

## **Case study for the 2024 EEB National competitions**

### **THE MORAL DILEMMAS OF AI IN EDUCATION**

More than any other field, Artificial Intelligence might very well have a decisive impact on education as we know it, transforming both teaching and learning experiences like never before. The Covid-19 crisis has already shown the staggering impact of AI on global education, from teaching tools to ways of learning. It seems like education is on the verge of being profoundly transformed, so much so that even teacher training could be revolutionized. AI has the potential to accelerate the process of achieving the global education goals as defined by UNESCO, “through reducing barriers to access learning, automating management processes, and optimizing methods in order to improve learning outcomes”.

On the one hand, AI could accelerate and reduce the cost of learning on a global scale. It also has the capacity to provide more interactive content through new technologies that will enhance teaching practices, thus offering students more stimulating learning environments. For example, the Metaverse now offers students the opportunity to learn about History through immersive experiences. AI tools like ChatGPT also give students easier, quicker access to information, and enable them a significant gain of time.

On the other hand, those are the very same tools that make it possible for students to cheat, thus forcing teachers to find new ways of grading their students. Not to mention the fact that bots could very well perform education-related tasks that were so far performed by humans, such as recruiting students or assessing their work, hence threatening the jobs of human educators.

Among the potential challenges that AI could address are the current inequalities regarding access to knowledge. One must make sure that AI will not widen the technological divides within and between countries, and that it will, on the contrary, provide inclusive learning that will prepare young people to thrive and shape a better future.

#### **Please, address this dilemma:**

Despite the undeniable benefits that AI can bring in education, it also presents multiple risks and challenges that have so far outpaced policy debates and regulatory frameworks. How far can we go in the use of AI in education? What solutions can you think of to solve the various moral conundrums raised by AI tools in education? As children grow up with AI, how can we make sure that, while improving students’ holistic development and making teaching more innovative and fulfilling, AI will not endanger the purpose of education?

**EEB 2024 Semi-finals - Case study A****TO WHAT EXTENT SHOULD AI BE USED TO ORGANISE WORK PROCESSES?**

(Fictional case)

The luxury watch industry is still strongly characterised by manual labour and the craftsmanship of the workers. Comparatively few robots or automated processes are used in production, especially by manufacturers in the upper price segment. However, artificial intelligence offers an attractive opportunity for state-of-the-art technology to find its way into the production facilities of these companies and increase both productivity and product quality.

With the help of an app on each employee's smartphone and comprehensive camera surveillance in the production facility, the behaviour and working methods of each individual employee are recorded and analysed. This makes it possible to check exactly which activities each worker has carried out on the individual workpieces. With the help of quality control before the individual watches are delivered, it is possible to determine in which production steps an individual worker has made comparatively many errors and in which work steps comparatively few errors have been made.

The analyses of the worker's individual skills in relation to the various work steps are used by the artificial intelligence to control the deployment of individual workers in the various production steps in such a way that each worker is deployed where they have a comparable advantage, productivity is comparatively high and the susceptibility to errors is comparatively low. As the analyses take place continuously and individual productivity and susceptibility to errors can change, the AI creates different work organisation plans every day according to which the workers are deployed.

Since its introduction a year ago, this objective form of performance analysis using AI has led to a 5% increase in productivity and a significant improvement in product quality. Based on this positive experience, the company now wants to switch to an AI-supported objective performance analysis.

Management now proposes to base future hiring and firing decisions solely on individual performance analysis. Accordingly, applicants must first go through a paid trainee programme to determine whether their individual skills and productivity exceed those of individual employees. Consequently, these individuals will then be dismissed and replaced by the appropriate individuals from the trainee programme. The management justifies this restructuring of personnel management with the need to produce top quality with high productivity at a location with high labour costs in order to remain competitive and preserve jobs. The works council opposes these plans, while the management points to the comparatively high wage levels in the company and promises high severance payments for those made redundant.

**Please discuss the following dilemma:**

In your opinion, should the company's Board of Directors follow the management's proposal and introduce "objective human resource management"?

## **EEB 2024 Semi-finals - Case study B**

### **AI VS. HUMAN DRIVERS: THE MORAL CHALLENGES OF AUTONOMOUS TRANSPORTATION**

As artificial intelligence continues to evolve, its influence on industries such as transportation is becoming increasingly evident. One of the most significant innovations is the development of autonomous vehicles, which promise to revolutionize the way we move goods and people. Proponents highlight the benefits of AI-driven transportation: fewer accidents, lower operational costs, and increased efficiency. However, these technological advancements also raise a series of ethical dilemmas, particularly around employment and the role of human decision-making in unpredictable situations.

Autonomous vehicles are expected to drastically reduce the need for human drivers in the near future. For transportation companies, the financial benefits are clear: fewer salaries to pay, no need for breaks, and the elimination of human error on the road. From a purely operational standpoint, it seems like an ideal solution. However, the introduction of self-driving technology creates a significant ethical challenge for both management and society at large.

On one hand, transportation companies may argue that the transition to AI-driven vehicles will reduce accidents, save lives, and cut down costs in an industry where profit margins can be thin. But on the other hand, this shift threatens the livelihoods of millions of drivers whose jobs may become obsolete. The management must decide whether to prioritize cost-cutting and efficiency or consider the social responsibility they have towards their workforce.

Moreover, while autonomous vehicles are designed to minimize accidents, there are concerns about how they will handle unpredictable, complex situations. For instance, what happens in a scenario where the vehicle must choose between endangering its passengers or nearby pedestrians? How will it react to unexpected road hazards, such as animals or sudden mechanical failures? Without a human touch, will these AI-driven vehicles be able to make the kinds of novel decisions that humans often need to make in real-time?

