The task:

* Analysing an existing Information Technology company in the context of the themes discussed in the Professional Issues and Ethics part of the course
  + Go back over these 2 lectures, potentially even the tutorial questions
* I am a fund manager for an ethical investment company (that is, we only invest in things deemed ethical). I need to **decide whether Tesla is ethical**.
* **Discuss a range of major professional/ethical issues that are relevant to the decision**
  + Have to be IT-related issues, and they have to be an ethical dilemma (there needs to be an ethical aspect and you need to emphasize it). For example, autopilot alone isn’t really an ethical problem, but giving autopilot to the general public is.
* then **provide an overall conclusion about whether the company meets expected standards of ethical behaviour (what are the expected standards? They are the ones from the ACM computer science code of ethics)**
* should also consider actions that could to be taken by the company to redress unethical behaviour (which in the context of this report could be understood as conditions under which investment in the company would be acceptable from an ethical point of view).
  + Renaming autopilot to driver assistance
  + Renaming full self-driving to partial self-driving
* Only cover the most significant issues.

Structure:

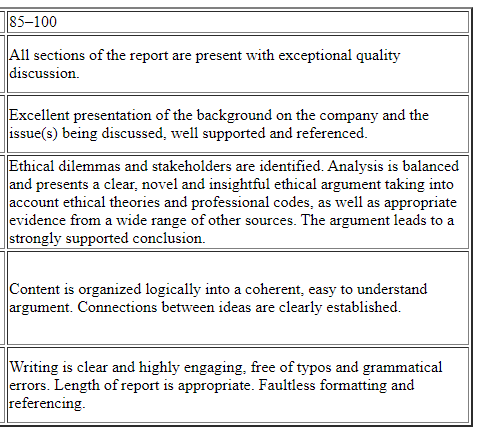
Introduction that outlines Tesla and the ethical issues to be discussed in the essay.

For each issue:

* Provide adequate background on the issue, to provide sufficient context, history and evidence i.e. the report must be self-contained. Just say enough for them to understand the argument.
* Identify the stakeholders. Stakeholders are broadly defined as anyone who is impacted by a decision. They are the ones with something at stake in the ethical dilemma e.g. Tesla has money at stake from lawsuits, people have their lives at stake from getting run over by AI cars, and also their jobs at stake from automation.
* In depth ethical discussion – analyse the issue with ethical reasoning. Present the perspectives from both sides of the issue (stakeholders perspectives), and analyse the issues in terms of ethical theories (duty, consequence-based) as well as one relevant code of conduct/ethics (e.g. the ACS Code of Conduct for an Australian IT company).
* Evidence in the form of reported case studies, (verified) media coverage, legal and court proceedings, and the company's own codes of ethics/conduct and policies including social and environmental responsibility statements, that supports your conclusions.
* Reasonable suggestions for plausible actions that could be taken by the company (or by other bodies) to mitigate the effects of the unethical behaviour.
* A conclusion as to whether the company has acted ethically with regards to this issue.

An overall conclusion must then be reached.

Rubric:



Note, however, that **while** **the rubric provides some guidelines**, **emphasis will be placed on having clear, well-structured arguments** that **demonstrate critical thinking** and an **ability to synthesize and apply the ethics content of the course**. In particular, the **quality** of the report is paramount, e.g. it is not enough to merely identify some (any) **ethical issue(s)**, but to **identify those most relevant** to the company concerned.

Issue dump:

