success, showcasing the very best in global robotics talent. With the strong support of AVIS Engine and AVIS Events, along with the dedication of the FIRA Brazil National Robotics Committee, IEMA Schools Group, and the state of Maranhão, the event set a new benchmark for future robotics competitions worldwide.

FIRA RoboWorld Cup & Summit 2024: Uniting Global Innovation in São Luís, Brazil
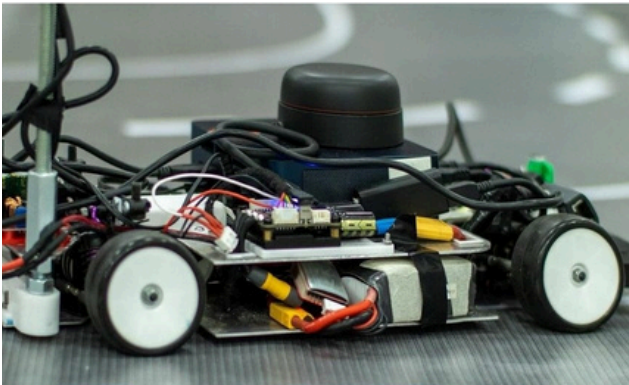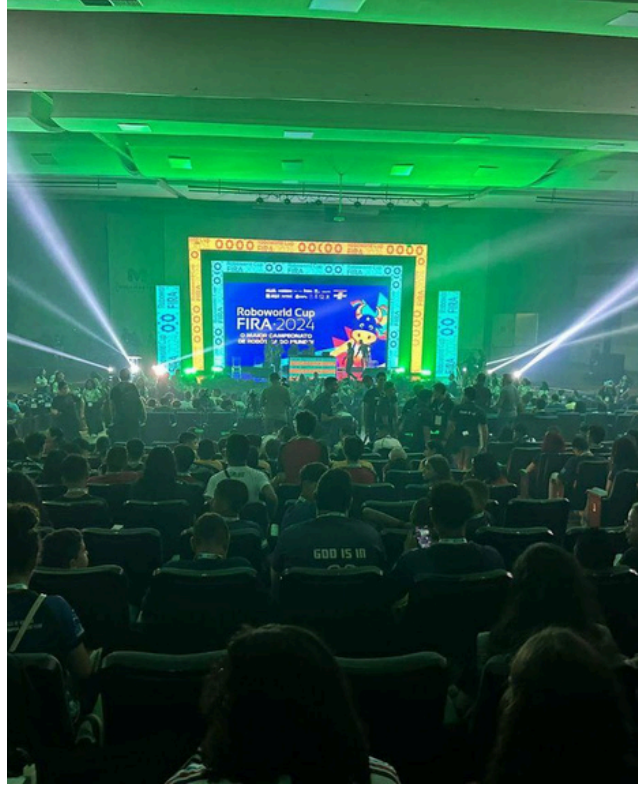
AVIS Challenge: The International Event for Intelligent and Autonomous Systems

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FIRA World Summit: A Global Confluence of Robotics Innovation and Research

The **FIRA World Summit** stands as one of the most significant and highly anticipated conferences in the field of robotics. Organized by the Federation of International Robot-soccer Association (FIRA), this summit is dedicated to bringing together the leading minds in robotics from around the world. Each year, it serves as a platform for researchers, engineers, academics, and industry experts to engage in deep discussions, present their latest research findings, and explore the future of robotics technology.

A Hub of Cutting-Edge Research

The FIRA World Summit is renowned for its rigorous selection process, which ensures that only the most innovative and impactful research is presented. This year, the summit showcased over ten high-caliber research papers, each contributing new knowledge and advancements in various domains of robotics.

The topics covered ranged from advancements in autonomous systems and artificial intelligence to breakthroughs in humanoid robots, drone technology, and robotics in healthcare.

Each paper was carefully reviewed and selected based on its potential to influence the field and drive future research. The diversity of the topics and the depth of the research presented underscored the summit's commitment to pushing the boundaries of what is possible in robotics.

A Truly International Event

The 2024 FIRA World Summit was a truly global event, with researchers and professionals from a wide array of countries and leading universities in attendance. This international participation highlighted the summit's role as a melting pot of ideas, where cultural and academic diversity spurred rich discussions and collaborative opportunities. Delegates from renowned institutions across Asia, Europe, North America, and other regions shared their unique perspectives and research findings, contributing to a vibrant and dynamic exchange of ideas.

The summit not only provided a platform for presenting research but also facilitated networking and collaboration among participants. It offered attendees the chance to connect with peers, establish new partnerships, and explore potential collaborative projects that could shape the future of robotics.

Lane Direction by Implementing Random Sampling Algorithms

Alan Cristian Quezada Villalobos[1], Javier Saldivar Perez[1], Luis Carlos Reveles Gómez[1], Rafael Reveles[2], Juvenal Villanueva Maldonado[1] and Jose M. Celaya Padilla[1]

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This paper introduces a sophisticated hybrid approach for lane detection tailored to a 1:10 scale autonomous vehicle, which was developed and tested in the context of the Mexican Robotics Tournament (TMR) 2024. The innovative methodology blends classical digital image processing techniques with the robust Random Sample Consensus (RANSAC) algorithm, yielding a highly accurate and reliable system for detecting lanes under competitive conditions. The approach was put to the test during the TMR 2024, where it demonstrated exceptional performance, achieving an accuracy rate exceeding 95%, and ultimately securing first place in the Auto ModelCar category.

The lane detection method developed in this study is a multi-stage process, carefully designed to handle the complexities of real-world autonomous driving environments on a smaller scale. The process begins with spatial transformations and the conversion of the captured images into a suitable color space, which is crucial for isolating the relevant features of the lanes. The next stage involves applying edge detection techniques to highlight the lane boundaries within the image. This is followed by the use of the RANSAC algorithm, which plays a critical role in accurately estimating the position of the lanes by filtering out noise and disregarding outliers that could otherwise lead to errors.

A key component of the vehicle's navigation system is the Proportional-Integral-Derivative (PID) controller, which ensures that the vehicle can follow the detected lanes smoothly and with high precision. This control mechanism continuously adjusts the vehicle's steering based on the real-time feedback from the lane detection system, enabling it to maintain its course effectively.

The entire system is implemented using Python programming and the Robot Operating System (ROS), which provides a flexible and scalable framework for integrating various components of the autonomous vehicle. The computational demands of the system are met by the NVIDIA Jetson Orin Nano, a powerful platform capable of handling the intensive processing required for real-time image analysis and decision-making. Additionally, the vehicle is equipped with a RealSense camera, which captures high-quality images for lane detection, and an RPLIDAR A2 sensor, which is responsible for obstacle detection and avoidance.

Beyond lane detection, the vehicle's system is designed to tackle a range of challenges associated with autonomous driving. For instance, the obstacle detection and avoidance capabilities allow the vehicle to navigate safely in dynamic environments, avoiding potential collisions. Moreover, the system includes functionality for traffic sign detection, which enables the vehicle to recognize and respond to various road signs, further enhancing its autonomy and safety.

The successful application of this hybrid lane detection method in a competitive setting highlights its potential for broader use in the field of autonomous vehicles. The approach demonstrates not only its effectiveness in lane detection but also its adaptability to different scenarios that an autonomous vehicle might encounter. As such, this work represents a significant advancement in robotics and artificial intelligence, with implications for the future development of autonomous driving technologies.

The paper also discusses the comprehensive hardware and software setup that supports this system. The integration of the NVIDIA Jetson Orin Nano with the RealSense camera and RPLIDAR A2 sensor creates a robust platform capable of handling the demands of autonomous navigation in a controlled environment. The use of Python and ROS allows for a modular and extensible design, making it easier to adapt the system to different scales or types of autonomous vehicles.

In conclusion, this study not only offers a competitive solution for lane detection in small-scale autonomous vehicles but also lays the groundwork for future research and development in the field. The hybrid approach combining classical image processing with the RANSAC algorithm, along with the advanced control and detection systems, provides a solid foundation for further innovations in autonomous vehicle technology.

