# Artificial Intelligence in Engineering and Computer Science Learning: Systematic Review Article

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**Abstracts:** Until the present, the technology has made students and teachers to object in its use, the quick development of it in engineering has been possible by the appearance of the covid-19, the objective of this investigation is to respond to the following question: why engineering and computer science students would have to learn artificial intelligence? It can be said that the students learning of these disciplines study or develop competences like the creation of: A.I. in mechanics, robotics, biological sciences, physical sciences, etc., from where they could develop, such as the advanced neural networks. The method used for this research is the PRISMA which allowed through the keyword of A.I. and Computer Science in the database of Scopus, Wos, World Wide Science, Scielo, Dialnet, from where we then have a large number of research articles that will have to be filtered, having as a result in the first search 321 952 articles, which were then filtered at various times until reaching the number of 320 429 filtered articles leaving us with 37 of them related or linked to research on A.I. and computer science. In conclusion, A.I. applied by engineering schools of all specialties has granted the development for companies and technological contributions to the new digital culture.

**Keywords:** Artificial Intelligence, Technology Approach, Intelligent Computer, Robot Automata, Neural Intelligence, Agent Research, Computational Intelligence.

## 1. INTRODUCTION

Currently, a great challenge facing the takeoff of Artificial Intelligence (A.I.), has been due to the advancement of the use of technologies and that schools of science and engineering are developing new historical moments; within humanity, hybrid learning is the sequence of making virtuality part of the professional training (De Jesús & Nisan,2021), developing the A.I. without stopping even when there were times when students of engineering and computer science were locked in quarantine in their houses, it was known that facing new challenges humanity could develop a variety of scientific and technological activities with A.I.; were new paradigms of a technology that revolutionizes the world form home of every science and engineering student appear.

Every concern has the human begins to reflect itself, and this worries because it can be used to harm the human race being in the hands of unscrupulous men the misuse of technologies, for this reason the European Union (E.U.) is against the rapid development of this technology tool because by the time could present some difficulties in human beings, from the creation of autoboots, bots, unmanned drones with autonomous learning, that acquire all

the knowledges by the interaction of reality and that can perform and direct themselves according to the construction of their algorithms, or programming codes, that is the reason for the E.U. to build a decalogue on the use of A.I. for the world as mentioned by (Lozano, January 12, 2022).

Likewise, within the development of artificial intelligence and its applications we find sources in social networks as is the case of Robots created by Russia to be part of the army, weapons to kill humans in case of a war, something that is perfecting its movement and shots or use of war weapons as shown in a video of True Stories (November 11, 2022), all this is worried due to it is interesting to have the A.I. in favor of human lives and consequently helps as an instrument of quality of life (Bærøe et al., 2020), and the terrible thing would be to have this tools against the human race. In the same way, the E.U. proposes this regulation with the aim of preventing the indiscriminate use of A.I., such as its applications in autonomous robots capable of steering themselves (Lozano, January 12, 2022).

Also, A.I. can be defined as follows: it is a high-risk technology because it is fully interconnected with the physical world and lacks regulations for its use in technological applications (Vázquez Pita, 2021), as the powers of the world becoming part of the armament world of these powerful countries (pg,273); since 2019, researchers of the E.U. has launched their concerns about ethical construction in the use of A.I. that is reliable and of applications in favor of humanity as mentioned by (Bærøe et al., 2020).

From the application of the automaton neural learning, it can be mentioned that there are two types of doing A.I. such as logical structures based on mathematics and the non-symbolic A.I. but both are of importance and usefulness in the daily life of people since today everything is connected to the internet network who oversees making a neuronal system of active networks exist that can thus fulfill its purpose, capable of solving problems from industry, medicine, technology to crops as previously mentioned as shown in the research (Negro & Pons, 2022).

For this reason, this research is within the pedagogical framework in university classrooms where the beginning of this discipline of A.I. technologies is given. Likewise, we can show that A.I. is an academic resource in the formation of engineering and computer science students; due to the fact that society itself, according to its needs, makes changes occur in all educational systems being the fourth industrial revolution in the process of acquiring mastery with the use of  autonomous technologies, and that also today its application is found within the initial classrooms with children who are able to interact with A.I., in a practical way as mentioned by (Puerto & Gutiérrez-Esteban,2022).

It is also important to mention that the training of engineering and computer science students, it is observed that the A.I. is used to create and recreate 3D printers, the construction of drones to take images at height in places with little traffic, the construction of a system based on the OIT with the A.I., to give a better way to do agriculture and home tasks, organizing the computer mediated by the computational system and among other applications generating impact (Conde-Zhingre, june 2022), allowing to improve the quality of education, life and labor work in society.

The A.I., offers within the field of education a range of opportunities to the teacher-student to build a dynamic world (Ribeiro et al,2022), aiming to make great changes (Quaresma,2021), and this generates sustainable development according to world organizing because they make education have great transformations ad mentioned by (Conde-Zhingre, june 2022), who shows in his research that the paradigm of A.I., bring global redevelopment in learning.

