

Automotive Cyber Security: Protecting the Vehicular Network

An IEEE eLearning Course Program

Automotive Cyber Security: Protecting the Vehicular Network

As the automotive industry continues to work on intelligent and autonomous vehicles, there is a need to better comprehend the safety and security of this connected technology.

The IEEE course program, Automotive Cyber Security: Protecting the Vehicular Network, aims to foster the discussion on automotive cyber security solutions and requirements for not only intelligent vehicles, but also the infrastructure of intelligent transportation systems.

Technical professionals need to understand the cyber security challenges, possible solutions, and methodology to finding the security requirements needed during the design and development of automotive technology.

This course investigates cyber security issues and solutions as well as how blockchain technology applies to automotive applications. It also provides in-depth knowledge of collecting, analyzing and interpreting vehicular data and its impact on security, the economy, and safety into the future.

Upon completion of this course program, technical professionals will understand:

- The most important aspects of the automotive cyber security evolution.
- The implementation process of vehicle-to-vehicle (V2V) and vehicle to infrastructure (V2X) communication systems to work with autonomous vehicles and intelligent transportation systems.
- The analysis and interpretation process of vehicular data on automotive technology.

Automotive Cyber Security Quick Facts

Five-course program designed to give engineers an understanding of automotive security technology from an end-to-end perspective

Courses developed and peer reviewed by experts in their fields, a process that guarantees the quality of technical content

Printable IEEE CEU or PDH certificates awarded upon successful completion of the program through the IEEE Learning Network

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Evolution of Intelligent and Autonomous Vehicles

Learn about the evolution of the automotive industry and how its recent connection with information technology created a path towards autonomous vehicles. In this course, discover the fundamentals of the vehicle communication environment, the communication layers that compose it, and cyber security basics. Upon completion, you will be able to interpret an automotive cyber security risk analysis of past attacks and known threats, know how to minimize risk, and develop possible solutions to automotive cyber security threats.

Connected Vehicle Communication

It is important to understand how connected vehicles work and communicate. In this course, you will study the automotive system architecture and the secure vehicular cloud server platform. Upon completion, you will have a better outlook on the future of driving lessons, real-time coaching, smart driving, the conventional parking lot, and smart parking solutions.

Securing Intelligent Transportation Systems

In this course, you will learn the definition and goals of intelligent transportation systems. Upon completion, you will be able to identify potential attacks on intelligent transportation system technologies and understand the engineering requirements and specifications to make them secure.

Using Blockchain Technology to Secure Autonomous Vehicles

Learn about the automotive applications of blockchain technology. In this course, you will discover blockchain technology solutions for autonomous vehicles. It includes applied scenarios for blockchain technology solutions and how they work, a use-case scenario on blockchain-based intelligent vehicle intersection, and a simulation analysis of applied blockchain technology solutions and how decisions are made. Upon completion, you will be able to comprehend the role of blockchain technology in automotive cyber security systems.

Collecting, Analyzing, and Interpreting Vehicular Data

Learn how to analyze cyber security and safety data for intelligent and autonomous vehicles. In this course, you will learn how to collect available real-time vehicular data and comprehend the analysis process and data interpretation. Upon completion of this course, you will be able to comprehend research finding conclusions regarding vehicular economy and safety.

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