Enhancing Human-Robot Interaction: Simulating Thormang Humanoid Robot and Developing Advanced Grasping Models Using Machine Learning

Armin Baratian Sarabi, Amin Arami, Amir Mohammad Zarif Shahsavan Nejad, Amirmahdi Zarif Shahsavan Nejad, and Soroush Sadeghnejad

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The development of humanoid robots, particularly in en- hancing human-robot interaction, is a rapidly advancing field. This paper explores the simulation of the Thormang humanoid robot and the devel- opment of advanced grasping models using machine learning techniques. Our research delves into the intricacies of kinematics, dynamics, and computer vision, paving the way for more intuitive and effective human- robot interactions. Using and comparing different 6D pose models such as CASAPose, we continue to perform the provided tasks in object ma- nipulation.

The realm of humanoid robotics stands at the forefront of technological inno- vation, offering a tantalizing glimpse into a future where machines seamlessly integrate into human environments, performing tasks with human-like dexterity and interacting with us on a social level. Inspired by the rich tapestry of science fiction and driven by real-world applications, humanoid robots embody the pin- nacle of engineering prowess and cognitive understanding. This article embarks on a journey to explore the multifaceted landscape of human-robot interaction, focusing specifically on the simulation of the Thormang humanoid robot and the development of advanced grasping models using cutting-edge machine learning techniques.

Humanoid robots, with their striking resemblance to humans, possess a unique set of characteristics that endow them with unparalleled versatility and adapt- ability. By emulating human form, these robots effortlessly navigate environ- ments designed for humans, wield tools crafted for human hands, and evoke a sense of familiarity and comfort in their interactions with us. From the cor- ridors of our homes to the bustling floors of industrial warehouses, humanoid robots stand poised to revolutionize the way we live, work, and interact with technology.

The annals of humanoid robotics are adorned with a rich tapestry of historical milestones, each marking a significant leap forward in the quest for machines that walk, talk, and think like humans. From the pioneering efforts of WABOT-1 and WABOT-2 to the iconic stature of Honda's ASIMO, these robots represent the vanguard of technological innovation, pushing the boundaries of stability, auton- omy, and human-robot interaction capabilities. Their legacy serves as a guiding light for future generations of roboticists, inspiring them to chart new frontiers in the ever-expanding domain of humanoid robotics. For a humanoid robot to earn its stripes as a reliable and safe companion in human-centric environments, it must undergo a battery of rigorous tests and meet stringent criteria. From mobility tests that assess its ability to navigate diverse terrains to manipulation tests that gauge its dexterity in interacting with objects, these evaluations form the bedrock upon which trust and reliability are built. Safety protocols, emo- tional intelligence, and cognitive prowess further augment the robot's repertoire, ensuring seamless integration into our daily lives with minimal risk and maximal utility.

Currently in AVIS Engine

+500
Users

+20
Workshops

+20
International Events

+10
Countries

+20
Company
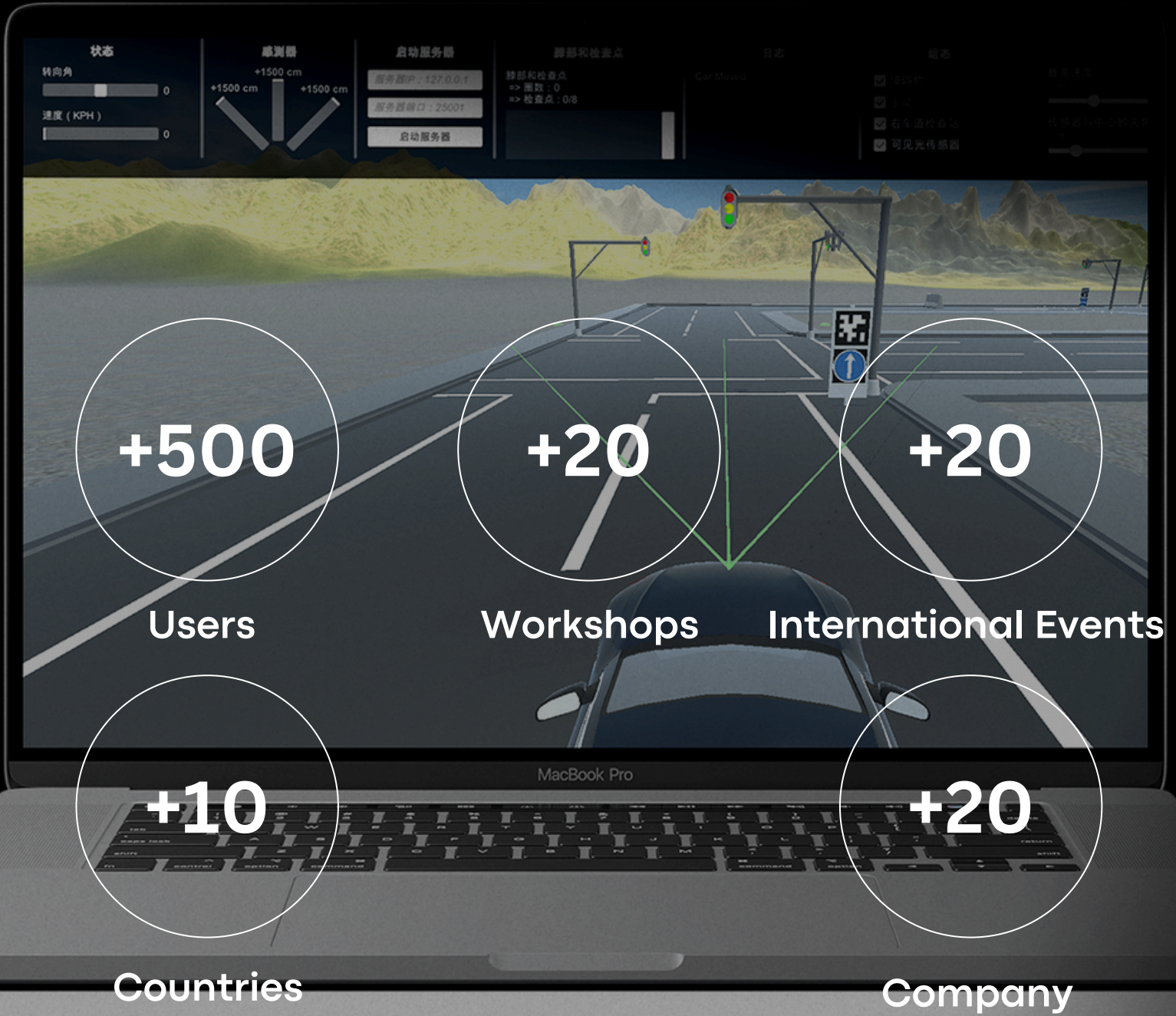
Spotlight on Innovation: "The Best in the Engineering World" by AVIS Group

The Best in the Engineering World" is a flagship magazine series by AVIS Group, designed to shine a spotlight on the cutting-edge advancements and exceptional talent within the engineering sector, with a special focus on robotics and artificial intelligence. The magazine's mission is to identify and promote the most innovative teams, leading universities, pioneering startups, and influential companies that are driving the future of technology.

Since its launch, the magazine has published five editions, each meticulously crafted to showcase the latest breakthroughs and success stories in engineering. These publications serve as a platform for celebrating the individuals and organizations that are making significant contributions to the field, providing readers with insights into the most promising developments and trends.

The response to "The Best in the Engineering World" has been overwhelmingly positive, with more than 20,000 views across its five issues. This level of engagement highlights the magazine's role as a vital resource for professionals, academics, and enthusiasts who are passionate about engineering innovation. It also underscores the magazine's influence in connecting a global audience with the key players in robotics and AI, fostering a community of forward-thinking engineers.