A.I. has a global and international scope because in everyday in student learning, education is strongly linked to electronic devices that teachers and students share daily, and it is a form of coexistence due to this tool is present to help improve the quality of education, for this reason in the following paragraphs we can define the objectives of the investigation.

The objectives of the investigation are to verify the relationship that exists between artificial intelligence in the learning of engineering and computer science, why these students should learn artificial intelligence, and as the

third objective is to know what changes make engineering and computer science have to join the technological and social changes, the research will be developed with a descriptive approach using the database obtained from each objective that will be answered with the research of other authors and researchers' own contribution.

A.I. is disruptive becoming dispensable in students and teachers in the search for knowledge or information of research work, since they have the cell phone in their hands, they already have internet access like Google search engines and others that are developed by the A.I. (Chávez Valdivia,2021), making each student dependent on this technological system. Likewise, the A.I. has been taking part of all virtual environments, and in the world of learning in robotic construction that are also completely linked to the internet system, as in the times of old movies full of science fiction, today in these times it is a reality.

Observing in everyday life the magnitude of how the A.I. interacting with society through cell phones and other devices as referred by (Araya Paz,2022), and the trade of language or communication through the Dialogflow tool with the NLP (Natural Language Thinking) algorithms technique mentioned by (De Oliveira & Merschmann,2021),which is the tools used to decipher BERT language in charge of interpreting the reactions and expressions of each person who contacts a computer; as mentioned by (Varela-tapia,2021), in the same way, the A.I. is currently used for predictive uses in natural phenomena and in the case of education, the student performance (Rincón,2021).

This same leads in consequence on the construction within the web chatbots that responds to the need of each student created by the teacher or those who wish to investigate something new (Artiles Rodríguez et al, 2021), perhaps natural predictions such as geological formations are not given to 100% but that can predict or approximate to show the coming of some natural event makes it increasingly interesting this tool of the A.I. for its prediction according to the database or metadata stored and processed in the computer (Acosta & Upegui,2020), making the life of all students and population in general, a life dependent on technologies to be safe or to protect themselves.

A.I. has many applications in engineering and computer science, such as the need that is applied in the search for renewable energy, as is the case of the international energy agency is conducting projects with A.I. on how to renew the energy that is dissipated or lost using machines in operation (Pastor Fernández y Gil Ruiz,2021), this shows that A.I. is the future of a humanity that seeks to have solutions in an automated way.

We can observe in investigations about A.I. and its applications that seek to build new techniques that allow the development of relevant information within the engineering as is the case of polygons with periodic frequency domain regardless of knowing any point only with the theoretical use of elliptic descriptors and Fourier harmonics as mentioned by (Reinoso-Gordo et al.,2020), which are used in geomathematics, geosciences, and photometrist in the vision of the A.I.; likewise engineering applies models of A.I. in housing with the IOT method, this is due to the demand to provide solutions in architecture that makes it more attractive in times of technological modernity, such as smart homes that use the above mentioned according to the everyday or repetitions of things in life of man such as turning on the lights automatically giving an order with the voice of those who integrate the family, as mentioned in this research by (Ayuso & del Blanco García y Marcén, 2021), being these the skills or capabilities of neural networks trained to perform an action.

## 2. METHODOLOGY

This research is a systematic review article based on the PRISMA method that has a high degree of rigor in selecting the information, being repository by repository and that each of them are analyzed by keywords to achieve the objective of obtaining articles linked to the selected research as mentioned by (Vera Carrasco,2009), being the initial structure from the construction of the title that is relevant in scientific research, in the same way a systematic review article presents a superstructure very different from an initial research work to, reach the known structure in all research it goes through very rigorous processes, due to the exposition of the research. This article is given in the following investigation databases: Scopus,Wos, SCielo, World Wide Science y Dialnet.

## 2.1. Review Process

In Scopus, we performed our first search with the keyword TITLE-ABS-KEY (Artificial AND Intelligence), and it gave us as a result 497 research articles referring to A.I.; these were in the first research from the years 2013 to 2022, containing works from different areas or disciplines, for this we filtered by reducing the number of years and the specialty, reducing the number of results ina  margin of five years from the year 2018 to 2022 and from the specialty of Engineering and Computer Science, giving us as results 492 articles, from where 397 were excluded because they were from other areas, leaving us a number of 95 articles that will be studied or reviewed one by one, this allows us to improve the research developed by researchers in the world who publish their research.

It was searched information about A.I. in Web of Science (Wos), from where in the first search it was found 1236 articles that have reference to the topic, in the same way the first filter was made by years of publication of articles from 2018 to 2022, reducing to 670 results from Web of Science Core Collection for, from where now the second filter is given by specialty of engineering electrical intelligence and computer science information system giving us 121 articles linked to these areas.

