

CASE REPORT

Artificial intelligence in dermatology and its use in the Republic of Ecuador.

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ABSTRACT

Artificial intelligence in the field of medicine is becoming a very useful tool in the analysis of statistical data through big data, deep learning, neural networks, programs such as Python, which is applied in the field of research and analysis in large databases, in the field of dermatology is gaining space in other countries in the use of image analysis which are trained with algorithms and are very useful when verifying a pigmented lesion with a high potential for malignancy compared with other images of similar characteristics, as they use artificial intelligence for the analysis of patterns of pigment distribution, vascular formation, location, etc.

In Ecuador, artificial intelligence applied to dermatology has not been widely disseminated, due to factors such as lack of knowledge in the use of technological tools, little relation with images and their analysis. This is a good opportunity to disseminate its use and application to the specialty.

INTRODUCTION

Artificial intelligence in dermatology is a branch of Artificial Intelligence (AI), and Machine Learning, which is dedicated to the study of how computers can be used to perform tasks related to the specialty. This includes diagnosing skin diseases, monitoring the evolution of skin diseases, and designing treatments for skin diseases. AI in dermatology has become a very active area of research in recent years, due in part to advances in the field of AI, and in part due to the growing interest of dermatologists in the use of computers to improve the diagnosis and treatment of skin diseases. There are several types of IA systems that have been developed for dermatology. These include knowledge-based systems, machine learning-based systems, and hybrid systems that combine both approaches. Knowledge-based

systems use expert knowledge to perform dermatology-related tasks. The expert knowledge is represented in the form of rules or facts, and the system uses this knowledge to solve problems.

It is very common to read and hear in medical presentations, podcasts and interviews news about AI, machine learning and neural networks, among other terms.¹

An example of a knowledge-based system is the DermExpert skin disease diagnostic system developed by Dermatologic Data Systems. DermExpert uses the knowledge of more than 200 expert dermatologists to perform skin disease diagnosis. Machine learning-based systems Machine learning-based systems use ma-

chine learning techniques to analyze data and extract knowledge from it. Machine learning-based systems can be used to perform various tasks, such as diagnosing skin diseases, monitoring the evolution of skin diseases, and designing treatments for skin diseases.²

An example of a system based on machine learning is the ISDIA system, developed by ISD Software. ISDIA uses machine learning techniques to analyze skin images and extract information about skin diseases. Hybrid systems use a combination of artificial intelligence techniques, including expert knowledge, machine learning, and natural language processing.³

Hybrid systems have been developed to perform various tasks, such as diagnosing skin diseases, monitoring the evolution of skin diseases, and designing treatments for skin diseases. An example of a hybrid system is the DermIS system, developed by ISD Software. DermIS uses a combination of artificial intelligence techniques, including expert knowledge, machine learning, and natural language processing, to perform skin disease diagnosis.

First Derm, an artificial intelligence platform where patient images can be analyzed in real time by comparing

them with other images available in the search engine database, is a useful tool when analyzing images of pigmented lesions.⁴

As it is an advanced technology, few doctors in general are related to its use, in the public health system no hospital has a platform oriented to this end, which is why in the scientific events of the specialty that should be designated a space for the dissemination of this technological tool.

REFERENCES

1. A. Martorel, A. Martín-Gorgojo. Et.al. actas dermosifiliograficas. actas dermosifiliograficas. [En línea] 10 de Enero de 2022. <https://www.actas-dermo.org/es-inteligencia-artificial-dermatologia-amenaza-u-articulo-S0001731021002957>.
2. Jacob Mathew, Jr.,. derm expert. derm expert. [En línea] 31 de Diciembre de 2022. <https://www.visualdx.com/derm-expert/>.
3. ISSDIA. ISDGROUP. ISDGROUP. [En línea] 31 de DICIEMBRE de 2022. <https://www.isdgroup.com/en/>.
4. iDoc24 AB. firstderm. firstderm. [En línea] 31 de diciembre de 2022. <https://www.firstderm.com/es/ia-dermatologia-inteligencia-artificial/>