Through this publication, AVIS Group aims not only to inform but also to inspire the next generation of engineers and innovators, helping to shape the future of technology by recognizing and supporting excellence in the field.
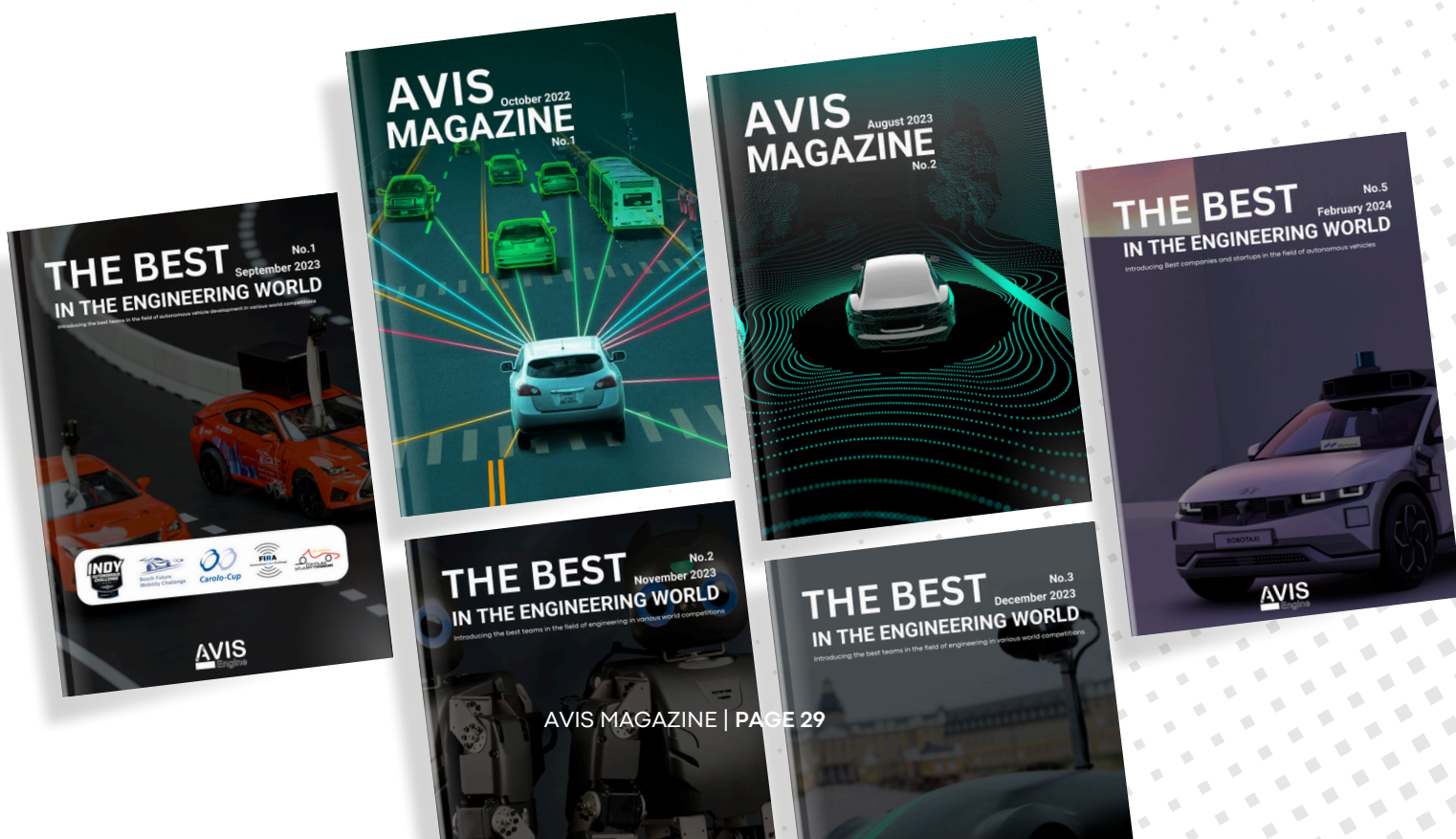
AVIS Driver Assistance System: A Cutting-Edge Intelligent Solution for Enhanced Safety and Efficiency in Driving

The AVIS Driver Assistance System, developed by AVIS R&D, is an advanced and intelligent platform designed to significantly enhance safety and efficiency in driving. This state-of-the-art system leverages sophisticated artificial intelligence (AI) algorithms and machine learning techniques to monitor and predict various road conditions, detect potential errors and hazards, and provide drivers with real-time guidance to avoid accidents and maintain optimal connectivity with the surrounding environment.

The AVIS Driver Assistance System is built on the AVIS Engine, a highly advanced simulation platform that has been extensively utilized for its development and testing. Through the use of this sophisticated simulation environment, the AI and machine learning algorithms employed by the AVIS system have been continuously refined and optimized. This allows the system to dynamically and intelligently adapt to changing road conditions, ensuring that it remains effective and reliable in a wide range of driving scenarios.

One of the key features of the AVIS Driver Assistance System is its ability to gather and process environmental data from a variety of sensors, including cameras, radars, lidars, and other advanced sensing technologies.

By analyzing this rich stream of data, the system is able to make optimal decisions that assist the driver in navigating the road safely and efficiently. These decisions range from simple alerts and warnings to complex maneuvers and suggestions that help the driver avoid potential dangers and respond appropriately to unexpected situations.

Furthermore, the system's reliance on continuous data collection and processing ensures that it is always up-to-date with the latest road conditions, making it a highly responsive and adaptive tool for modern driving. Whether it's navigating through heavy traffic, managing adverse weather conditions, or responding to sudden obstacles on the road, the AVIS Driver Assistance System provides drivers with the confidence and support they need to drive safely and efficiently.

AVIS Group Participates in INOTEX International Technology Exhibition at Pardis Technology Park, Tehran

AVIS Group proudly participated in the INOTEX International Technology Exhibition, held at Pardis Technology Park in Tehran. As one of the leading events in the region for showcasing technological advancements, INOTEX provided the perfect platform for AVIS to unveil two of its latest innovations: AVIS Electronic and AVIS Events.

During the exhibition, AVIS Electronic was introduced as a cutting-edge solution designed to revolutionize electronic systems with its advanced features and superior performance. Alongside this, AVIS Events was launched, offering a powerful platform that simplifies event management and enhances the user experience through innovative technology.

The unveiling of these products garnered significant attention from industry professionals, potential clients, and tech enthusiasts, highlighting AVIS Group's commitment to pushing the boundaries of technology and delivering solutions that meet the evolving needs of the market.

AVIS Group's presence at INOTEX not only showcased its latest products but also reaffirmed its position as a key player in the global technology landscape, dedicated to driving innovation and excellence in every aspect of its business.

Introducing AVIS Event: The Smart Solution for Seamless Event Management

In today's fast-paced and dynamic event landscape, the need for a robust and intelligent event management system has never been greater. AVIS Event is a cutting-edge platform designed to address this need by offering a comprehensive, all-in-one solution for planning, managing, and executing events of any scale. From small corporate gatherings to large international conferences, AVIS Event streamlines every aspect of the event management process, ensuring that your events are not only well-organized but also memorable for all participants.

Comprehensive Event Planning and Coordination:

AVIS Event stands out as a powerful tool that integrates all the critical elements of event management into a single, user-friendly platform. With AVIS Event, you can effortlessly handle every stage of event planning, from initial concept and registration to on-the-day management and post-event analysis. The system is designed to simplify complex tasks such as scheduling, resource allocation, vendor coordination, and venue management, allowing you to focus on creating a high-impact event experience.

Advanced Automation and Customization:

One of the core strengths of AVIS Event is its advanced automation capabilities. The platform intelligently automates routine tasks like sending invitations, managing registrations, and tracking attendee engagement, which significantly reduces the manual workload and minimizes the risk of errors. Additionally, AVIS Event is highly customizable, enabling you to tailor its features and workflows to meet the unique requirements of your event. Whether you need specific branding elements, custom reporting tools, or tailored communication strategies, AVIS Event provides the flexibility to adapt to your needs.

Enhanced Attendee Experience:

At the heart of any successful event is the experience of the attendees. AVIS Event is designed with this in mind, offering a suite of features that enhance attendee engagement and satisfaction. The platform allows for seamless communication with participants through integrated email and messaging systems, real-time notifications, and personalized content delivery. Attendees can easily access event schedules, session details, and speaker information via a dedicated mobile app, ensuring they stay informed and engaged throughout the event.