Likewise, the search procedure continued with the database of Worldwide Science with the key word of artificial intelligence (Did you mean artificial intelligence), in this first search is obtained in general 312290 articles due to the finding of studies from different disciplines, therefore there was only filtered articles initially with the key word Artificial intelligence in engineering and computer science, having a result of 1479.
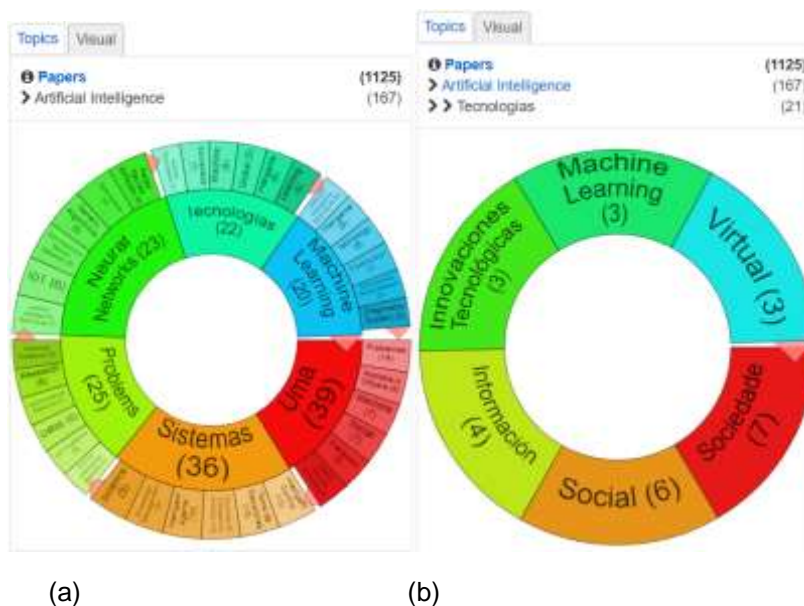


(a)                                         (b)

**Image 1**: *It shows the information search of the A.I. and shows that there are 3 articles related to the research, captured from the World Wide Web page.*

The search was followed in SCielo high impact journal, which showed in the first search for information a result of 713 articles of A.I., where these are separated by are or specialty, and language such as Portuguese, from the year 2018 to 2021, because this repository only shows research papers until the year 2021.

Following the same procedure in the search for information in Dialnet of which in the first search they keyword artificial intelligence is introduced, giving us 8384 articles referring to artificial intelligence, then it was limited by type of documents such as journal articles delivering us 4713 scientific articles.

## 2.2. Selection And Exclusion Of Items

Similarly, an article-by-article filtering search was performed in Scopus, taking the topic artificial intelligence in engineering and computer science, finally obtaining 19 articles relevant to artificial intelligence research were

obtained. Likewise, the following search was made with the name TITLE-ABS-KEY (education AND virtual AND hybrid) bringing a result of 1 article that is related to the research published in 2021, being finally in the search of information in Scopus 16 articles to develop the contributions and results of the research, because 3 articles were filtered for duplicity.

In the development of the search for scientific research articles on the Web of Science (Wos), the following filtering is followed by the type of topics Computer vision & Graphics and knowledge engineering, giving us as a result of 28 articles, which will be reviewed one by one to verify if there is duplicity and the they belong exactly to the research Artificial Intelligence in learning engineering and computer science, finally 23 articles were filtered, leaving us with 5 research articles corresponding to the proposed research.

Now the search in Worldwide Science is done by specialty or discipline to approach the research as is the case presented by the page of this repository in the visual part where it details that 22 articles are technology, 20 machine learning, 39 Uma, 36 systems, 25 problems, and 23 neural networks having a total of 165 articles as seen in Image 1. We will limit it in articles of technology, machine learning, systems, and neural networks, obtaining as a result 101 articles in all possible languages and that will be filtered then by years of search being carried out in an ocular way one by one; reducing them by filtering and having a result of 21 investigations as shown in Image 1b, we will continue filtering in the search of article by article because there is a great difference of excluded articles of 312287 during the process of exclusion by area, finally we found only 5 articles that comply with the search of information of the A.I. un engineering and computer science.

In the search of information on artificial intelligence we can observe the graphical construction of a set of articles published in Scopus capturing this image of CONNECTED PAPERS, which has the particularity of showing us the most relevant articles by discipline, as we can see in the following Image 2, which shows how related are the different researched on AI.
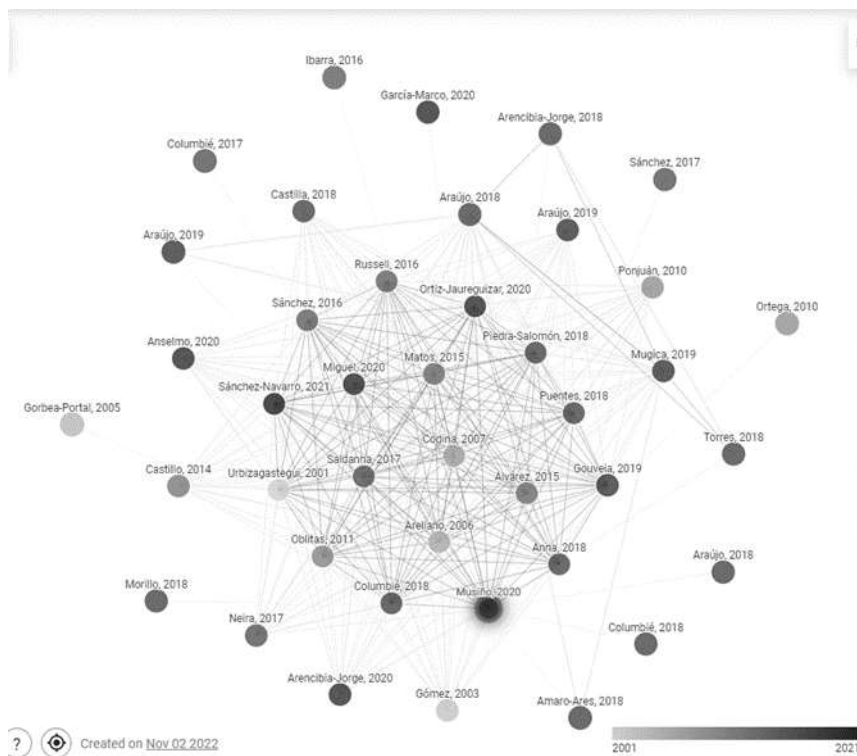


