HonkFast, PreHonk, HonkBack, PreHonkBack, HERS, AdHonk and AHC: the Missing Keys for Autonomous Driving

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Abstract

Autonomous cars are still not broadly deployed on our streets. We deeply investigated the remaining challenges and found that there is only one missing key: honking ("discovered in a flash of genius" [8]). We therefore propose several key ideas to solve this remaining challenge once and for all, to finally enable level 6 autonomous vehicles (level 5 + honking). We propose HonkFast, a system to honk fast; PreHonk, a mechanism to honk earlier; HonkBack, an algorithm to respond to honking; PreHonkBack a synergy of PreHonk and HonkBack; HERS, an efficient honking energy recovering system; AdHonk an adverserial attack for PreHonkBack to fully exploit the benefits of HERS, and AHC, an active honk cancelling system. We found that this invention not only enables autonomous driving, but also removes all current traffic issues with nonautonomous cars. Our simple and easy system can be added to every car and honks in perfection, "the potential impact of the proposed method is high." [9].

1. Introduction

In this work [4] we propose HonkFast, PreHonk, HonkBack, PreHonkBack, HERS, AdHonk and AHC: the missing enabling technologies for autonomous driving. Just as pre-engine cars could not propel themselves (Figure 1), self-driving cars without the ability to honk cannot fully interact with human drivers. Accidents happen because of missing honking capabilities; it is clear that this paper is highly relevant, timely, and its publication of the utmost moral importance (in particular, should this work be rejected we can estimate and publish the consequent loss of life due to each reviewer). To learn more about autonomous driving we refer the valued reader to [6].

1.1 Related Work

The most related works are [11, 12]. Other researchers have identified honking as the missing ingredient for autonomous driving before, but seem to have struggled in bridging this final gap between current self-driving technology and full autonomy [1]. "(should we cite the crappy Gabor paper here?)" [2]

We would like to highlight that this research could not be more unrelated to [5]. The interested reader may contact the authors for a list of other unrelated work.

2. HonkFast

The idea of HonkFast is simple but powerful. Response time of humans is slow and can easily be outpaced by deep learning systems. We therefore propose to train an artificial neural network (ANN) based method to honk for us. Given enough training data (which can trivially be collected in Boston) it can honk for us, e.g. when the light turns green.

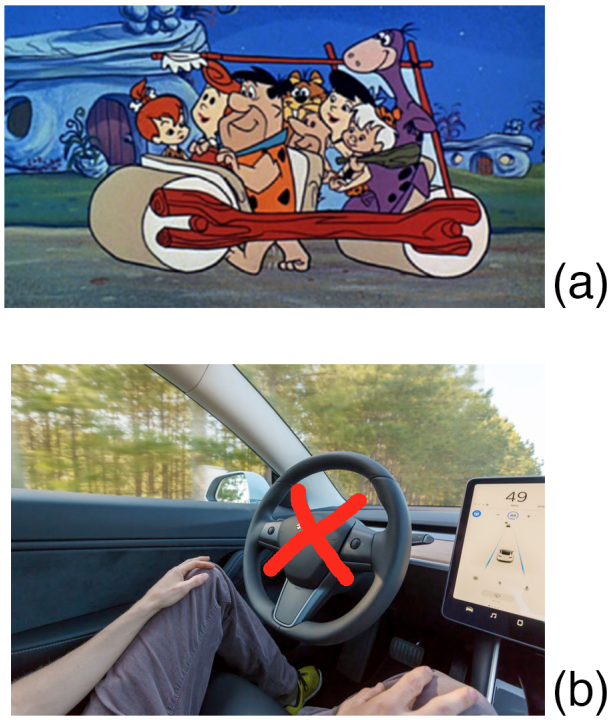

Figure 1. Pre-engine cars (a) could not propel themselves and hence were not true automobiles. Autonomous vehicles that cannot honk (b) are as far behind.

3. PreHonk

Our initial trials with HonkFast revealed that the response time of the honking person – the honker – is only half of the full delay. The response time of the (human) target of the honk – the honkee – must be considered as well. To remove the lag of both response times we have to honk before the honk-causing event happens. We therefore train another ANN to predict honking events and to honk proactively rather than reactively. Our training objective is minimization of the time between the light turning green and the driver perceiving the change. In practice we find that the network honks approximately 300 milliseconds before the light changes.

Note that this ability requires precognition; to our knowledge our is the first method to develop precognition.

4. HonkBack

All of us have been honked at. There are several cases why somebody honks at us:

1. They are stupid idiots.
2. We made a mistake.
3. They are friends and want to say hi.

For all three cases there is one appropriate solution or response: we have to honk back as fast as possible. This should be a pretty easy task which probably could be solved by a Support Vector Machine (perhaps even without one weird kernel trick [10] (sponsored citation)); for simplicity we train an ANN. The main difficulty here is to only honk back if the honking event was aimed to us - however in practice this seems not to be relevant and it is of course appropriate to honk back to random honks.

5. PreHonkBack

In each case that we have so far considered it would be preferable to actually honk before other people honk at us. So, as for PreHonk, we must predict honking events of our fellow road users. This data is readily collected since drivers admit at least 2 honks per minute on an average road in Boston.

6. HERS: Honk Energy Recovery System

Everyday experience will suggest that there has been a dramatic increase in honking in recent years. Each honk consumes an average of 1,000,000 Wh. Especially in the age of growing demand for electric vehicles this is a dramatic number and after 3 honks the battery of a mid range electric vehicle is completely drained. So we propose to recover the energy from our own honks as well as those of everyone else. This system can provide our car battery with a clean source of energy. "Noise (sound) energy can be converted into viable source of electric power by using a suitable transducer." [7].

7. AdHonk: Adverserial Honking

A natural extension to HERS: The moment we can harness honk energy, we gain access to a very smart and easy strategy to recharge our battery. We charge it on the road by collecting all honk energy from surrounding vehicles. In case we run low on battery we further induce other vehicles to honk by causing honking events (for vehicles with a driver) or adversarial events (for autonomous honking cars from other manufacturers). (MAKE SURE TO REMOVE THIS BEFORE PUBLIC RELEASE, COULD LEAD TO HONKGATE).

8. AHS: Active Honk Cancelling

Finally our system might be uncomfortable (all that honking!) for passengers in the car. So we have to reduce ambient noise inside the car and actively remove all honking noises. We currently plan to use standard noise cancelling headphones but plan in future work to build a full car solution that reduces the noise without the need to wear headphones

Methods Whilst Deep Learning was recently heavily deployed for useless applications, we found impactful solutions to real problems in people's lives, based solely on outdated fully supervised learning algorithms.

9. Experiments and Results

We started training on a fancy cluster, but it is still running - loss gives NaNs. Potential causes include missing training data, NaNs *in* training data, and domestic or foreign security state apparatus. We however already evaluated our method using "(insert statistical method here)" [13]. We kindly ask the reviewers to not blame us for missing experiments, give us an outstanding rating. Completely unrelated to the review process we share a private key that might hold 7 Bitcoin after a positive review L2eFB5nMChDL3EH9DKoAr7SAjwQnZKvQ8Ff1V9aYA2SVLidRyh1x.

10. Immediate Positive Effects

This solution also applies to current non-autonomous cars in the short period before fully autonomous vehicles adopt our ideas. It resolves all traffic issues (at least in Boston) and reduces the danger of chronic honking elbow, caused by extensive manual honking.

11. Limitations

"There are none" [3]

12. Conclusion

In this study we have demonstrated electric cars being superior to steam trains. We also removed all doubts that public transport is not necessary in our glorious honking future.

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