L00 Exploring Real-World Applications of Computer Vision

Have you ever imagined how the world was 1000 years ago compared to how things are today? In the past 1000 years we have ridden horses to get through our day-to-day lives. 150 years ago, we were driving vehicles to get to our destination a lot faster and spend our days a lot more efficient. Today, we have autonomous vehicles that do all the driving for us. We live in a world where Artificial Intelligence is taking over almost every aspect of life, medicine, retail, camera, crop monitoring, Agriculture and so forth. With the help of different applications through computer vision, deep learning and machine learning, though with flaws, this is made possible.

Autonomous vehicles have been around for awhile now, approximately being introduced in the early 1960s at Stanford University. The original design was a small vehicle that could navigate the surface of the moon with minor issues. Later, the idea was adopted by some talented engineers in Japan who took it a step further making it possible to travel 20 miles an hour without a driver; this was made possible by computer vision. Today’s technology we can travel without ever touching the wheel. To take it a step further, these vehicles can completely map out their surroundings via cameras and radars and accurately determine which lane to turn into without you ever having to look at the road.

Tesla’s autonomous vehicle has proven to be one of the most reliable, convenient and promising vehicles out. It is equipped with the latest cameras, LiDars, Sensors, Path planners, Navigations, Radar, Ultrasound and Artificial Intelligence. Tesla, who uses the DoJo System, has a self-driven system that allows a customer to get anywhere in the city without ever having to smash on the gas. According to Telsa’s website, it says “Our birds-eye-view networks take video from all cameras to output the road layout, static infrastructure and 3D objects directly in the top-down view. Our networks learn from the most complicated and diverse scenarios in the world, iteratively sourced from our fleet of millions of vehicles in real time.” <https://www.tesla.com/ai> This means, this is in direct parallel to how computer vision works. By using their cameras, they can take photos of everything around them and process them through their computer vision algorithms. Which in return gives the computer the data it needs to accurately determine which way to go or when to stop the vehicle in real time.

There are a lot of pros to having autonomous vehicles, some being traffic efficiency, less human error and less car accidents. You’ll be able to get around in traffic efficiently and safer because there will be a lot less room for human error. Computers do not get tired, and they do not sleep so if you have a full battery you will get to where you need to be. Even if you are on the road after a long day of work and you haven’t been to sleep for 48 hours you could still potentially get to your destination safely and on time. This will also reduce the chances of having an accident. The cons of autonomous vehicles are being the systems are not perfect and there are still a lot of improvements that need to be made. Another con implication would be there would be potential job losses in the transportation industry and other related fields.