**Image 2:** Sample bibliographic analysis on artificial intelligence research, captured from connected papers source and linking A.I. articles.

Considering the thematic area of engineering in SCielo, engineering, science, computer, being the type of literature in the search scientific articles, without limiting the countries to find more articles that refer their studies in A.I. according to the thematic in the research, as results according to the filtration we obtained 4 articles; being excluded 708 articles because they are of other thematic areas or specialties.

Finally, we continue filtering in Dialnet, introducing the key word artificial intelligence in engineering giving us 429 articles, we continue filtering by type of documents and journal articles, giving us 223 scientific articles that will be analyzed one by one; looking for them to be related to the research that we seek to detail in this systematic review, this gives us 7 articles corresponding to the proposed research, having 422 articles excluded.

After the search of the results, we can observe the following flowchart, summarizing how the articles corresponding to the A.I. were obtained. Within the research results process we can show the following Image 3.
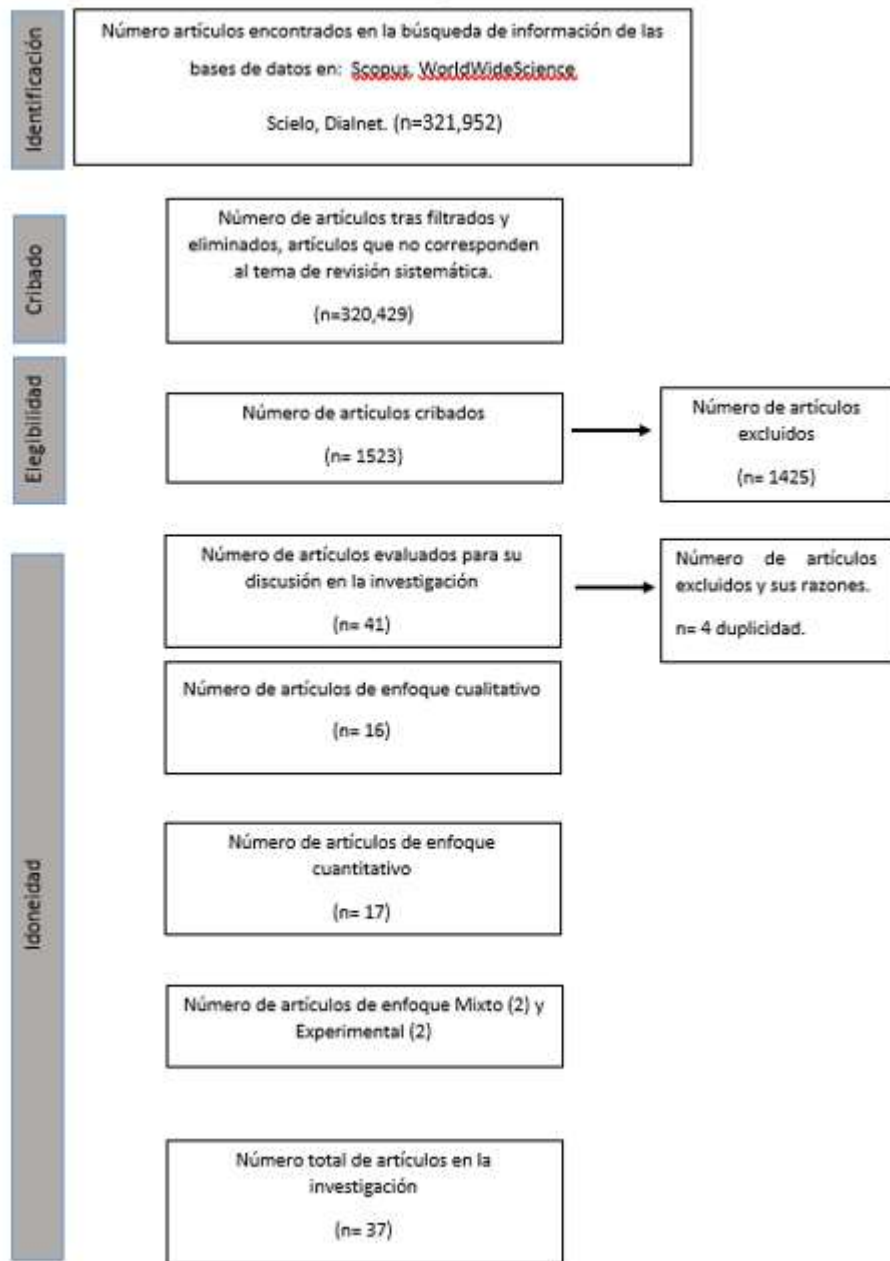


