**Self-Driving Cars**

Self-driving cars are the most interesting application of machine learning from my point of view.A self-driving car, also known as autonomous vehicle, is a vehicle that is capable of sensing its environment and and moving safely with little or no human input.Self-driving cars combine a variety of sensors to perceive their surroundings, such as radar,lidar,sonar.gps,odometry and inertial measurement units.Advanced control systems interpret sensory information to identify appropriate navigation paths,as well as obstacles and relevant signage.Long distance trucking is seen as being at the forefront of adopting the technology and implementing the technology.

Autonomous vehicles can get into many [different situations](https://www.intellias.com/epic-fails-autonomous-vehicles/) on the road. If drivers are going to entrust their lives to self-driving cars, they need to be sure that these cars will be ready for the craziest of situations. What’s more, a car should react to these situations better than a human driver would. A car can’t be limited to handling a few basic scenarios. A car has to learn and adapt to the ever-changing behavior of other vehicles around it. [Machine learning algorithms](https://www.intellias.com/machine-learning-ai/) make autonomous vehicles capable of making decisions in real time. This increases safety and trust in autonomous cars.

Machine learning algorithms are making self-driving cars a reality.Machine learning is a subset of artificial intelligence. It focuses on improving how a machine [performs some task](https://link.springer.com/chapter/10.1007/3540634932_3" \t "https://www.intellias.com/how-machine-learning-algorithms-make-self-driving-cars-a-reality/_blank). Here’s the most important part: learning means that the machine goes beyond the training data. Equipped with machine learning algorithms, a computer can apply induction and form knowledge structures. In other words, where traditional programming fails, machine learning and artificial intelligence can succeed.

Machine learning can be supervised or unsupervised. The main difference between the two options lies in the amount of human input required for learning. In supervised learning, a computer interprets data and makes predictions based on input data, then compares those predications to correct output data in order to improve future predictions. In unsupervised learning, data isn’t labeled. So the computer learns to [recognize the inherent structure](https://www.codecademy.com/articles/machine-learning-supervised-vs-unsupervised" \t "https://www.intellias.com/how-machine-learning-algorithms-make-self-driving-cars-a-reality/_blank) based on input data only.

Today, machine learning is among the [hottest technologies for autonomous driving](https://www.intellias.com/the-emerging-future-of-autonomus-driving/). Particularly, deep learning is getting increasingly popular. Deep learning is a class of machine learning that focuses on computer learning from real-world data using [feature learning](https://en.wikipedia.org/wiki/Feature_learning" \t "https://www.intellias.com/how-machine-learning-algorithms-make-self-driving-cars-a-reality/_blank). Thanks to deep learning, a car can turn raw complex data into actionable information.