Management is therefore faced with a complex dilemma: Should they fully embrace AI technology to enhance productivity and reduce costs, even if it means laying off drivers and relying solely on algorithms? Or should they maintain a balance, retaining human drivers to manage those unpredictable elements that AI may not be able to handle? How will they ensure that ethical considerations—such as job displacement and human safety—are adequately addressed?

#### **Please discuss the following dilemmas:**

- Should transportation companies replace human drivers entirely with autonomous vehicles, focusing on efficiency and reducing human error?
- How can companies justify the mass displacement of drivers, and what responsibilities do they have towards these employees?
- Can AI in transportation be trusted to handle unpredictable, ethically charged situations that may arise during operation?
- Should there be a balance between human oversight and AI-driven decision-making in the transportation sector?

## EEB 2024 Final 4 – Case study

## THE ETHICS AND BUSINESS OF DIGITAL CLONING IN ELDER CARE

(Fictional case)

*Background*

The rise of AI-powered "digital clones"—replicas of individuals—raises both ethical and business dilemmas, particularly in sensitive areas like elder care.

*The Scenario*

John, a busy 30-year-old highly ambitious and skilful IT professional, has a 90-year-old grandmother in a nursing home. Struggling to visit her regularly due to work and family commitments, he uses his expertise to use a combination of various AI tools to create a voice-bot that mimics his voice and conversational style. The system is trained to stay updated on current events (partly from the newsfeed and his social media, partly in person). Another AI tool has access to John's photos and e-mails from the previous week, so it learns what to discuss (e.g., about the daughter's first communion and his son's athletics competition). The third tool monitors what grandma is watching on TV, and adds a bit of discussion about her favourite TV shows.

This "digital clone" interacts with his grandmother daily for hours, using updates from John's social media, news, and her favourite TV shows to maintain realistic conversations. His grandmother, unaware that she is speaking to AI, is much happier due to the increased contact. However, John now visits her only once a month. He relies on AI-generated summaries to stay informed about their conversations.

John's sister sees how John has managed to free some of his time by using AI. With his help she makes her "digital clone" to replace some of her visits and now her "visits" to their grandmother are less frequent. After a while John shares the technology with a friend, who implements it with their own elderly relative.

Seeing the potential for wider use, John considers commercializing his AI platform by starting his own start-up. He considers various options such as a) offering it for free, relying on donations, b) charging a subscription fee, c) monetizing the platform through highly personalized ads. He also thinks about scaling the business by taking it public.

**Please, address these dilemmas**

- Deception and Consent: Is it ethical to deceive an elderly person about the nature of their conversations? Does her cognitive decline impact this judgment? How transparent should businesses be with their users?
- Growth: Is it ethical for John to offer this solution to others? Can he turn his "hobby project" into a business? What are the privacy risks of storing personal data for AI training?
- Monetization and Business ethics in scaling: Should AI in elder care be profit-driven, or is it more ethical to make such technology a public service? How can a business monetize the technology? What regulations could prevent misuse while enabling responsible innovation?

**EEB 2024 Finale – Case study****THE RESPONSIBILITY OF MAKING MORAL DECISIONS**

While the media as well as scientists repeatedly showcase the potential of machine learning to become the biggest driver of positive change in our societies, the lingering question on everyone's mind is: "Will AI always make the right decisions?" AI tools are now used in all possible fields and are increasingly taking on responsibilities in decision-making processes of all kinds, so much so that the use of AI is creating more ethical questions to explore.

In employment, with the advent of algorithmic hiring, AI is more and more entrusted with making decisions about individual access to job opportunities: AI can predict candidate performance, automate the initial assessment and screening of candidates, and then provide recommendations to managers as to who is supposedly the best applicant for a given position. Notable users of algorithmic hiring systems include big companies like Deloitte, Nestle and some of the GAFAMs, one of them – Amazon – having had to stop the use of their CV scanning algorithm which tended to favour male candidates since it had not been trained on sufficient examples of successful women.

As far as the Court of Law is concerned, judicial systems around the world have been increasing relying on AI to assess cases, as researchers are hoping to enable AI tools to apply justice in a better, faster, and more efficient way than human judges.

Warfare is also becoming more and more AI-oriented, taking away human control over the war machine. For instance, fully autonomous drones - known as "killer robots" – are being designed to select and engage targets without meaningful human control, which poses enormous ethical and legal concerns.

Additionally, more and more banks are using Artificial Intelligence when they grant loans without their clients being aware of it. Algorithms are capable of making such decisions as who gets access to loans, by using a variety of criteria and processes to determine whether clients are creditworthy. Thus, in some large credit institutions, the rating, scoring and decision-making in lending processes are fully operated by AI.

The huge advantage of AI over humans is its incredible speed and amazing capacity to process data. In that sense, it can thoroughly impact a wide range of areas and professions, transforming the decision-making process of many types of public and private bodies.

But does that mean AI could make informed decisions devoid of any bias and subjectivity? Aren't AI-based decisions equally susceptible to inaccuracies or discriminatory outcomes as those made by humans?

Teaching morality to machines is challenging: humans tend to rely on gut feeling instead of elaborate cost-benefit calculations, therefore it seems complicated for humans to convey moral values in measurable, explicit, objective metrics for computers to process.

As a conclusion, the ever-increasing use of autonomous systems raises many ethical concerns.

**Please, address this dilemma:**

Who should be responsible for making moral decisions: humans or machines? Are AI tools less prone to bias than humans? Can they be trusted when it comes to making important moral decisions? Is it possible to build moral machines that know right from wrong and that are capable of creating fairer societies?