**Image 3.** Flowchart of review articles in artificial intelligence in engineering and computer science using the PRISMA method.

### 3. RESULTS

Similarly, Image 4 shows the number of articles by research approach found in the Scopus,Wos, World Wide Science, SCielo, Dialnet.
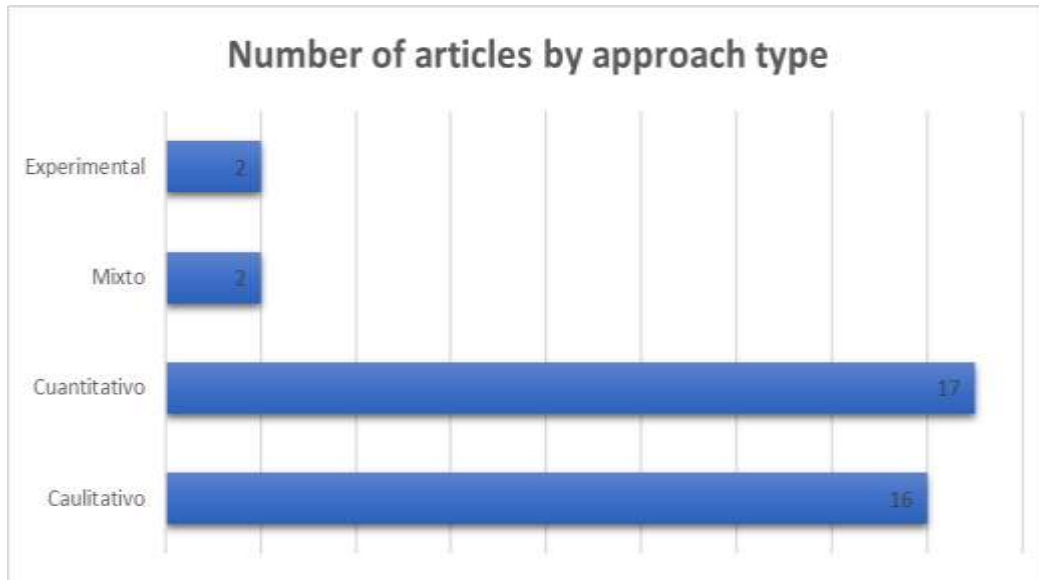


**Image 4.** Scientific research articles by focus.

Image 5 shows in detail the distribution in percentages of the scientific articles found by country, being Spain the country with the most publications in high impact journals representing 14 articles of the total linked in the research with a representation of 37.8%, likewise the second country found with more journals dedicated to A.I. is Mexico with 5 articles representing 13.5% of the total research found for the study, as we can see in the following figure 5, the statistics of this analysis reflect the importance given by the countries in developing A.I.
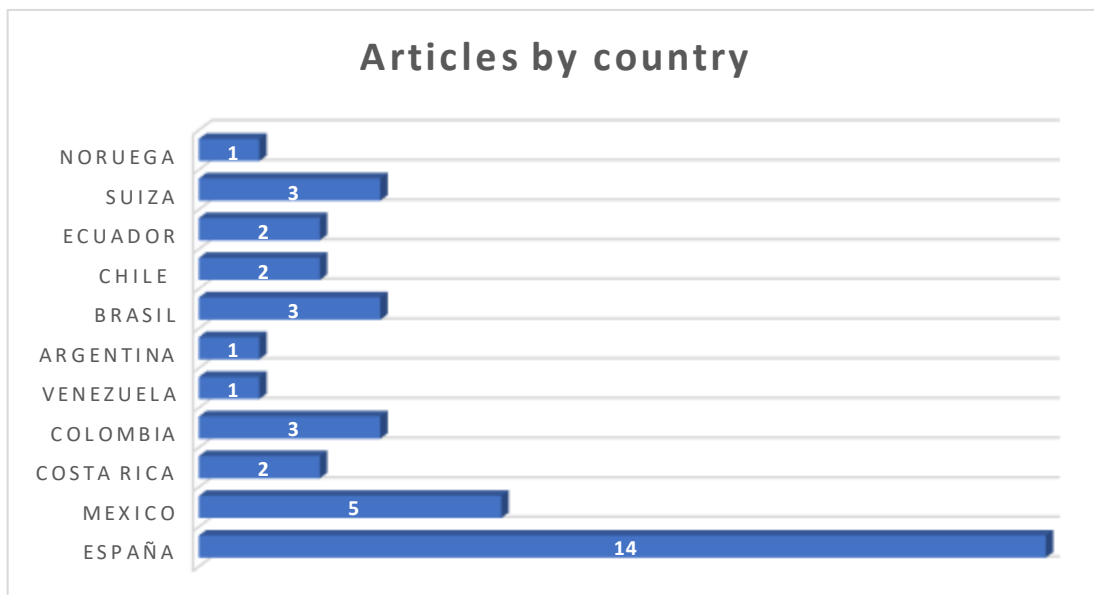