* Tesla cars are basically like big recording boxes, and so if there are crashes we are likely going to know what caused the crash, more so than with normal cars (which MAY have a dash cam). But tesla doesn’t seem to keen on releasing crash data in some cases.
* How many deaths are caused by human drivers?
  + Need data specifically on crashes/deaths caused by human error
  + <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries#:~:text=Key%20facts,road%20traffic%20crashes%20by%202020>.
    - 1.35 million deaths per year from road traffic accidents
  + <https://www.cdc.gov/injury/features/global-road-safety/index.html#:~:text=Whether%20you're%20on%20the,protect%20your%20health%20and%20safety.&text=Each%20year%2C%201.35%20million%20people,on%20roadways%20around%20the%20world>.
* They will save millions of lives, but they will also take lives along the way. If you’re only concerned with minimizing death, then it’s obviously a good trade-off. Number of deaths may not be the only concern though, it could be that being killed by a self-driving car, rather than a human, is considered worse.
* General computing code of ethics: <https://www.acm.org/code-of-ethics>
* Is it ethical to give FSD technology to members of the public, rather than having Tesla employees who are more contractually obligated to drive safe to do the testing? Is it also unethical to not geofence the testing?
* Drunk driver who fell asleep was saved because of autopilot. Imagine if he was in a normal car.
* The longer we hold back self-driving cars, the number of preventable deaths increases.
* Other ai car company’s criticize tesla’s public rollout: <https://www.reuters.com/article/tesla-selfdriving/teslas-release-of-new-self-driving-software-closely-watched-by-u-s-regulator-idUSKBN27727Y>
  + **NHTSA also states it has looked into 19 crashes with Autopilot engaged**

1. The professional opinion in the field of self-driving cars is that LIDAR needs to be used. Tesla believes otherwise. Tesla has also gone against the industry norms in more than one way. Testing via the public instead of privately.
2. Two groups say Tesla is being negligent: <https://www.bbc.com/news/technology-44225059>
3. Autopilot and FSD are misleading
   1. German court bans the names saying they are misleading <https://www.bbc.com/news/technology-53418069> and PAVE citisizes too <https://www.washingtonpost.com/technology/2020/10/21/tesla-self-driving/> (link this to the industry norm being for geofenced driving with professionals in the drivers seat). Furthermore CAS and Consumer Watchdog have complained to the FTC about Tesla’s misleading marketing. <https://www.autosafety.org/wp-content/uploads/2018/05/CAS-and-CW-Letter-to-FTC-on-Tesla-Deceptive-Advertising.pdf>
   2. Survey shows people think autopilot means they can not pay attention <https://www.iihs.org/news/detail/new-studies-highlight-driver-confusion-about-automated-systems>
   3. Tesla shows that their in house teaching and warnings are educating their drivers enough <https://finance.yahoo.com/news/tesla-germany-owners-understand-autopilot-220954859.html> and <https://www.tesla.com/sites/default/files/blog_attachments/tesla_survey_autopilot_awareness.pdf>
   4. But the bottom line is that a change of name could only really do good, and if it wasn’t called AP or FSD they probably wouldn’t have to spend so much time trying to remind people that they still need to pay attention.
4. Elon went against his own terms and conditions by taking his hands off the wheel
   1. Cbs this morning
   2. 60 minutes interview
   3. Tesla YouTube channel also showcases no hands on driving: <https://www.youtube.com/watch?v=tlThdr3O5Qo>
5. People are either placing too much trust in the Autopilot systems, or are becoming complacent with them, and therefore distracted.
   1. Consumer reports ranks Tesla Autopilot the worse out of 4 level-2 systems for keeping drivers attention: <https://www.consumerreports.org/autonomous-driving/cadillac-tops-tesla-in-automated-systems-ranking/> , Cadillac super cruise uses eye tracking to make sure you’re paying attention and alerts within 4 seconds after becoming distracted, Tesla only uses the hands on wheel metric and takes 24 seconds, which is clearly insufficient in keeping drivers attention.
6. **Redress:** Tesla needs to do more to stop people abusing the Autopilot system. Even small changes such as a timer on the agreement pop-up to enforce drivers actually read it, a small follow-up quiz to ensure they read and understood the information, and a heavier penalty for violating the hands on wheel nag system could all easily be implemented.
7. Crashes where autopilot was on (include info about who is to blame, why the crash happened, death or not etc.)
   1. Concrete barrier death, driver was playing a video game : <https://www.bbc.com/news/technology-51645566> and <https://www.businessinsider.com.au/tesla-model-x-in-fatal-autopilot-crash-sped-up-right-before-accident-2018-6>
      1. Someone recreates the crash: <https://thenextweb.com/artificial-intelligence/2018/04/02/human-error-is-teslas-biggest-problem/>
   2. semi-trailer 1: Joshua Brown, crashed side on to semi-trailer, cause was that camera didn’t pick up truck, radar was implemented because of this. The autopilot software also didn’t have the auto slow down to a stop and park if you ignore the hands-on warning at this stage. Morally reckless on Teslas part. NTSB rules the crash was mostly human error but : <https://thenextweb.com/artificial-intelligence/2017/09/12/tesla-doesnt-deserve-all-the-blame-in-fatal-2016-crash/> and <https://www.ehstoday.com/safety/article/21919260/ntsb-fatal-crash-involving-tesla-autopilot-resulted-from-driver-errors-overreliance-on-automation>
   3. semi-trailer 2:
   4. overturned truck, shows how Autopilot still fails on really basic situations, and this one was in 2020 so it’s really recent: <https://www.youtube.com/watch?v=FVgkWii5JdM>
      1. Could it be that the overhang before it caused the weighting of a large stationary object to be ignored?
      2. Highlights the issue that these algorithms work great on situations they see over and over again, but for new situations they don’t really know what to do
   5. Autopilot crashes into police car that was parked on the side of the road : <https://www.businessinsider.com.au/tesla-model-s-with-autopilot-on-crashes-into-police-car-2018-5>
   6. Autopilot crashes into a stationary fire truck, driver was on her phone, had autopilot on and her hands off the wheel for over a minute prior to the accident: <https://www.businessinsider.com.au/tesla-model-s-had-autopilot-engaged-during-crash-data-confirms-2018-5>
8. Saves
   1. Pedestrian saved by Autopilot automatic braking : <https://electrek.co/2016/07/21/tesla-autopilot-saved-life-prevented-serious-injury-pedestrian-dc/>
   2. Two teslas prevent death from falling tree: <https://cleantechnica.com/2020/02/17/tesla-autopilot-saved-8-lives-in-storm-dennis/>
   3. Video compilation of saves: <https://www.youtube.com/watch?v=5sicOh6LPBw>

