**Research Overview**

Tesla is a leading car manufacturer advancing autonomous vehicle (AV) technology through its Full Self-Driving (FSD) system. While not fully autonomous (Level 5), Tesla's FSD features offer partial automation with capabilities like auto lane changes, navigation on autopilot, and limited self driving in urban areas. Despite technical progress, significant ethical issues arise in the design, training, and deployment of Tesla's AV systems.

**Ethical Considerations**

Safety and Reliability: The foremost ethical obligation is ensuring the AV operates safely under various driving conditions. Failure to do so may endanger passengers, pedestrians, and other road users. Tesla has faced scrutiny from the National Highway Traffic Safety Administration (NHTSA) for accidents involving its Autopilot system, highlighting the critical need for rigorous testing and transparency.

Transparency and Accountability: Tesla should clearly communicate the limitations of its FSD system. Marketing language like "Full Self-Driving" has been criticized as misleading, potentially influencing driver behavior and resulting in overreliance on the technology.

Bias and Fairness in Algorithms: Tesla's AV algorithms rely heavily on data collected from its fleet. This raises ethical concerns about training data bias. For example, if the data underrepresents certain driving environments or demographics, the system might perform poorly in those contexts.

Privacy and Data Use: Tesla vehicles collect real-time driving data to improve their AV systems. Ethical development must include informed consent, anonymization, and responsible data governance to protect user privacy.

**Supporting Data and Literature**

A study by Favarò(2018) analyzed Tesla Autopilot crashes and found behavioral misalignment between driver expectations and the system's true capabilities.

Research from Wilson(2021) emphasized that biased datasets can lead to unequal AV performance, particularly in urban vs rural areas or in detecting pedestrians of different racial backgrounds.

Zhou & Li (2020) discuss the importance of data ethics in AV systems, advocating for user control over personal data and compliance with privacy frameworks like GDPR.