

Overview & Objectives

1. Designing the future
2. Ethics in practice revisited
3. Essays

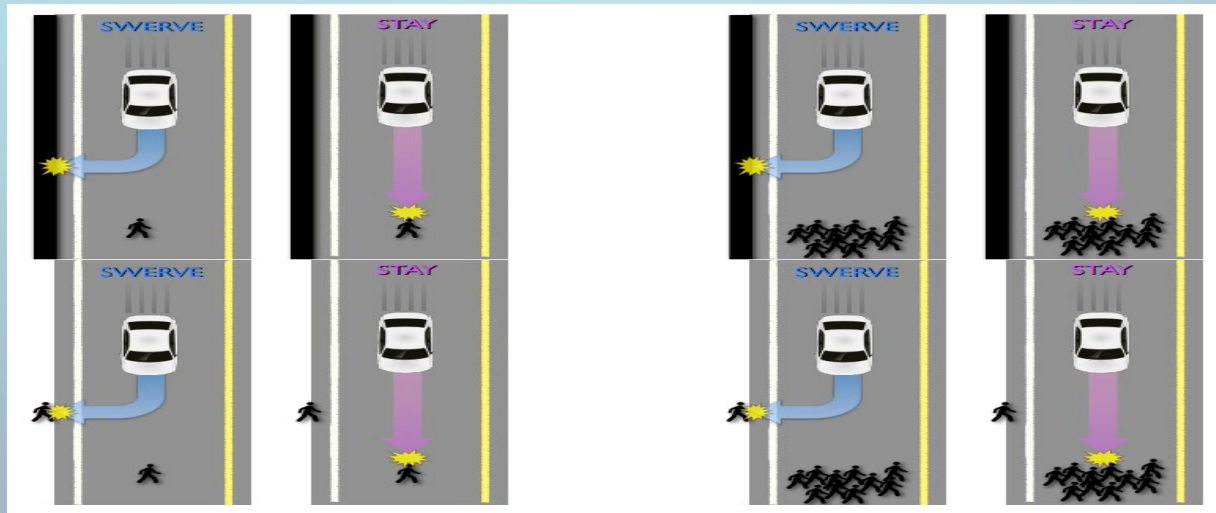
Designing the Future: Self-driving vehicles, Artificial Intelligence and Robotics



Driverless Vehicles

Crash Systems and the Trolley Problem

- How do you embed moral principles into a driverless vehicle?
 - Are utilitarian crash systems the only option to make the problem tractable?
 - This conclusion requires a willingness to trade-off the interests of different individuals of the sort that utilitarianism is notorious for and for which it has been roundly criticised
- Situations of unavoidable harm
 - The trolley problem for crash system engineers.



COLOUR-BLIND CRASH AVOIDANCE ALGORITHMS?

Some American researchers recently argued that the ‘machine vision’ systems they examined – designed for use in driverless cars,

- ‘were consistently better at identifying pedestrians with lighter skin tones than darker. And not by a little bit: one headline comparison suggests that a white person was 10% more likely to be correctly identified as a pedestrian than a black person’



Unmanned Undersea Vehicles

Geneva Conventions

Article 18:

After each engagement, Parties to the conflict shall, without delay, take all possible measures to search for and collect the shipwrecked, wounded and sick, to protect them against pillage and ill-treatment, to ensure their adequate care, and to search for the dead and prevent their being despoiled...

Submarines and rescue

International law of submarine warfare



Artificial Intelligence



A 'biometric mirror'

- 'In a world-first, University of Melbourne researchers have designed an artificial intelligence (AI) system to detect and display people's personality traits and physical attractiveness based solely on a photo of their face.'
- 'When someone stands in front of Biometric Mirror, the system detects a range of facial characteristics in seconds. It then compares the user's data to that of thousands of facial photos, which were evaluated for their psychometrics by a group of crowd-sourced responders.'
- 'Biometric Mirror displays 14 characteristics, from gender, age and ethnicity to attractiveness, weirdness and emotional stability. The longer a person stands there, the more personal the traits become.'
- <https://www.youtube.com/watch?v=-LF65LKJdkY>
- <https://about.unimelb.edu.au/newsroom/news/2018/july>