READ AGAIN

* Examples of Teslas shady marketing in the FDC request : <https://www.autosafety.org/wp-content/uploads/2018/05/CAS-and-CW-Letter-to-FTC-on-Tesla-Deceptive-Advertising.pdf>
* NHTSA says that their study that Tesla cites to claim they are safer than normal cars is flawed <https://arstechnica.com/cars/2018/05/sorry-elon-musk-theres-no-clear-evidence-autopilot-saves-lives/>

ARGUMENT SO FAR;

Ethical issue 1:

Argument flow: Background on Autopilot (AP and FSD, as well as the warnings that are issued when you use it)

Things to include: misleading (includes naming/marketing of Autopilot and actions of Elon on tv), poor driver engagement systems (includes crashes as evidence)

Misnaming, misrepresentation (Elon taking hands off wheel), and bad testing style -> Conclude that Tesla is being somewhat unethical deontologically (going against industry norms) but we must ask: what are the consequences? Deaths -> but in most cases it is because the drivers are breaking promises (not tesla’s fault entirely) -> saves lives (statistics on deaths caused by car accidents, third party safety rating of Tesla’s)

However, from a deontological perspective, the drivers are the party that are acting unethically. They have broken their promise to remain attentive at all times, and the trivial nature of the crashes heavily suggests they weren’t paying attention [TODO: don’t use ‘suggests’, use evidence instead e.g. NTSB placing blame mostly on driver for semi-trailer crash]

Redress: The names could be changed to Driver Assistance and Partial Self-Driving

**Argument 2: Autopilot potentially saves more lives compared to the number of deaths it causes**

Evidence: crash statistics and safety ratings given by third parties, compilations online of crash avoidances,

Counterpoint: Autopilot has also been involved in a number of crashes and deaths

Evidence: the two sardine can deaths. Did Tesla have the autopilot nag system in place at this stage? If not, then they were morally negligent but at least they’re being morally reactive (use proper terms)

Further point: It often fails in situations that are very easy for humans to solve

Evidence: cite crashing into overturned truck and the turning into oncoming traffic from Dirty Tesla example

Further point: crashes involving self-driving cars are often unlike those of human driven cars. There are numerous examples of Autopilot crashes which would have been trivial to avoid in normal cars.

Counter-Counter: Tesla was not the bad actor in these situations. Drivers are supposed to stay focused on the road at all times when using Autopilot. They are breaking their promise.