**Image 5.** Scientific research articles by country indexed in Scopus, Wos, World Wide Science, SCielo, Dialnet.
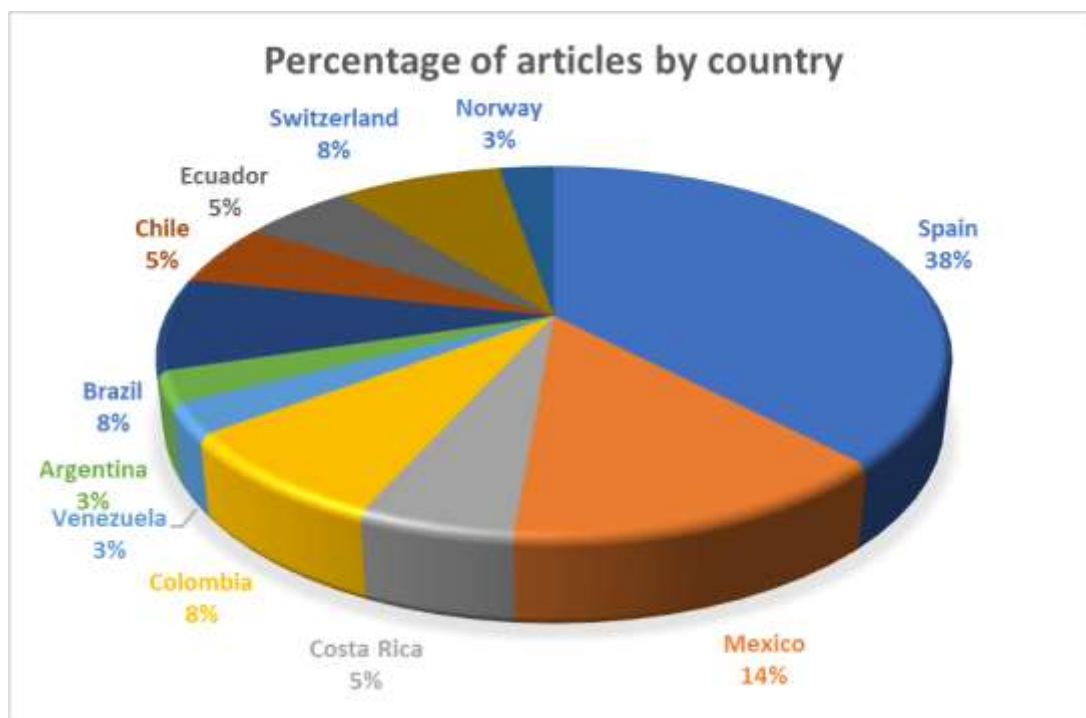
**Image 6.** Percentage of scientific research articles by country indexed to Scopus,Wos,  World Wide Science, SCielo, Dialnet.

**Table 1. Selection and exclusion process**

| No. | Selection and exclusion process | Time and characteristics of the information search |
|---|---|---|
| 1 | Range of search and filtering of research-related content | 24/10/2022 to 10/11/2022 |
| 2 | Types of research articles | Scientific articles |
| 3 | Keywords | Artificial intelligence, technology approach, intelligent computer, robot automata, neural intelligence, agent research, computational intelligence. |
| 4 | Database | Scopus, Wos, World Wide Science, SCielo, Dialnet |
| 5 | Languages of articles | Spanish, English and Portuguese |
| 6 | Types of articles according to their research approaches | Quantitative, Qualitative, Experimental and Mixed |

For practical purposes we have placed the titles of the research articles for this study in parts, not in full, using the points that show continuity, being the complete titles in the references of this research work.

**Table 2. Selected research articles**

| Title | Year of publication | Country | Study approach | Database | Language |
|---|---|---|---|---|---|
| Artificial Intelligence as an Educational … | 2022 | Spain | Mixed | | Spanish |
| Impact of artificial intelligence … | 2022 | Ecuador | Quantitative | | English |
| The Retail Sector's Bet … | 2022 | Spain | Quantitative | | English |
| Redesigning the ownership … | 2021 | Chile | Qualitative | | Spanish |
| Legal challenges for artificial … | 2020 | Chile | Qualitative | | Spanish |
| Inteligencia Artificial Conversacional … | 2022 | Ecuador | Qualitative | | Spanish |
| Planificación y gestión de proyectos … | 2021 | Spain | Quantitative | | Spanish |
| La Dirección de proyectos | 2021 | Spain | Mixed | | Spanish |