Real-Time Analytics and Insights:

AVIS Event also provides powerful real-time analytics that give you deep insights into every aspect of your event. From registration trends and attendee demographics to session popularity and post-event feedback, the platform offers comprehensive data that helps you measure the success of your event and identify areas for improvement. These insights are invaluable for making informed decisions during the event and for planning future events with even greater precision and effectiveness.

Scalable and Secure:

Designed to grow with your needs, AVIS Event is scalable and can support events of any size, from intimate gatherings to massive global conferences. The platform's robust infrastructure ensures that it can handle high volumes of traffic and data without compromising on performance or security. With advanced security protocols in place, you can be confident that all event-related data, including sensitive attendee information, is protected against unauthorized access and breaches.

The Ultimate Event Management Partner:

Whether you are an experienced event planner or someone new to the field, AVIS Event empowers you to deliver flawless events with confidence. Its intuitive design, combined with its powerful features and automation, makes it the ultimate partner for managing the complexities of modern events. By choosing AVIS Event, you are not just investing in a tool but in a solution that will transform the way you approach event management, enabling you to consistently deliver exceptional experiences that leave a lasting impact on your audience.

Experience the future of event management with AVIS Event and elevate your events to new heights of success and efficiency.
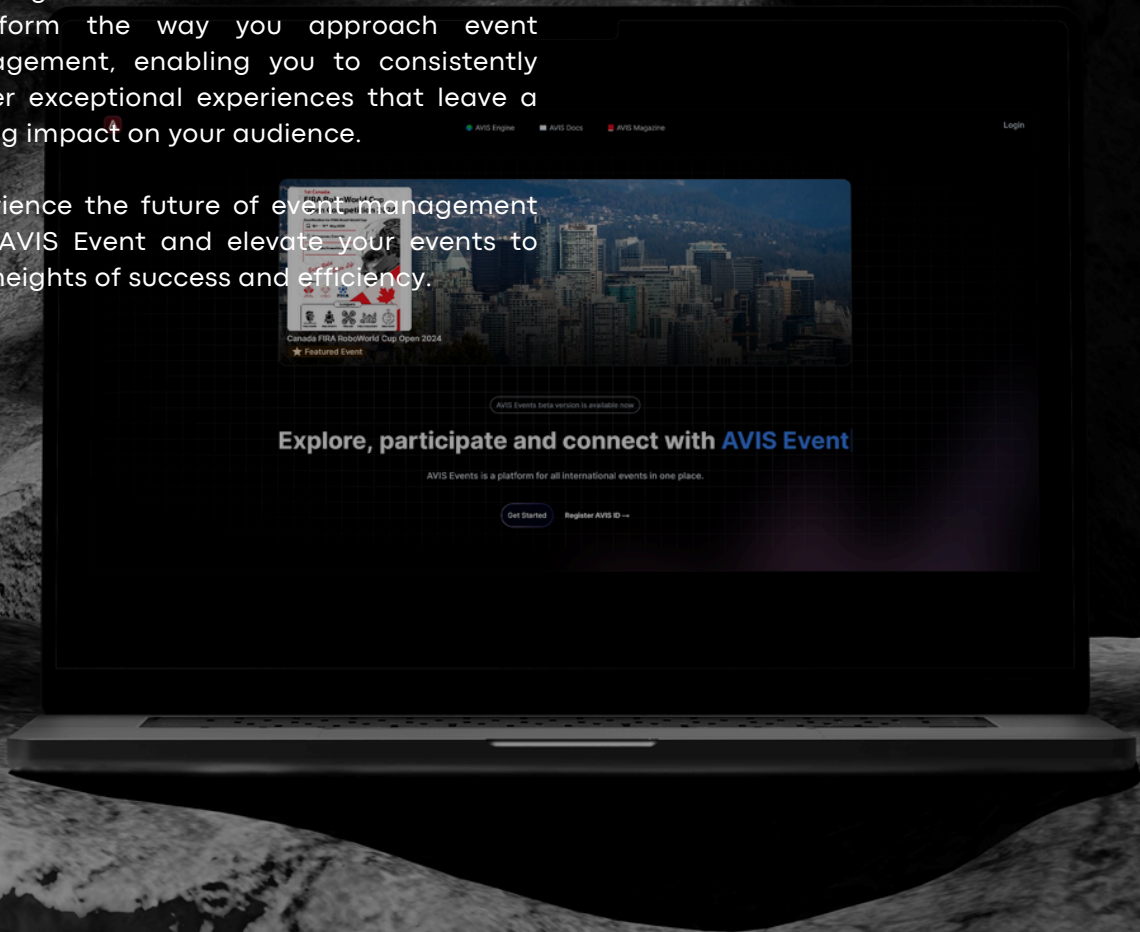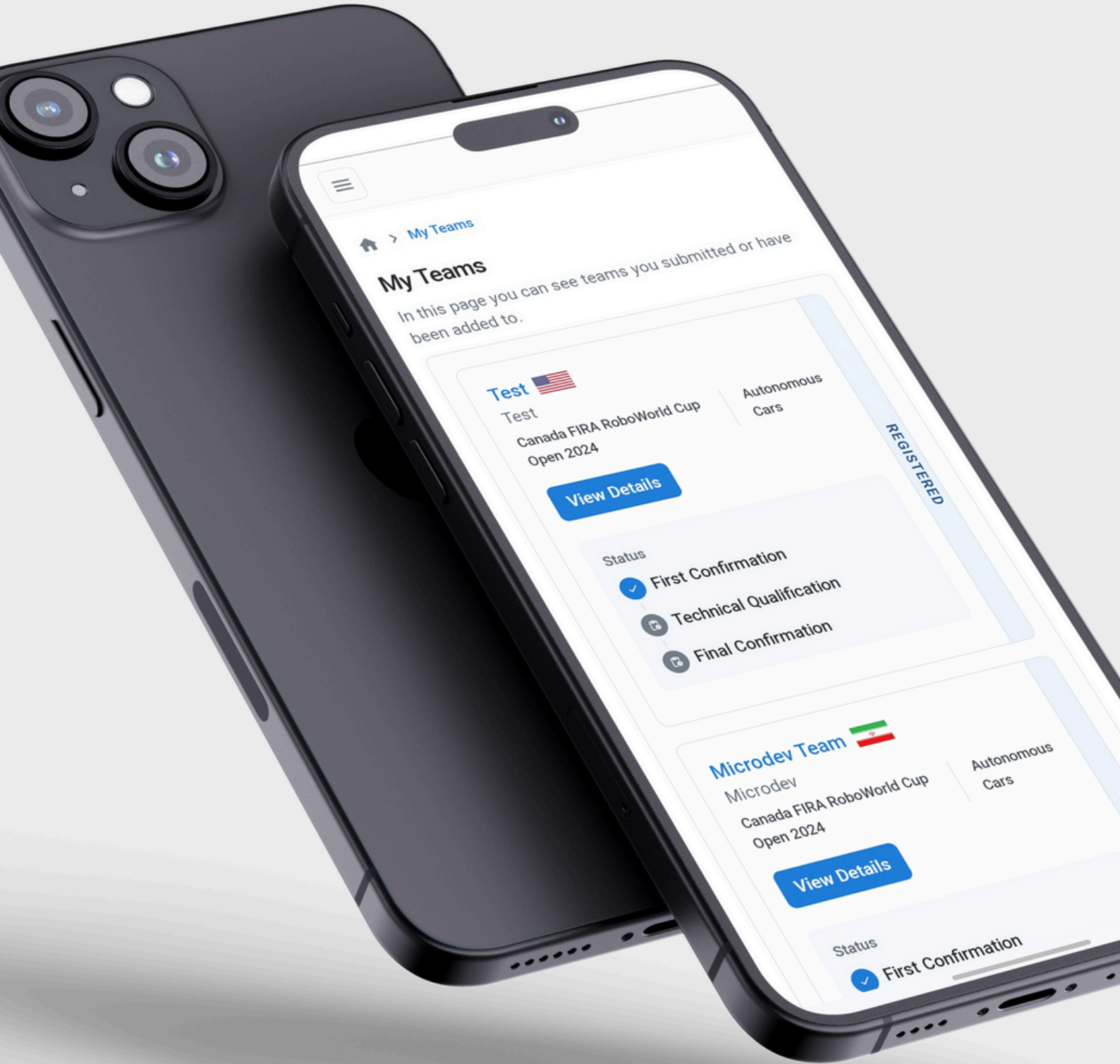
Currently in AVIS Event

+5000

Users

+5

Workshops

+5

International Events

+25

Countries

+10

Events

Workshop on State-of-the-Art Simulation in Autonomous Robotic Systems at IROS 2024, Khalifa University – Abu Dhabi, UAE

We are excited to invite you to the upcoming workshop on "State-of-the-Art Simulation in Autonomous Robotic Systems" at the International Conference on Intelligent Robots and Systems (IROS) 2024, hosted by Khalifa University in Abu Dhabi, UAE. This workshop will offer an in-depth exploration of Intrepid AI, an innovative platform that is transforming the development of autonomous robotics applications.