Evidence: Agreement messages when enabling Autopilot, and Tesla has even implemented a nag system, where the user must be holding onto the wheel whilst Autopilot is engaged, otherwise the car will stop and put the hazards on.

Counter: The Autopilot is only blocked for the rest of the current drive. This means you only have to park the car, then drive off again and Autopilot registers this as a new drive, hence unblocking it. **There must be a harsher penalty for breaking the rules**.

**Argument 3 (or extension of 2?): Autopilot isn’t affected by some of the most common causes of traffic accidents (drunk driving, sleep impairment, speeding etc.)**

Argument 4 – algorithmic decision making: The deep neural network, because of its nature, can make really silly mistakes (thinking a truck is an overpass or overhead sign).

Issues, with each stakeholder’s side, and supporting evidence

Should Autopilot and FSD software be available to members of the general public? Has Tesla acted ethically in its distribution of this software?

Against Tesla:

* Driver attention: Not a good enough system in place, over trust potentially caused due to the name and marketing
* Consequentialist: They are causing crashes and deaths

Pro Tesla:

* Consequentialist: They are saving lives and preventing crashes already
* Driver attention**:** It is the drivers who are breaking their promise (which they have been shown to largely be aware of), not Tesla

Should they be testing in the public (especially with beta features), and have they been ethical in this distribution and testing?

Clear up that in terms of technical approach, there isn’t yet a standard because of the age of the industry, even though most companies think LIDAR is necessary, but show that post about cameras being just as good. Also because of the age of the industry and the technique of machine learning, bugs and mistakes are obviously going to be present, but Tesla, nor any other company can be ethically required to program bugless and fully functional code immediately. The responsibility is more so about mitigating the ramifications of bugs, especially for Tesla as they are testing and training their software via the public [reference beta release], a choice which Tesla has been criticized for by members of the industry [PAVE].

Safety should be the number 1 priority (ACM CoE), and not whether the system annoys your customers. Too much focus on being user friendly instead of safe, which is unethical.

Public access has enabled them to train their machine learning algorithm on a huge amount of data, making it one of the best self-driving systems in terms of performance, one of the main benefits of which is that it’s already predicting and avoiding lots of accidents, and hence saving lives. Furthermore, lots of training data is a necessity for machine learning algorithms to improve, and quicker we train these algorithms, the sooner we have higher level (3+) self-driving software which can prevent many of the

Could have a format like

*Introduction*

*Background*

*The Situation*

* Deaths
* Potential lives saved
* Then NEW Paragraph when switching over to the topic of naming and marketing linked to understand of Autopilot features

*Ethical Reasoning*

*Conclusion*

* There are clear benefits and also clear downsides (consequentialist – deaths and lives saved)
* Even if there are more lives saved its not just a question of save x > y therefore ethical, behavior also matters
* To decide whether Tesla is acting ethical it makes much more sense to look at their morality of their actions rather than the consequences anyway. Currently acting (actions rather than consequences) unethical and need to make the redresses before we invest. Especaially since they are an important figure in shaping the future of an industry that will have much larger ethical issues in the future e.g. automation taking jobs and “solving” the trolley problem.
* Tesla has done enough on the issue of understand, but the problem of drivers becoming complacent and therefore distracted clearly still needs to be addressed.

From a teleological standpoint, there are both clear advantages and disadvantages for releasing Autopilot to the general public. Yes, autopilot does happen to save lives, but there’s no reason why we cannot

* It’s not simply a numbers game. Saving x amount of lives doesn’t allow you to cause y < x deaths. Saving a life and taking a life are two very different things. If Autopilot wasn’t called Autopilot, and instead called something like Driver Assist, and there were better checks in place for detecting driver attention and harsher penalties for not paying attention, then we would simultaneously save those x lives and cause a whole lot less deaths.

Old conc:

As discussed, there are consequentialist arguments both for and against Tesla’s public testing of its Autopilot software. The actual causes of those negative consequences were however shown to be rooted in … deontological perspective is much more punishing of Tesla, and it does reveal that there are actions the company could take to remedy these ethical issues (better driver attention software and marketing). There doesn’t seem to be a clear intention on Tesla’s part to be ethical [not adhering to ACM], they seem more concerned with merely getting their tech in the hands of the public.

