

Assignment 1: Artificial Intelligence and Ethics

“Artificial intelligence and algorithms: pros and cons” | DW Documentary (AI documentary) <https://www.youtube.com/watch?v=s0dMTAQM4cw>

Introduction

Developments in artificial intelligence (AI) are leading to fundamental changes in the way we live. Algorithms can already detect Parkinson's disease and cancer, and control both cars and aircraft. How will AI change our society in the future? This documentary journeys to the hot spots of AI research in Europe, the USA and China, and looks at the revolutionary developments which are currently taking place. The rapid growth of AI offers many opportunities, but also many dangers. AI can be used to create sound and video recordings which will make it more and more difficult to distinguish between fact and fiction. It will make the world of work more efficient and many professions superfluous. Algorithms can decide whether to grant loans, who is an insurance risk, and how good employees are. But there is a huge problem: humans can no longer comprehend how algorithms arrive at their decisions. And another big problem is AI's capacity for widespread surveillance. The Chinese city of Rongcheng is already using an AI-supported 'social credit system' to monitor and assess its citizens. Does AI pose a danger to our personal freedoms or democracy? Which decisions can we leave to the algorithms - and which do we want to? And what are AI's social implications?

Ethics in Artificial Intelligence

With the increase in the available computational power and advances in artificial intelligence, a natural question arises: what about moral compass?

This study deals with the ethical implications and moral questions that arise from the development and implementation of artificial intelligence (AI) technologies. It also questions the guidelines and frameworks which countries and regions around the world have created to address them. It presents a comparison between the current main frameworks and the main ethical issues, and highlights gaps around the mechanisms of fair benefit-sharing; assigning of responsibility; exploitation of

workers; energy demands in the context of environmental and climate changes; and more complex and less certain implications of AI, such as those regarding human relationships.

In teams of 5 students you will organize **a debate (+- 20 min) questioning the ethics (or moral compass) for artificial intelligence (AI)**. Four controversial subjects, showcasing the opportunities of AI but also some threats, are on the table:

1. Medicine
2. Smart cities
3. Self-driving cars
4. Home applications

A panel consists of 5 students: one student takes up the role of moderator, two students argument the advantages, and the other two argument the disadvantages. Reflect on these issues: are we at a point where technological growth becomes uncontrollable and irreversible, resulting in unforeseeable changes to human civilization? Have we reached the point of singularity, in which artificial intelligence surpasses human intelligence?

The other teams formulate **at least one pertinent question** to the debaters (which the moderator should redirect to one of the panel members) and then take a vote who is the most convincing and wins the argument. Take notes during the documentary, and thereafter, do your research on the topics !

Please upload the complete script of your debate in the Dropbox – assignment 1 on the day of the debate (22/02/2023).

Assignment 2: Artificial Intelligence – Introduction

After a brief introduction to AI, it's history, philosophy, search problems and game theory, we'll do a workshop, testing comprehension of the game tree. This is fundamental in understanding to find the optimal route from A to B.

Each student should now create a free account on Kahoot!, an application for quizzes. In pairs, you will make a quiz with 20 pertinent questions concerning the basics of artificial intelligence. The quizzes are then to be played individually.

Please upload the complete list of Q&As in the Dropbox – assignment 2 on the day of the quiz (05/04/2023).

Assignment 3: Optimal Route

By now, you should have advances in your team project (SAE) to find the optimal route from A to B. Additionally, you will be given some input on visualizations or (interactive) charts. Your task now is to visualize your project individually.

Please upload your individual infographic or (interactive) chart in the Dropbox – assignment 3 in our last session on 12/04/2023.