

Chapter # - will be assigned by editors

UNIR DECLARATION FOR AN ETHICAL USE OF ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION

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Abstract: This declaration aims to establish a consensus that can guide all stakeholders in the Higher Education system (teachers, students, management staff, governing board, researchers, etc.) in the use, application, and even the development of AI-based solutions. The declaration commences with a general introduction and a definition of AI. This is followed by some examples of current uses of AI, and discussion of various applications. Finally, a set of principles is presented, focused on the role that UNIR seeks in providing a reference model for the implementation of global regulations on AI or any other technology in education that creates a social challenge.

Key words: artificial intelligence, higher education, declaration, ethics

1. INTRODUCTION

In recent decades, humanity has experienced an exciting and unstoppable digital transformation. The latest phase of this revolutionary process is undoubtedly the mass implementation of services, products, and devices based on Artificial Intelligence (AI), with applications in everyday contexts offered to the general public.

Although AI was born in the mid-twentieth century (Turing, 1950), it was not until the last decade that it reached mainstream use. This was largely possible due to the advent of unprecedentedly powerful, inexpensive, and miniaturised microelectronic systems, along with the general availability of huge databases that AI-based algorithms need as part of their training and implementation phases. In practice, nearly all devices, services, and information access systems already show the potential to use AI in some way, and it has been widely deployed, directly or indirectly. Undoubtedly, AI is already an intimate part of our digital lives. As with every breakthrough in human progress, this has positive aspects (e.g., better organization of unstructured data) as well as negative aspects (e.g., introduction of biases).

The development of AI has already had a radical impact on every productive sector, and over the next decade it will profoundly affect practically all jobs, causing some to disappear, new ones to emerge, and the vast majority to change in some way. This is especially true in education, where AI could potentially complement and/or replace teachers' formative and/or evaluative functions and also provide students with resources and tools that facilitate and potentially replace individual or collective efforts to improve their academic performance. AI in general, and in particular machine learning (ML) making use of the latest deep learning architectures, is already transforming our society from an expert-based paradigm to a data-based paradigm in which knowledge is elicited from the vast amount of information that as a society we generate. Some areas in which AI is already making an impact include healthcare, transportation, public services, and environmental management.

Indeed, education is already evolving from a traditional environment to one that is digital and data based, and which includes a diversity of AI-based technologies and tools. As of today, such tools include automatic grading, prediction of students' traits and intelligent tutoring systems. Automatic essay grading is a key tool not only for the instructor but also for the student, as it can also support improvement in writing skills. Further, these tools can be personalised for each student, taking into consideration social factors such as gender demographics and academic grades. The predictive capabilities of machine learning systems have many applications in the context of education, such as predicting the academic performance of students, the attrition of teachers during the school year, or the future enrolment and/or future classes in which a student will be interested. All these applications use a similar approach in which historical data from students' and teachers' activities and interactions are used to predict future behaviour. Intelligent tutoring systems can make use of such predictions to adapt learning content and its level of difficulty to the capabilities of each particular student using

elements such as individual needs, cognitive traits or time needed to answer questions. These systems are already widely used in many institutions, and are frequently applied in MOOCs, while a wide range of companies has been established to offer AI-based educational services. In the future we will see, especially for online education, tools that are able to evaluate the engagement of the students in the classroom and provide strategies to optimise it. The use of such tools involves the processing of images from the (online) classroom, which requires the development of specific architectures and algorithms that respect the privacy and anonymity of the students when processing the data. Virtual reality and avatars where both the instructor and the student can interact online have the potential to improve virtual classrooms and online learning. Also, many aspects of the student enrolment process can be semi-automated, including identification of students who comply with entry requirements, and recommendations for a balanced and complementary class. In general, as various AI techniques become embedded in teaching environments, issues of privacy and data bias will have to be resolved in order to create learning environments based on transparency and trust.

2. WHAT IS AI, REALLY?

To define AI we could, among many others, refer to the interpretation provided by UNESCO (2021) which states that *AI systems are information processing technologies integrating models and algorithms, and producing a capacity for learning and performing cognitive tasks. This results in prediction and decision-making in both material and virtual environments. AI systems are designed to operate with varying degrees of autonomy by modelling and representing knowledge and exploiting data and calculating correlations.*

Another definition comes from John McCarthy, renowned computer scientist and one of the fathers of the discipline (McCarthy, 2007), who is referred to by a leading IT multinational in the field, IBM (IBM, 2023): *AI is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable.*

Within AI, the concept of general or strong AI refers to machine intelligence that allows systems to understand, learn, and perform intellectual tasks in a way which is very similar to humans. Thus, general or strong AI emulates the human mind and behaviour to solve any complex issue (Goertzel, 2007).

