**Autonomous vehicles Deep Learning on the Road**

Self-driving cars, also called autonomous vehicles (AVs), use AI and deep learning to see what's around them and drive with little or no help from people. These cars are meant to lower the number of traffic accidents, make traffic flow more smoothly, and give people who can't drive a way to get around. Waymo, Uber, and Tesla are just a few of the companies that have put a lot of money into self-driving car technology. AVs are one of the most promising and disruptive deep learning applications of this century, even though they aren't used everywhere yet.

**How it Works:**

AVs use a number of sensors, such as cameras, radar, LiDAR, and GPS. Deep learning models, mostly Convolutional Neural Networks (CNNs), look at a lot of data to find road signs, people walking, lane markings, and other cars. The system makes decisions in a split second based on what it sees and hears. Advanced reinforcement learning is also used to help people make decisions about things like navigation, traffic rules, and avoiding obstacles.

**Effects on Society and Technology:**

Safety and Efficiency: AVs could greatly lower the number of people who die on the road because of mistakes, tiredness, or drugs.

Job Loss: Millions of people who drive for a living (like truck drivers and taxi drivers) could lose their jobs.

Privacy of Data: Cars collect and store information about users, such as their routes, preferences, and driving habits, which raises serious privacy concerns.

Ethical Dilemmas: When an AV crashes, it may have to choose who to protect, which raises big moral and legal questions.

Infrastructure and Regulation: To be successful, the roads need to be greatly improved and the government needs to have strong rules in place.

**References:**

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