Participants will begin by diving into the core features of Intrepid AI, including its integrated editor, advanced simulator, and deployment mechanisms. These tools collectively empower robotics designers to efficiently create and deploy sophisticated robotic behaviors. The workshop will provide a comprehensive overview of how Intrepid AI streamlines the entire development process, from initial concept to final deployment.

A key focus of the workshop will be on Intrepid AI's simulation capabilities, where participants will learn to visualize and validate their robotic designs in a virtual environment before moving to real-world implementation. This aspect of the workshop is crucial for ensuring the reliability and effectiveness of autonomous robotic systems in practical applications.

The session will also include a hands-on introduction to the Intrepid graph, a user-friendly, low-code interface that simplifies the creation and modification of complex robotic behaviors. This interface is designed to make advanced robotics accessible to both experts and non-experts alike, breaking down barriers and enabling broader participation in the field.

The workshop will conclude with the announcement of the Intrepid Challenge, an exciting competition where participants can apply their newly acquired skills in a collaborative and competitive environment. This challenge will not only reinforce the concepts learned during the workshop but also provide a platform for innovation and creativity.

By attending this workshop, you will gain practical knowledge and skills that will empower you to leverage Intrepid AI in your own autonomous robotics projects. Whether you are an experienced professional or new to the field, this tutorial will demonstrate how Intrepid AI can revolutionize the process of developing autonomous robotics solutions, making it more efficient, accessible, and effective. Don't miss this opportunity to enhance your expertise and join a community of forward-thinking robotics professionals.

Canada FIRA RoboWorld Cup Open 2025: A Global Robotics Showcase in Toronto

We are thrilled to announce that the Canada FIRA RoboWorld Cup Open 2025 will take place in the vibrant and diverse city of Toronto in March 2025. This international robotics competition is set to be one of the most exciting events of the year, bringing together top-tier robotics teams from around the world to compete in a wide array of challenging leagues. Toronto, a city renowned for its innovation and technological prowess, will serve as the perfect backdrop for this prestigious event.

The Canada FIRA RoboWorld Cup Open 2025 will feature a comprehensive lineup of competitions, each designed to push the boundaries of what is possible in robotics. The event will include leagues such as Autonomous Vehicles, Flying Robots, Humanoid Robots, the Humanoid Robot Olympics, and the DRC. These competitions will test the capabilities of participants in designing, programming, and deploying advanced robotic systems that can perform complex tasks in dynamic and often unpredictable environments.

The Canada FIRA RoboWorld Cup Open 2025 is not just a competition; it is a celebration of innovation, creativity, and collaboration in the field of robotics. It offers participants the opportunity to showcase their cutting-edge solutions and compete on a global stage, while also fostering a spirit of cooperation and knowledge exchange among the international robotics community.

As a key sponsor of the event, AVIS is proud to support this global gathering of talent and innovation. AVIS's involvement underscores its commitment to advancing the field of robotics and its dedication to fostering the growth of a global community that is passionate about technology and its potential to change the world.

In addition to the competitions, the event will feature a variety of workshops, seminars, and networking opportunities, where participants can learn from industry leaders, share their experiences, and explore the latest trends and developments in robotics. These sessions will be invaluable for both seasoned professionals and newcomers to the field, offering insights into the future of robotics technology.

Toronto, with its rich cultural diversity and status as a hub for innovation, provides an ideal setting for this landmark event. The city's state-of-the-art facilities and welcoming atmosphere will ensure that all participants have an enriching and memorable experience.

We invite teams, researchers, students, industry professionals, and robotics enthusiasts from around the world to join us in Toronto this March for the Canada FIRA RoboWorld Cup Open 2025. This event promises to be a unique opportunity to witness the forefront of robotics technology, engage with a global network of experts, and be inspired by the incredible advancements that are shaping the future of robotics.

First-Ever EURASIA FIRA RoboWorld Cup Open 2024 to be Held in Van, Turkey

We are excited to announce the launch of the inaugural EURASIA FIRA RoboWorld Cup Open 2024, which will take place in the vibrant city of Van, Turkey, in November 2024. This groundbreaking event is set to be a major milestone in the robotics community, marking the first FIRA RoboWorld Cup to be held in the Eurasian region, and it promises to bring together some of the most talented and innovative minds from across the globe.

The EURASIA FIRA RoboWorld Cup Open 2024 will feature a wide array of competitions across multiple leagues, including Autonomous Vehicles, Flying Robots, Humanoid Robots, and several other cutting-edge categories. These competitions are designed to challenge participants to push the boundaries of robotics technology, demonstrating their expertise in designing, programming, and deploying advanced robotic systems.

The event will serve as a hub for innovation, collaboration, and knowledge exchange, drawing participants from a diverse range of countries and backgrounds. It will provide a unique opportunity for teams to showcase their work on an international stage, fostering cross-cultural exchanges and sparking new ideas in the rapidly evolving field of robotics.

In addition to the competitions, the EURASIA FIRA RoboWorld Cup Open 2024 will also feature a series of workshops, panel discussions, and networking opportunities, offering participants and attendees the chance to engage with leading experts and pioneers in the field. These sessions will cover the latest trends and developments in robotics, providing valuable insights and inspiration for both experienced professionals and newcomers to the field.

As the first FIRA RoboWorld Cup Open to be held in the Eurasian region, this event is expected to set a new standard for robotics competitions in the area. It will pave the way for future events and collaborations, helping to establish Van and the wider Eurasian region as a key hub for robotics innovation.

We invite teams, researchers, enthusiasts, and spectators from around the world to join us in Van this November for the EURASIA FIRA RoboWorld Cup Open 2024. Together, we will celebrate the achievements of the robotics community and look forward to the exciting developments that lie ahead in this dynamic field. Don't miss this opportunity to be part of a landmark event that will shape the future of robotics in the Eurasian region and beyond.

The city of Van, known for its rich history and stunning natural beauty, will provide a picturesque backdrop for this historic event. The local community and government are eagerly preparing to host the global robotics community, ensuring that all participants and visitors enjoy a welcoming and enriching experience.

Tehran to Host the Technology Olympics: A Pioneering Event in Robotics, Drones, and Advanced Technologies

Tehran is gearing up to host the prestigious Technology Olympics, an extraordinary event that will bring together some of the brightest minds and most innovative talents from around the globe. Scheduled to take place this October at the state-of-the-art Pardis Technology Park, the event is set to become a pivotal moment in the world of advanced technology, showcasing groundbreaking achievements and fostering collaboration across multiple sectors.

The Technology Olympics will be a comprehensive event, featuring a wide array of competitions and exhibitions that span various fields of emerging technology. Among the most anticipated categories are Robotics and Drones, where participants will have the opportunity to demonstrate their latest innovations and compete for top honors. These key segments of the event are being expertly organized by AVIS Groups in collaboration with the National Committee of Robotics of Iran (FIRA). This partnership underscores the event's commitment to advancing technological frontiers and providing a platform for showcasing cutting-edge developments in robotics and unmanned aerial vehicles (UAVs).

