# PERSONAL REFLECTION

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With the rapid development of machine learning, object detection technology like YOLO is widely used in diverse industries. In our research, we studied YOLO used in traffic management. Due to its smart algorithm, it could help humans solve traffic issues on some levels. In my point of view, this is meaningful to us, because it not only improves the efficiency of the traffic by combining its automatic object detection technique with the traffic management system but also reduces the workload for people who oversee the management manually. In another word, applying YOLO in traffic management systems can provide smart adjustments to improve traffic congestion. In some countries, it can be on duty instead of traffic police due to its non-stop computing power. Human has limited mental and physical while computers are not restricted by these. From my point of view, YOLO can make a better life for people.

Moreover, when YOLO is used to assist in managing the traffic, it brings the era to us, where YOLO detecting traffic accidents could alert emergency medical services without hesitation and automatically when accidents happen. This assists the society significantly when some accidents happen in rural places or during the night, there is a very low possibility to have people around to help. In addition, this can foster and relieve medical workers who are on night shift duty. This may significantly change the way how emergency medical services operate in the future.

Society could use YOLO to detect and track the fugitives when it is applied in the traffic management systems. This could greatly help maintain a stable and safe community by using the technology. It costs a lot of financial and manpower in searching for criminals. This can be improved when applying YOLO in the traffic management system, which works automatically without degrading efficiency and effectiveness. Even better, it costs much less financial and manpower.

Although YOLO carries out lots of benefits to society in traffic management, it could equally grow the criminals. Since this technology is used in traffic management, when it is hacked, the privacy data will be leaked like identity theft and impersonating traffic violations could happen. The non-benign organizations or individuals may conduct robbery by utilizing YOLO to detect and track objects and control the traffic to take advantage. To avoid this, we must secure the system to the highest standard.

In our research, the improvement of society’s stability and the crime rate is highlighted. From the perspective of the team member, applying YOLO in traffic management can assist in reducing the financial loss by traffic congestion. It sounds great to society however this is not considerate in contributing to human’s benefit. When the technology applies, some conventional job positions are about to be eliminated, which affects people working in those positions. Before integrating YOLO to automate traffic management, we need to consider how to help transfer or train people to grow as professionals to reposition. This is more reliable and fairer in compliance with the ethical principle.

The opportunities create values for societies while it is also important to think of relevant ethical issues. The first ethical issue I found is that to obtain a high-quality traffic management system integrating YOLO, we may face some hard decisions. The accidents rate may rise due to the inaccuracy of object detection by YOLO at the beginning. Because no one can ensure that YOLO is perfectly capable in the production environment until it is applied. The way to make it capable is to apply YOLO in a traffic management system in the real world and estimate its performance. However, this may be at the cost of human life. And who should be the pioneer to sacrifice for success? This is unacceptable and unwanted since technology is invented for contributing to society and to human well-being. To be more specific, any negative consequences should be minimized to ensure human rights which are not limited to health, safety, etc.

When applying YOLO in traffic management, it watches and records every move of pedestrians and vehicles as mentioned previously. It has a potential risk of leaking privacy. Even the authorized management team may have the opportunity to apply YOLO in tracking private targets in the traffic management system. This may disobey the ethical principle, which requires avoiding negative consequences including unjustified disclosure of information. Before applying YOLO, professionals have obligation to tackle privacy issues, which are fundamental individual's rights. To prevent privacy leaking issues, authorized access to YOLO in the traffic management systems should be restricted to be consistent with ethical principles. Suggested by the ACM code, one of the rules to authorize the access can occur when compelled by the public good.

To conclude, by applying YOLO in traffic management, most people in the society can get benefits from the technology, which relieves the working pressure of people working in some departments, helps create a safer society, automates, and improves traffic management etc. We just need to evaluate the ethical principles and remember the primary consideration which is the public good. These principles are essential for us to minimize the negative consequences of technologies.