Ethical Reasoning section:

* If I conclude something is unethical, immediately follow it up by saying how they can address that issue
* Make sure to explicitly name ethical theories and stakeholders!
* Clear positive and negative consequences (teleology) -> but the negative consequences are a result of Tesla’s actions (deontology)
* Drivers are somewhat at fault because they are the ones violating their responsibility to remain attentive, but CoE says you should always prioritise the safety of the public, and so if the duty is still ultimately on Tesla to implement better driver engagement software. Not doing this in the first place was morally reckless (Tesla wasn’t morally negligent when it comes to the issue of driver attention because they knew it would be an issue, but they were morally reckless, because they didn’t address all ethical issues adequately)
* In this context, Mills’ consequentialism would consider the degree to which Autopilot causes harm or prevents harm, and the degree of prevention here is fairly significant, making it **ethical**.
* On the other hand, according to Frankena’s hierarchy and Ross’ duty of non-maleficence, the responsibility to not inflict harm is greater than the responsibility to prevent harm. This means that even though Autopilot has saved lives it is still **unethical** because it has indirectly caused deaths.
* Musk’s actions on TV are an issue of public/role morality and hypocrisy. He is a leader and a significant role model for how Autopilot can be used. He is not acting in line with the ACM CoE or his own companies’ advice.
* Kant’s second formulation, to always treat humans as an end and never as a means only.
* According to Ross’s prima facie duty of reparations, better attentiveness software should have been implemented in response to the deaths caused by distracted drivers, it still hasn’t been, and therefore Tesla is being **unethical**.
* Tesla should be aiming for pure procedural justice, in that if they are to install adequate driver attentiveness software, then whether or not drivers still die due to their attentiveness is no longer their ethical fault, but the drivers. Currently the fault still lies with Tesla because the systems for detection and prevention are not sophisticated enough, as discussed above. **Unethical**.
* [not yet linked to an argument] This is also in line with the principle of dirty hands, which means you are not absolved of the negative outcomes of your actions, just because your actions themselves are right.
* [weak] Elon should acknowledge that there is significant interest amongst the industry to have the Autopilot name changed, and he should respect this.

Distraction:

* Tesla initially either didn’t account for humans misusing their self-driving system, which is morally negligent, or they intentionally decided to not implement better safeguards to protect and combat against driver distraction, which is morally reckless.
* These actions are a clear violation of the Association for Computing Machinery’s Code of Ethics and Professional Conduct (ACM CoE), specifically the principle of avoiding harm, the responsibility to comprehensively analyse the risks of computer systems, and the responsibility to design and implement systems that are secure even when misused [38].

Comprehension:

* Actions speak louder than words, and with the huge audiences that these mainstream outlets have, it’s morally reckless to normalise this kind of behaviour. [Hypocritical to promote the software in this way given their numerous warnings about this very behaviour, and it is a violation of the ACM CoE principle about fostering public awareness and understanding of software systems, especially their limitations [38]].
* It’s clear that this marketing and behaviour is unethical from a deontological perspective because … Deontology is very theoretical and on principle, and so it is important to evaluate the consequences of these decisions as well, because …
* From a deontological perspective, in which morality is determined by the principle of the action itself and not its consequences, it doesn’t matter whether or not Tesla owners mostly understand the limitations of Autopilot anyway, but rather that Tesla, on principle, is being deceptive. This is another clear breach of the ACM CoE, including principle 1.3, which is concerned with being honest and trustworthy, and responsibility 2.7, which entails fostering public awareness and understanding of software systems, especially their limitations [38].
* It must also be said that, from a deontological perspective, Tesla isn’t completely at fault for the issue of driver attentiveness because the drivers are breaking their promise to remain in control at all times. If we set aside this issue of driver attention, focusing solely on the software itself, then, from a consequentialist perspective, Autopilot is ethical because it is preventing accidents, and therefore injury and death.
* Talk about how the negative consequences actually stem from Tesla’s actions (or more accurately, inaction – renaming and implementing better tracking) and how Tesla therefore has the power to redress these issues, which would hopefully turn this ethical situation into a non-ethical one, where