Robotics Competitions:
In the robotics sector, teams from around the world will present their most advanced robots, competing in various challenges that test their creations' agility, intelligence, and functionality. These competitions are designed to push the boundaries of what is possible with robotics, encouraging participants to innovate and excel in fields such as autonomous navigation, human-robot interaction, and artificial intelligence. The event will feature categories ranging from industrial robots designed for manufacturing and assembly to humanoid robots capable of performing complex tasks and interacting with humans.

Drone Competitions:
The drone segment will be equally exciting, with participants showcasing their UAVs in a series of challenges that highlight the latest advancements in drone technology. Competitions will include aerial races, obstacle courses, and precision tasks, all designed to test the speed, agility, and accuracy of the drones. This part of the Technology Olympics will emphasize the growing importance of drones in various industries, from agriculture and logistics to surveillance and disaster management, and will provide a glimpse into the future of aerial robotics.

Innovation and Collaboration:
The Technology Olympics in Tehran is not just about competition; it's also about fostering a spirit of innovation and collaboration. The event will bring together leading researchers, engineers, and entrepreneurs, creating an environment where ideas can be shared, partnerships can be formed, and the next generation of technology leaders can emerge. In addition to the competitions, the event will feature workshops, panel discussions, and exhibitions, allowing participants to explore new concepts, learn from industry experts, and network with peers from around the world.

Pardis Technology Park: The Perfect Venue**
Located just outside Tehran, Pardis Technology Park is the ideal venue for the Technology Olympics. Known as Iran's "Silicon Valley," the park is a hub of innovation and entrepreneurship, housing some of the country's most promising tech startups and research institutions. The park's cutting-edge facilities and vibrant atmosphere will provide the perfect backdrop for an event of this magnitude, ensuring that participants have access to the resources and support they need to succeed.
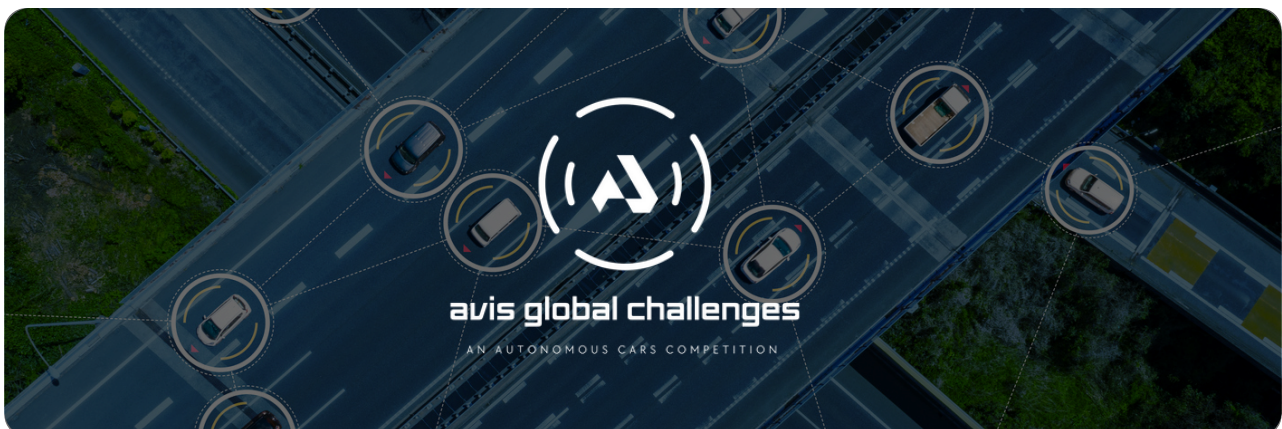
Driving the Future: The International AVIS Challenge 2025

The **International AVIS Challenge 2025** is set to be one of the most exciting global events in the field of autonomous vehicles. Scheduled to take place virtually from March 8 to 10, 2025, this cutting-edge competition is a must-attend for innovators and researchers passionate about the future of autonomous driving technology.

Hosted in collaboration with the esteemed **Canadian National Robotic Society**, the challenge will focus on **Autonomous Cars Simulation**, pushing the boundaries of what is possible in this rapidly evolving field. Participants from around the world will have the opportunity to demonstrate their skills in developing and optimizing autonomous vehicle systems in a highly competitive and dynamic environment.

The stakes are high, with a range of impressive prizes awaiting the top performers. But the rewards don't stop there. The winners will also earn the prestigious honor of becoming members of the **International AVIS Researchers Association**. This exclusive membership offers unparalleled access to a global network of leading researchers, industry experts, and cutting-edge resources, providing a unique platform for collaboration and innovation.

Whether you're a seasoned professional or an emerging talent in the field of autonomous vehicles, the **International AVIS Challenge 2025** promises to be an unmissable event that will challenge your skills, expand your network, and propel you to the forefront of the industry. Mark your calendars and get ready to be part of the future of mobility!

avis global challenges
AN AUTONOMOUS CARS COMPETITION
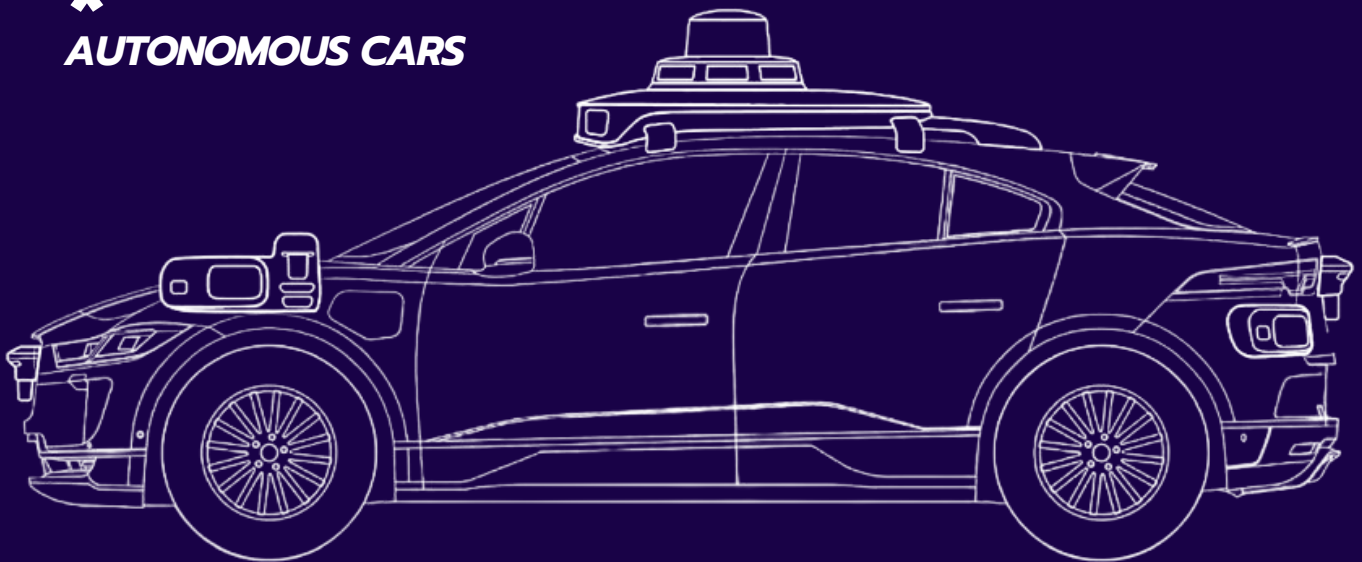
Tehran's Robotic Renaissance: The Iran FIRA Roboworld Cup 2025

The **Iran FIRA Roboworld Cup 2025** is poised to be one of the most significant events in the global robotics calendar, taking place in Tehran throughout March 2025. This prestigious competition will gather top robotics teams and enthusiasts from around the world to compete in a variety of leagues, each focusing on a different aspect of robotic technology and innovation.

Hosted by the **Iran National FIRA Robotics Committee**, the event is designed to push the boundaries of what robotics can achieve, with competitions spanning numerous categories. These include Humanoid Robots, where teams will showcase advanced robots that can mimic human movements and tasks; Autonomous Drones, challenging participants to develop drones that can navigate and perform tasks without human intervention; and Soccer Robotics, where robots will face off in dynamic, fast-paced soccer matches that test their agility, teamwork, and strategy.