It has been proposed that one possible consequence of achieving strong AI would be a singularity, in which AI obtains super-human intelligence through its own recursive application (Von Neumann, 1958), with all the risks that such a development entails.

3. CURRENT AI FUNDAMENTALS AND APPLICATIONS

Artificial Intelligence can be applied in a wide range of areas, such as natural language processing, computer vision, robotics, speech recognition, and many others. The common goal of all of these is to perform tasks autonomously or to assist human beings in decision-making and problem-solving. Any AI will typically perform one of two functions: classification and/or prediction. A classifier sorts new information into previously known classes or groups. Conversely, a predictor refers to an AI-based algorithm capable of generating new artificial values from historical data. Both functions are, in turn, supported by several complementary computational foundations: neural networks, deep learning, machine learning, data extraction, and feature extraction, among others.

Over time, based on these pillars, various solutions have been built that are more refined, specialised, and open to the public (through internet, APIs, desktop or mobile apps), such as generative pre-trained transformers (GPTs), natural language processing (NLP), image recognition (typically with support vector machines or SVMs), or generative inference (i.e., in images or texts).

4. RESPONSIBLE USE OF AI: A CHALLENGE FOR SOCIETY, A CHALLENGE FOR THE UNIVERSITY

AI-based technologies permeate the digital landscape more extensively than we might be aware, in areas such as data processing, statistics, information systems, communication systems, social media, and robotics. Within this context of legitimate yet indiscriminate use of AI, in which humanity seems united around its somewhat thoughtless use, various think tanks and activists have raised the alarm.

In this respect, it is worth highlighting the publication by the trustees of the Future of Life Institute (2023) of “Pause Giant AI Experiments: An Open Letter”. They address society as a whole, advocating for an active pause in the development of AI to reflect on the widespread deployment of public

consultation systems, and arguing that the creation of artificial minds with seemingly superhuman capabilities could constitute an eventual threat to humankind. A less pronounced but perhaps more immediate problem is the fact that society is highly dependent on deep learning, which, in turn, is built on obscure and highly non-deterministic so-called black box models. These chaotic mathematical-computational structures can, in turn, present untraceable biases and/or highly erroneous results in a way that is entirely unnoticed by users and by the very creators of the systems. The widespread use of these systems could have as yet unforeseeable consequences for citizens, institutions, and societies.

Aside from well-intentioned statements, such as the aforementioned open letter from the Future of Life Institute, and others like the European Union's Ethical Guidelines for Trustworthy AI framework (EU, 2019), or UNESCO's Artificial Intelligence and Education, a Policymaker's Guide (UNESCO, 2021a), there are no nationally or internationally ratified laws, official guidelines, or policies. However, there are some institutional efforts in this regard, such as the ongoing proposal for European regulation of AI (EU, 2021).

Common sense imposes the following limitations that we can all subscribe to. AI must be lawful, i.e., it must comply with all applicable laws and regulations. It must also be ethical to ensure respect for ethical principles and values. Lastly, it must be robust both from a technical and social point of view since AI systems can cause accidental damage even if they have been programmed with good intentions.

For the time being, however, it is the responsibility (and will) of each institution, interest group, collective, and, above all, individual inside those groups to define the framework of influence of AI technologies in their specific field and to self-audit, if they wish, its application and adherence. That framework may take the form of a code of conduct, a decalogue of guidelines, or a declaration. As a student-centred organisation, UNIR has chosen this latter format.

5. UNIR DECLARATION FOR AN ETHICAL USE OF ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION

Universidad Internacional de La Rioja (UNIR), as well as its sister universities across the world and the other companies that are part of the Proeduca Education Group, must adapt to the needs of a constantly developing world. Thus, as members of an institution that produces and

transmits culture, we face the challenge of reconciling the most beneficial aspects of AI with our reality of our practice as university professors and researchers.

The approach to AI adopted by UNIR is summarised in the following declaration, which can be applied in any company, foundation, university, or institution belonging to the parent company. The declaration has been prepared with consideration of the documentation, guidelines, and frameworks referenced herein.