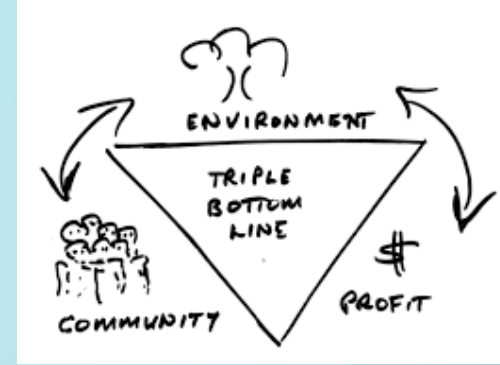
Ethics in Practice

Whistleblowing

- Someone who reveals wrongdoing within an organisation to the public or to those in positions of authority
- Should managers expect their engineers to be *loyal*?
 - No: Not right kind of relationship for loyalty to exist.

Consult Australia

1. Members shall at all times place their responsibility for the welfare, health and safety of the community before their responsibility to sectional or private interests, or to other members
9. Members shall not assist, induce or be involved in a breach of these Tenets and shall support those who seek to uphold them



Ethics in Practice

Willy Just

- Professional duties and social justice (code of ethics)
 - Prudence (self-interest) and morality
 - Imperceptible difference
 - Vicarious liability
 - Moral tragedy
 - Unjust harm

Ford Pinto

- Ethical design
 - Safe, or safe enough? Unjust harm?
- Conflict between commercial and moral imperatives (code of ethics)
 - Professional and personal duties
 - Duty of care

Space Shuttle Challenger

- Design limitations
- Whistleblowing (code of ethics)

Essays

Topics:

Answer one of the following:

1. Bagus is an engineer with a very large mining company. Upon hearing that the Australian Government will ban the extraction and sale of coal in 2030 due to its contribution to human-made climate change, his company has tasked Bagus with designing a new method of mining that will triple the volume of coal his company can extract and sell before the 2030 embargo. **Ethically speaking**, should Bagus accept the design brief? Why/Why not?

Essays

Topics:

1. Do the professional duties of an engineer go beyond conscientiously and effectively carrying out the instructions of their employer? If so, why and how? If not, why not?

Your answer must make direct reference to the relevant tenets of the **Consult Australia Code of Ethics** and provide a real-world example of a large scale engineering project to support your claim.

Essays

Advice

- Which topic interests you the most?
- A list of potential readings and resources will be available on LMS, but please draw on other relevant sources.
- Stick to reputable sources (not Wikipedia). Try google scholar and the library search
- As you research, take notes
 - Esp. page numbers for quote and claims you paraphrase
- Citation style recommendations: MLA, APA, Chicago, or Harvard
- OK to write in the first person
- Jim Pryor's guide to writing philosophy:
jimpryor.net/teaching/guidelines/writing.html

Essays

Advice

- Avoid fluff; get to the point quickly
- Focus on making your writing clear
 - Assume your reader is unfamiliar with the topic and issue
- Draft early, leave it, then make revisions
- Introduction: Tell the reader what you're going to say
- Main body: Structured as stated in the introduction
- What is the strongest argument you can offer to validate that claim?
- What is the strongest objection to your argument?
- Conclusion: Sum up the main points of your argument

Essays

Some writing tips

Read the question carefully:

- Identify the key terms
- Ask yourself: Why is this question important?
- How does my answer demonstrate my knowledge?

Plan your essay:

- Write a thesis statement in response to the question (this is your basic conclusion)
- Decide what you need to argue to reach this conclusion
- Use your argument structure to structure your essay

Don't "sit on the fence":

- Argue and defend a specific response to the question

Essays

Assessment

When evaluating your essay, we'll be asking:

- How well do you understand the relevant concepts, issues, ideas and arguments you are writing about?
- How good are the arguments you offer? Are they supported by sound reasoning?
- Is your writing clear and well-organized?
- What do you think about these issues? And how do you justify that view?

Make sure you address *all* aspects of the topic question