But the Iran FIRA Roboworld Cup 2025 is more than just a competition; it's a celebration of technological advancement, creativity, and international collaboration. Over the course of the event, participants will have the opportunity to exchange ideas, learn from one another, and explore the latest innovations in robotics.

The competition will also serve as a platform for young and emerging talents to demonstrate their skills and gain recognition on a global stage.

In addition to the thrilling competitions, the event will feature workshops, panel discussions, and networking opportunities, providing attendees with the chance to deepen their knowledge, connect with industry leaders, and explore new collaborations.

For anyone involved in the field of robotics, the Iran FIRA Roboworld Cup 2025 is an unmissable event that promises to inspire, challenge, and excite. Join us in Tehran to witness the future of robotics in action!

The top teams of FIRA RoboWorld Cup 2024 Brazil

Autonomous Cars League (Physical - Pro)

Team Name	Logo	Affiliation	Ranking
CIIAM		COZCyT-Universidad Autónoma de Zacatecas	**1st Place**
RoadKiller		ITMO University	2nd Place
URUBOTS		University of Technology of Uruguay (UTEC)	**3rd Place**

The top teams of FIRA RoboWorld Cup 2024 Brazil

Autonomous Cars League (Physical - U19)

Team Name	Logo	Affiliation	Ranking
StoneTime		Academy Robozoom LLC	1st Place
Ten Ton		West Vancouver School district	2nd Place

Innovation in MedTech: EyeBo's Journey from Startup to Global Success

Mohammad Soltani, Co- Founder of Eyebo

I am Mohammad Soltani, the co-founder and director at EyeBo Technology.

I am currently a student of Electromechanical Engineering and Robotics at Centennial College(Toronto), and I have spent two years pursuing a bachelor's degree in Mechanical Engineering at Ferdowsi University of Mashhad. I have experience in programming with Python and the OpenCV library. Additionally, I hold a CIW Web Design certification from Bartar Andishan Institute, earned in 2019. I also have experience working with AutoCAD and Inventor for 2D and 3D industrial part design, and I am proficient in industrial drawing rules as well as hand-drawn industrial design.

With my passion for modern technologies and artificial intelligence, I decided to launch my startup, EyeBo, which began operations in June 2024.

The name EyeBo is derived from the words 'Eye' and 'Robo,' referring to a robotic or artificial eye. This name refers to the technology of image processing using artificial intelligence.

EyeBo's mission is to solve users' problems by leveraging modern technologies and artificial intelligence in the most accessible and straightforward ways. We strive to create products that offer the highest quality and efficiency while maintaining minimal production costs.

our first product is the H-Sit software application, with the full name "Healthy Sitting." This product utilizes image processing technology to monitor the user's sitting posture in real-time. If the user's sitting posture deviates from the standard, the software provides an alert to encourage a return to proper posture.

As a first step for EyeBo and to gain visibility among experts and the general public, I decided to participate in the FIRA Roboworld Cup 2024 in Brazil. I drew on my experiences and consulted with specialists to compete in the Innovation and Business League. Additionally, I formed a creative and hardworking team with the support and collaboration of the Kavosh AI Robotics Academy to help pave the way for EyeBo's success in the competition. Ultimately, the Kavosh team, representing EyeBo from Canada, achieved first place globally, marking EyeBo's first significant success.

While EyeBo has initially focused on the MedTech sector, our scope is not limited to this field. We aim to expand into other technological domains, with the intention of addressing a broader range of real-world challenges across various industries.

EyeBo is committed to innovation and expanding into new tech fields. We aim to leverage advanced technology to tackle real-world challenges and make a positive impact across various industries.

Mohammad Soltani
Co- Founder of Eyebo

Jessica Lang

Angelina Wang

Nathan Yin

Carolyn Zhang

KAVOSH

1st Place in FIRA ROBOWORLD CUP 2024 BRAZIL

Innovation and Business League (Pro)

Brazil, São Luís

KAVOSH

CNRS

EyeBo® Technology

FIRA

Staying Awake, Staying Safe: An Interview on the Driver Drowsiness Detection System

Driver fatigue is a leading cause of road accidents, often with devastating results. To address this growing problem, the Driver Drowsiness Detection System (MHI) was developed using advanced facial recognition and eye-tracking technology. This system is designed to alert drivers when they become drowsy, helping to prevent accidents before they occur. We had the opportunity to speak with **Nazanin Zahra Montazer Torbati**, Product Manager of MHI Driver Assistance Systems, and **Haniyeh Montazer Torbati**, CEO and Co-Founder of HIT Group, to discuss this innovative solution, its features, and what the future holds for the company.

Introductions

Nazanin Zahra Montazer Torbati:

As the **Product Manager for MHI Driver Assistance Systems**, I oversee the development process to ensure that our technology not only meets safety standards but also delivers an excellent user experience. My focus is always on how we can improve the system to benefit as many drivers as possible.

Haniyeh Montazer Torbati:

As the **CEO and Co-Founder of HIT Group**, my responsibility is to shape the company's vision and drive innovation. We're deeply committed to leveraging technology to solve real-world issues, especially in the field of road safety, where every small improvement can have a life-saving impact.

Development and Inspiration

What inspired the development of this system?

Nazanin Zahra Montazer Torbati:
"The idea was born out of the need to address one of the biggest hidden dangers on the road—driver fatigue. We realized that many accidents could be prevented if drivers were made aware of their drowsiness before it turned into a dangerous situation. Our goal was to create a system that could monitor drivers in real time and alert them at the right moment.

Haniyeh Montazer Torbati:
It wasn't just about identifying drowsiness; it was about doing it in a way that's both efficient and user-friendly. We wanted to build something that was accessible to everyone, not just high-end vehicles. That's why we focused on creating a portable solution that could be installed in any vehicle.

How the System Works

Can you explain how the Driver Drowsiness Detection System operates?

Haniyeh Montazer Torbati:
The system uses facial recognition technology combined with eye aspect ratio (EAR) analysis. It continuously tracks the driver's eye movements and detects when the EAR falls below a certain threshold, which is an indicator of drowsiness. If this threshold is crossed for a few seconds, the system immediately alerts the driver.

Staying Awake, Staying Safe: An Interview on the Driver Drowsiness Detection System

Unique Features

What distinguishes this system from others currently on the market?

Nazanin Zahra Montazer Torbati:
Its key differentiator is its portability and ease of use. Many existing systems are built into specific car models, making them inaccessible to drivers with older vehicles or different car brands. Our system, on the other hand, can be installed in any vehicle, making it versatile and affordable for a much wider range of users.

Haniyeh Montazer Torbati:
Another advantage is the simplicity of installation. It's essentially plug-and-play, with no need for complicated wiring or professional installation services. This accessibility means that more drivers can benefit from the safety features without facing technical barriers.

Future Developments

What are the next steps for this technology? What can users expect in the future?

Nazanin Zahra Montazer Torbati:
We're constantly working on improving the system's accuracy, especially when it comes to detecting drowsiness in different lighting conditions or for drivers who wear glasses. We also want to enhance the overall user experience by making the system more intuitive and responsive.

Haniyeh Montazer Torbati:
Another area we're focusing on is expanding compatibility. We want this system to work seamlessly in any vehicle, regardless of make or model. We're also exploring additional features, such as integrating with other driver assistance systems like lane-keeping alerts or adaptive cruise control.

HIT Group's Vision for the Future

What's next for HIT Group? Where do you see the company in the next five to ten years?

Haniyeh Montazer Torbati:
Our vision is to become a leader in the field of driver assistance systems and road safety technologies. While the Driver Drowsiness Detection System is an important part of our product line, we're also looking at other areas where we can innovate, such as autonomous driving technologies and smart vehicle-to-infrastructure communication.

Nazanin Zahra Montazer Torbati:
We also plan to expand internationally. Currently, our products are available in a few key markets, but we want to make them accessible to drivers all over the world. The future is very exciting for us, and we believe that our technology will play a critical role in making roads safer globally.