The following principles underpin the design, development, and application of the AI solutions and tools at UNIR. The order of the list does not reflect the priority of the principles, which are addressed and implemented with equal importance:

- **Social Contribution Principle:** Alignment is guaranteed between the interests of scientific projects and technical efforts related to AI and the interests of society, both in general and regarding particular sectors, whether industrial, educational, or any other.
- **Equity Principle:** Emphasis will be placed on the use of AI systems without any discrimination regarding users or target audience. The use of AI products, technologies, and services will not stigmatise, incriminate, or discriminate on the basis of sex, ethnicity, creed, religion, age, disability, political affinity, sexual orientation, nationality, citizenship, marital or socioeconomic status, or any other personal, physical, or social condition (UNIR, 2020). Therefore, biases will be avoided within possible limits, in the configuration and development of AI products and services. The algorithmic bias inherent in this discipline today will be minimised, both in the development of AI and in third-party AI products used in any level of education (executive management, academic management, teaching, student services, etc.). Care will be taken to ensure that AI does not perpetuate or amplify existing inequalities, but rather is a tool to foster social equality and inclusion.
- **Training Principle:** Training will be provided in the use of AI systems. Employees, students, teachers, and other professionals will be trained to follow responsible practices in the use, distribution, dissemination, and production of AI-based technologies and services, in accordance with the ethical standards of UNIR and Proeduca. Additionally, awareness of those standards will be fostered at all levels, in all sectors of the educational ecosystem.
- **Human Supervision Principle:** The use, configuration, and implementation of AI will be completely controlled by competent staff, leaving the final decision on any related aspect to their

judgement and not delegated to fully automated decision-making AI systems. Further, AI technologies must support and enhance human decision-making and autonomy rather than undermine or replace it. In practice, respecting human agency means designing AI systems that serve as tools for augmentation rather than substituting human abilities. This principle ensures that AI tools and methodologies are developed with a keen awareness of their potential impact on human roles and responsibilities.

- **Ethics Principle:** The ethics of our own AI development work will be guaranteed. Proprietary AI systems will be researched, implemented, and used in accordance with the Ethical Guidelines (EU, 2019a) on Trust in line with the European Code of Conduct for Research Integrity (ALLEA, 2023).
- **Confidentiality Principle:** Data security and privacy will be promoted in the use and development of AI systems. In both configuration of proprietary or external products, and in development carried out within UNIR and the Proeduca Education Group (such as research or support products), the confidentiality of individuals or corporations will be respected and the privacy of personal data will be protected, as will the privacy of any data stored, retrieved automatically, or collected in the form of a specific field, in compliance with the privacy policy of the Proeduca Education Group and with the current legislation in the Spanish Civil Code (specifically, Organic Law 3/2018, dated December 5, on the Protection of Personal Data and Guaranteeing Digital Rights.)
- **Transparency Principle:** Transparency will be fostered in the use and production of AI. On the one hand, as an institution making use of AI systems, UNIR is committed to being accountable for their implementation, context, and scope. On the other hand, as an institution committed to research, and therefore, to the eventual production of artificial intelligence, UNIR will be transparent regarding sensitive aspects such as the underlying neural model or databases used for employee training.
- **Sustainability Principle:** Sustainability in the use of AI will be encouraged. The sustainability and the balanced and responsible development of AI-based systems will be ensured, adopting an innovative and collaborative stance regarding environmental impact and energy consumption. Efforts will be made to leave the smallest possible ecological footprint while applying the DNSH (Do No Significant Harm) principle (EU, 2021a).

- **Knowledge Principle:** Collaboration and the exchange of knowledge between researchers and thinkers from different fields will be encouraged, including between data scientists, engineers, philosophers, legislators, etc., from any sphere, professional category, and academic scale.
- **Traceability Principle:** The identification and traceability of AI-produced content will be guaranteed. Any generative AI system developed or used by Proeduca will clearly indicate the artificial origin of its products, whether these be images, videos, or texts, and will maximise the traceability of their production.

An effective **internal audit and monitoring system** will be implemented, under the authority of a multidisciplinary committee on the development and use of proprietary processes, services, and products (or integration of other processes, services, and products). The committee will periodically evaluate compliance with the commitments made in this declaration, and also suggest corrective and transparent measures should any significant deviation be identified.