| | | | | | |
|---|---|---|---|---|---|
| en el marco de la inteligencia artificial. .. | | | | | |
| Modelo Predictivo Multivariable En Tiempo Real … | 2021 | USA | Quantitative | Scopus | Spanish |
| Agente conversacional virtual … | 2021 | Spain | Quantitative | | Spanish |
| Weak artificial intelligence and computational … | 2021 | Brazil | Qualitative | | Portuguese |
| Determinación de procesos de remoción … | 2020 | Colombia | Quantitative | | Spanish |
| … | 2019 | Colombia | Quantitative | | Spanish |
| Inteligencia artificial en la ingeniería… | 2018 | Spain | Qualitative | | Spanish |
| Hybrid learning generated from … | 2021 | México | Quantitative | | Spanish |
| Diseño ergonómico de prótesis … | 2018 | Spain | Qualitative | | Spanish |
| Smart System with Artificial … | 2021 | Spain | Experimental | Wos | English |
| Joint evaluation of preprocessing tasks with … | 2021 | Brazil | Experimental | | English |
| Gait Activity Classification on Unbalanced Data from Inertial Sensors … | 2020 | Switzerland | Quantitative | | English |
| AI-Crime Hunter: An AI Mixture of Experts … | 2021 | Switzerland | Quantitative | | English |
| Fourier-Based Automatic Transformation between … | 2020 | Switzerland | Quantitative | | English |
| Aplicación de redes neuronales al diseño de vivienda colectiva. .. | 2021 | Spain | Quantitative | World Wide Science | Spanish |
| El impulso japonés a un acercamiento global … | 2021 | Spain | Qualitative | | Spanish |
| How to achieve trustworthy … | 2020 | Norway | Qualitative | | Spanish |
| Artificial Intelligence techniques based on the integration … | 2022 | Argentina | Quantitative | | Spanish |
| Advocacia e inteligência artificial… | 2022 | Brazil | Qualitative | | Spanish |
| Aplicação das Redes Neuronais … | 2021 | Spain | Quantitative | SCielo | Portuguese |
| Arquitetura de sistemas de recomendação para apoio ao vendedor … | 2021 | Spain | Qualitative | | Spanish |
| La producción documental de la Inteligencia … | 2021 | Costa Rica | Quantitative | | Spanish |
| Organização e representação de conhecimento … | 2019 | Spain | Quantitative | | Portuguese |
| Aportes de ingeniería en inteligencia artificial … | | Mexico | Qualitative | Dialnet | Spanish |
| Inteligencia artificial, técnicas de simulación… | 2020 | Mexico | Qualitative | | Spanish |
| Inteligencia artificial en la ingeniería… | 2018 | Spain | Qualitative | | Spanish |
| Estado del Arte de la Predicción de Variables … | 2022 | Costa Rica | Qualitative | | Spanish |
| Gestión del conocimiento | 2018 | Mexico | Qualitative | | Spanish |

| | | | | | |
|---|---|---|---|---|---|
| … | | | | | |
| Cómo las tecnologías de análisis de datos pueden ayudar … | 2021 | Colombia | Quantitative | | Spanish |
| Arquitectura basada en tecnologías emergentes … | 2021 | Venezuela | Quantitative | Dialnet | Spanish |

From the results we can further affirm and confirm the great contributions of A.I. on all possible means in which society is immersed in all these changes that make life a better way or quality of life, and that solves problems from schools, medical areas, engineering areas in homes, in industry, in homes and even more in all types of companies that need to improve their income and efficiency using A.I., we can see the contents of Table 3.

**Table 3. Contributions of A.I. in engineering and computer science**

| Contribution of A.I. in engineering and computer sciences | Impact on society, teachers, students, and industry |
|---|---|
| Construction of design in image processing or image retrieval based on programming languages. | Environmental sciences, environmental physics, systems engineering. |
| Educational models created with A.I. | In schools and universities, which in practice benefit students, teachers, and the community. |
| Bots are totally related to human beings, in this case to students and teachers. | Society, teachers, and students showing the experience with the robots of the Google system and other information search platforms that are the most used. |
| A.I. reduces human errors by being programmed and more accurate in the calculations and operability of any mechanical electrical construction design. | Engineering companies that use these tools to generate higher economic income. |
| Appearance of several models or prototypes of robots capable of performing complex activities where man cannot perform such achievements. | Engineering schools, computer science schools, teachers, students, and the social community. |
| A.I. as a solution tool in almost all human activities, as in the case of the construction of surgical operators, the construction of robots that assemble cars, etc. | Industry with engineering technologies that improve the quality of designs and construction of everything from watches to weapons of war. |
| Virtual education programs for all educational levels built with A.I. | School, vocational training institutes, universities. |
| Customer cybersecurity programs using A.I. | It is found in banks for citizens accounts. |
| A.I. in petroleum engineering for reservoir location and avoidance of instrument and material costs through satellite mapping techniques in terrain areas located by satellites. | Engineering and Engineering schools and oil companies in the extraction of oil and its derivatives. |
| A.I. in concrete reinforcements by means of mechanical probabilities analysis that experience a correction in the concrete already founded, of which it is sought to give solution using the Monte Carlo method that shows the number of occurrences of the saltpeter advance or the possible $CO_2$ corrections that could appear in time, the A.I. can predict according to the place or the zone of the building. | In schools of civil engineering, architecture and iron and cement companies. |