Final Thoughts

The Driver Drowsiness Detection System is a game-changer in road safety, offering real-time alerts that could prevent countless accidents. Its portability and ease of use make it a must-have for drivers everywhere, from long-haul truckers to daily commuters. As Nazanin Zahra Montazer Torbati and Haniyeh Montazer Torbati continue to innovate and push the boundaries of road safety technology, HIT Group is poised to lead the way into a safer, smarter future for drivers around the world.

Zoox: Revolutionizing the Future of Urban Mobility

In the ever-evolving landscape of autonomous vehicles, Zoox stands out as a trailblazer with a bold vision for the future of urban mobility. Founded with the mission to make transportation safer, cleaner, and more efficient, Zoox has been at the forefront of developing cutting-edge autonomous vehicles that challenge traditional notions of driving and vehicle design.

Unlike conventional car manufacturers that retrofit existing vehicle designs with autonomous technology, Zoox has taken a fundamentally different approach. The company has built its autonomous vehicle from the ground up, purposefully designing it to be fully self-driving and bidirectional, without the constraints of a traditional car layout. This innovative design eliminates the need for a steering wheel, driver's seat, or front-facing orientation, resulting in a spacious, symmetrical cabin that maximizes passenger comfort and interaction.

Zoox's vehicle is not just about autonomy—it's about rethinking what a car can be in the context of modern urban environments. Designed to navigate complex city streets, Zoox's vehicle is equipped with an advanced suite of sensors, including LiDAR, radar, and cameras, providing a 360-degree view of its surroundings. The vehicle's AI-driven software processes this data in real-time, enabling it to safely and efficiently handle the unpredictable nature of urban traffic.

One of Zoox's key innovations is its focus on ride-sharing as a primary use case for its vehicles. Recognizing the growing demand for sustainable and efficient urban transportation, Zoox aims to offer a fully autonomous, electric ride-hailing service that reduces the need for private car ownership and minimizes the environmental impact of transportation. The company's vehicles are powered by a battery system that provides enough range for a full day of operation, with zero emissions.

Beyond the technology, what truly sets Zoox apart is its commitment to safety. Every aspect of the vehicle's design, from the redundant systems to the rigorous testing protocols, is centered around ensuring the highest levels of safety for passengers and pedestrians alike. Zoox has adopted a comprehensive safety-first approach, rigorously testing its vehicles in both controlled environments and real-world conditions to ensure they can handle any situation they encounter on the road.

As Zoox continues to push the boundaries of what's possible with autonomous vehicles, it is clear that the company is not just creating a new type of car—they are pioneering a new paradigm for urban mobility. With its innovative technology, visionary design, and unwavering commitment to safety and sustainability, Zoox is poised to play a leading role in shaping the future of transportation.

In a world where the demands on urban transportation are rapidly changing, Zoox offers a glimpse into a future where mobility is not just about getting from point A to point B, but about reimagining how we move, interact, and live in our cities.

Figure: OpenAI's Humanoid Robot Paving the Way for a New Era of Human-Robot Interaction

OpenAI, a leader in the field of artificial intelligence, has once again pushed the boundaries of technology with the introduction of its humanoid robot, Figure. This groundbreaking creation represents a significant leap forward in the realm of robotics, merging advanced AI with sophisticated mechanical design to create a robot that closely mimics human abilities and interactions.

Figure is more than just a technological marvel; it embodies OpenAI's vision of how robots can seamlessly integrate into our daily lives, providing assistance, enhancing productivity, and even offering companionship. Designed to look and move like a human, Figure is equipped with an array of sensors, actuators, and AI-driven software that allow it to perform complex tasks, navigate dynamic environments, and interact with people in a natural, intuitive manner.

One of the most remarkable aspects of Figure is its versatility. The robot is capable of performing a wide range of functions, from basic household chores to more sophisticated tasks that require decision-making, adaptability, and learning. Powered by OpenAI's advanced machine learning algorithms, Figure can understand and respond to verbal commands, recognize and manipulate objects, and learn from its experiences to improve its performance over time.

What sets Figure apart in the crowded field of humanoid robots is its deep integration of AI, which enables it to process and understand vast amounts of information in real-time. This allows Figure to not only perform tasks autonomously but also to anticipate and respond to the needs of its users. Whether it's assisting in a home, supporting industrial operations, or engaging in customer service, Figure is designed to adapt to a variety of roles, making it a versatile tool for the future.

Safety and reliability are also at the forefront of Figure's design. OpenAI has implemented stringent safety protocols and redundant systems to ensure that the robot operates safely in human environments. Its design incorporates soft, flexible materials that make interactions with humans safer and more comfortable, further emphasizing OpenAI's commitment to creating robots that enhance rather than disrupt our lives.

As OpenAI continues to refine and expand the capabilities of Figure, the potential applications for this humanoid robot are vast. From healthcare and education to logistics and entertainment, Figure represents a new frontier in how we envision and interact with robots. Its development marks a significant step toward a future where intelligent machines work alongside humans, enhancing our capabilities and helping to solve some of the most pressing challenges of our time.

In the rapidly advancing world of robotics, Figure stands as a testament to the incredible progress being made in AI and human-robot interaction. OpenAI's commitment to innovation and ethical development ensures that Figure will not only be a powerful tool but also a responsible and beneficial presence in the lives of those who use it.

AVIS Researchers Association Membership Certificate

Special membership certificate for researchers in the field of autonomous vehicles

What is AVIS Researchers Association Membership Certificate?

AVIS Engine Group has established an association under the title "AVIS Researchers Association" to provide services and networking among researchers in the field of robotics and artificial intelligence, especially researchers in the field of autonomous vehicle development. In order to provide better services and create a wide community of AVIS Engine contacts, this association has considered to issue and provide certificates to people who qualify for membership in this association. In the following, we discuss the necessary conditions to receive "AVIS Researchers Association Membership Certificate".

Who Can Apply?

The necessary criteria to obtain AVIS Researchers Association Membership Certificate for Researchers is at least having one item as follows:

- Sending documents related to any activity in the field of development of autonomous vehicles

- Carrying out the project in the platform of AVIS Engine simulators along with sending video and Technical Report of Project (TRP)

- Innovation in project implementation in the AVIS Engine platform

- Participating in events held on the platform of AVIS Engine simulator such as FIRA RoboWorld Cup and presenting a certificate of participation in the competition

Membership certificates are provided based on activities performed at three levels: A, A+, and A++.

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MEMBERSHIP LEVELS

People who are involved in the development of autonomous vehicles; They can receive A-level membership by submitting their resume and documentation of their activity if approved by the association committee.

People who have done a project on the AVIS Engine simulator platform can apply to receive A+ level membership by sending a video of the project done on the AVIS Engine platform and Technical Report of Project (TRP).

People who have innovated in carrying out the project on the platform of AVIS Engine simulator can apply for A++ membership by submitting the project documentation. Also, people who participate in events such as FIRA RoboWorld Cup, which is held on the platform of AVIS Engine simulator, can obtain A++ membership by presenting a certificate of participation in the competition.

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## How can I apply for membership?

People must first fill out the initial membership form and register on the AVIS Engine website.

After that, in the next step, they can send their membership request by uploading the documents and entering the relevant information.

The result of the initial review of membership by the association committee will be sent to you by email.

AVIS RESEARCHERS MEMBERSHIP BENEFITS

- Tournament information; exhibitions ; Conferences and festivals that are held around the world in the field of robotics and artificial intelligence will be sent to the members of this association with discounts and special conditions for participation.

- AVIS Engine creates a network between the AVIS Researchers Association Members.

- The possibility of providing certificates to companies; AVIS Engine partner universities and organizations.

- Valid global certificate of membership.

- Members who receive A++ level membership can access new AVIS Engine products before they are available to the public; They have the possibility to test and review the product.

- It is possible to verify the validity of the certificate online on the AVIS Engine website.
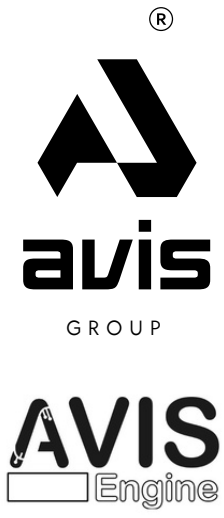
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