6. SCOPE AND INTEGRITY

At UNIR and the Proeduca Education Group, we recognise that our environment is undergoing transformative impacts. We are committed to using AI ethically and responsibly to enhance knowledge and promote innovation, for the benefit of society as a whole. This declaration establishes the fundamental principles that will guide actions and decisions in this meteoric field of human knowledge at every level and each position in all the universities, companies, and organisation that compose the Proeduca Education Group: teachers, researchers, students, academic managers, boards of directors, intermediate positions, experts, and any other related position. We seek to foster an approach focused on the benefit to society, transparency, and collaboration while promoting ethics, education, and accountability at every step in the use of AI.

There is a consensus that AI raises major ethical issues, but this consensus does not extend to the norms and measures which should be adopted. Efforts have been made at National and international levels to guide institutions and policymakers in the appropriate and ethical use of AI, including the European Commission (AI High-Level Experts Group, 2019), the USA (OSTP, 2022), and UNESCO (UNESCO, 2022). However, these documents do not provide a consolidated guide for ethical conduct. They are also complex (the UNESCO guidance proposes 86 actions to ensure the ethical use of AI). The emerging legal framework for AI has strong

underlying ethical assumptions and implications, but its objectives and measures vary greatly between jurisdictions. For instance, The EU prioritises the safety of citizens (Madiega, 2023), while the UK emphasises economic growth (UK Government, 2023).

Confronted by this confusing ethical panorama, we propose that institutions distinguish between two ethical aspects. The first, and more straightforward, refers to the ethical development and implementation of AI. In this context, institutions will be increasingly constrained by the legal framework under which they operate. It should be noted that the proposed EU legislation identifies education as a high-risk application, implying a series of obligatory measures, including an irreducible role for human decision-making. Education institutions will have no alternative to ceding to legislators the responsibility for ethical criteria in the development and implementation of AI, while also emphasising the professional virtues of honesty and diligence.

The second aspect concerns the impact of the use of AI on students, teachers, and society. As Miao and Holmes (2023, p.35) indicate, this raises a range of ethical questions which are as yet unquantifiable. Would it be ethical for AI to reduce human educational interactions, with possible psychological and pedagogical consequences? Or for biases to be introduced to educational content? Or for critical and creative aspects of learning to be constrained? In a rapidly changing environment, institutions cannot provide definitive answers to these questions. They can, however, commit to identifying the impact of their AI applications and striving to ensure the ethical probity of the consequences.

7. CONCLUSION

The application of this declaration is undoubtedly appropriate for UNIR, any sister university and any company within the Proeduca Education Group. Further, it may be useful for any other higher education institution of any level, if properly adapted and contextualised. On the one hand, it sets fair and appropriate boundaries for the use and deployment of AI technologies in the three main areas of a university: classrooms, administration, and scientific endeavour. Compliance with this decalogue ensures, in principle, that the use of AI services in these three realms will not lead to discrimination among their potential users. It also protects the privacy of students, teachers, university professors, researchers, academic managers, executive managers, and administrative staff. As for the internal architecture of third-party AI systems, universities adhering to this

declaration commit to using those that do not promote unnecessary biases and are as transparent as possible within the technical bounds of black-box approaches.

Regarding AI development in the field of research, this declaration encourages compliance with the broad international consensus on ethical guidelines. AI-based software should be programmed (and eventually deployed) with data integrity and sustainability in mind. Finally, in a general sense, this set of guidelines advocates training, education, and universal access to AI by all academic stakeholders.

However, as already indicated by some scientists and philosophers, the use and understanding of AI-based technologies currently suffers from excessive naivety (see for example the discussion by Smith (2019) of the limitations of AI, and Nader et al. (2022) for analysis of the impact of depictions of AI in the media). Further, humanity is facing an intriguing new panorama of developments unlike any it has previously experienced. Technological and scientific advancements have unquestionably been remarkable in the last 100 years. AI, nevertheless, represents a novel quantum leap that generates a non-negligible degree of uncertainty, including among senior academic personnel. Furthermore, just as the term digital native was coined at one point in time, we could do the same with the expression AI natives to refer to current university students, who might have absorbed these technical advances with much more intuition than the generation of their parents or teachers. In other words, like homes and families, universities are very unusual environments where two generations, which might be separated by a gap of 20 to 40 years, are supposed to harmoniously coexist for the sake of the advancement and dissemination of knowledge. The acceptance, use, and internalization of AI will be very different for these two types of actors in the college-level sphere. We believe that this will be the true challenge when it comes to integrating this declaration into campuses and daily institutional life.

Despite these difficulties, the proposed guidelines represent a good starting point that places us all within the same framework and looking in the same direction: taking advantage of AI to learn better, teach better, and provide better academic management to, therefore, build a better education system.

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