Engineering and computer science have been developing a wide range of physical, mathematical, chemical and biological models, of which we have the use of this technological tool to measure the temperature in some medium neural controllers of the IOT, which is the internet of things (Torres & Gómez, 2019), similarly, researches show that in the very near future most of the things should be within the autonomous system of things or the IOT (Romero & Rolle,2018), advances capable of providing solution or destruction to humanity, it is necessary the construction of international regulations that help the incorporation A.I. in a orderly manner and with clear rules to avoid excesses in the construction of autonomous machines.

We can mention that A.I. is the structure of the code language that receives the computer to produce a message and put into activity, and this is autonomous machine learning way to respond to many mechanical, electrical activities and more with efficiency; companies use A.I. (Cerro et al, 2021), from a web page to achieve to be included as the IOT and bots, chatbots and robots as a weapon of war.

It is observed that A.I. is immersed in medical areas helping as a tool for disabled people in the construction of ergonomic transfemoral prostheses or parts of the legs to their measure for disabled being built with sensors that help to improve the movements of the leg as mentioned by (Lopez-Nava, 2020) and (Pava-Chipol et al,2018), all this is part of engineering in charge of bringing solutions to society facing cases difficult to respond without A.I. help.

In addition, that the A.I. is part of cybersecurity resources and for this it has a large database or metadata found in social networks, where users' behaviors and reactions to advertisements or images that appear frequently are stored according to their information search, it means that users have started to see or search within social networks or web pages (Shoeibi et al, 2021), these become frequent or part of the content related to the initial search, this is where cyber security comes into play for all those seeking protection of all kinds from advertisements and scams, engineering is in constant development by the existence of hackers or engineers with evil intentions.

## 4. DISCUSSION

We can mention that the last decades A.I. arises due to the new needs to optimize the industry, engineering, industrial field, medicine, schools, universities, etc., likewise the use of this tool shows its applications in the oil industry where they use models to make very expensive wells but that before being realized these wells necessarily use this model that helps to verify if there is oil reservoir and can be excavated ( Chaile et al.,2021), saving a lot of money and execution time, as well as companies seek to provide practical and immediate solutions for the sale of products from technology, food, toiletries, and everything that humanity needs to perform their common activities of daily life, and each of these products are found via online and that every time you visit this page A.I. is responsible for reminding you that there is what each person needs to be consumed, as shown (Narváez, 2021).

To answer the questions given in the objectives of this research we have to verify the relationship that exists between artificial intelligence in the learning of engineering and computer science, according to the research works of the A.I. in sciences and engineering we found results of the researches that there is a very close and significant relationship in the learning of students in such a way that they are linked to each other to perform activities in electronics, medicine, industry, agriculture, etc., as described by (Martínez Musiño,2021) and the next objective to be answered in this research is why students of engineering and computer science should learn A.I., the learning of students in these disciplines study or develop skills according to their training areas such as computational, mechanical, robotics, biological sciences, physical sciences, chemical sciences, etc., and that each of them takes importance in the construction of new ways of doing life of men in a society full of technological tools, in the same way the next objective is to describe through these articles what changes engineering and computer sciences have to make to join the technological and social changes, the own needs found in health problems, in the city the easy monitoring system using the A.I. for citizen security, the contribution of new technological tools as a product of giving industrial solutions from the sale of an apartment to achieve the realization of complex systems such as the train system or even the national security system in the seismology center of each country that has already inserted the A.I. as shown in (Martínez Musiño, (2021) researches.

## CONCLUSIONS

In conclusion the A.I. applied by the engineering schools and even by companies interested in developing technological applications make these databases of information on a A.I. collected on the web, through search engines or information search engines allows a great development and a career of new technological contributions on the new digital culture to achieve innovation in the creation of smart cars, cameras, cellphones drones and the internet of things in their home applications as well as in industry, agriculture, medicine, etc. In the same way in education of training of professional, it has allowed the development of intelligent educational platforms where students of engineering and computer science can develop education and professional training fully linked in the participation of massive groups that have the same interest in developing technologies, these platforms have the creation to apply student tutoring or monitoring, so that the student can perform this or that situation according to the need within their search for information, and the scientific community develops a great contribution because it makes new knowledge or new research that are born of the set of contributions of each student and professional from different disciplines connected online from different countries or nations in all languages is massified. This

make them to join with new contributions to the technological culture that is through the programming language or the source codes of the logical programming system that allows to develop neural networks among other applications, interested in engineering and sciences, as we can also see that every day is more common the existence of hackers and specialists who did not study at a university and they have a high degree of mastery about A.I., to commit crime or develop activities that benefit the citizenship, for this reason it is necessary the construction of ethical codes about the use and manipulation of A.I.

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