



Artificial Intelligence in Dentistry

Arpit Sikri^{1*} and Jyotsana Sikri²

¹Associate Professor and Post Graduate Teacher, Department of Prosthodontics, Crown and Bridge and Oral Implantology, Bhojia Dental College and Hospital, Himachal Pradesh, India

²Associate Professor and Post Graduate Teacher, Department of Conservative Dentistry and Endodontics, Bhojia Dental College and Hospital, Himachal Pradesh, India

***Corresponding Author:** Arpit Sikri, Associate Professor and Post Graduate Teacher, Department of Prosthodontics, Crown and Bridge and Oral Implantology, Bhojia Dental College and Hospital, Himachal Pradesh, India.

Artificial Intelligence (AI) is defined as the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. In other words, it is the simulation of human intelligence processes by machines, especially computer systems. These days, Artificial Intelligence (AI) is turning out to be more significant in the field of medicine as well as in dentistry. It tends to be useful in many fields where humans might be helped significantly by the new advancements. The various subtypes of artificial intelligence are machine learning, neural networks, and deep learning. Machines can learn through information to construct calculations and along these lines, they can settle the expectation issues without human assistance. Neural Networks (NNs) utilize fake neurons that are like human neural networks and copy the human mind in a numerical nonlinear model. NNs can mimic human mental abilities, for example, critical thinking and human reasoning skills, which incorporate learning and independent direction. Neural networks in a basic structure have three layers: the input layer (where the data enters the framework), the hidden layer (where the information is handled), and the output layer (where the framework chooses what to do). Given a bunch of numerical models, NNs can frame any information to a result. The NNs can also be prepared to address the statistical figures of any given information.

Moreover, there are more intricate artificial neural networks, where there are layers that are more secret and these are called

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multilayer perception (MLP) neural networks. The most generally utilized types of brain networks are artificial neural networks (ANN), convolutional neural networks (CNN), and recurrent neural networks. Deep learning is a part of neural networks where the personal computer learns on its own how to handle the information. Such neural networks have between thousands and a couple of million neurons in the secret layer.

Artificial intelligence (AI) might be utilized in arranging more powerful treatments, prophylaxis, and the decrease in treatment costs. We can profit from AI in medication, for the most part in the fields like radiology, pathology, and oncology (by utilizing the "Thermalitics" method in recognition of breast cancer), cardiology (to aid in ECG examination), psychiatry (for diagnosis and treatment planning of the mental disorders), nuclear medicine, and numerous others. The personal computer models of the neural networks are additionally one of the techniques to comprehend the working of the sensory system, which we cannot concentrate on in that frame of mind due to the restrictions of present-day research strategies.

Artificial intelligence is likewise spreading in dentistry because of the advent of technology and digitization in the field of dentistry. Any second opinion can now be made by personal computers in various dental fields. NNs in dentistry can be utilized to make the course of diagnosis more exact, quick, and productive. The innovations are rapidly growing in the field of dentistry. These days, artifi-

cial intelligence and neural networks are for the most part utilized in dental radiology to working with better diagnosis and treatment planning, and as a part to forecast the treatment results. The most often utilized sorts of neural networks are artificial neural networks and convolutional neural networks. In restorative dentistry, neural networks can distinguish dental caries, choice of restoration, and methods to excavate dental caries. In endodontics, neural networks can help recognize the anatomy of the root canals, working length determination, periapical status, any periapical lesion, root fractures, the viability of the pulpal stem cells, and the outcome of the endodontic retreatment procedure. In orthodontics, they can work with meticulous diagnosis and treatment planning, cephalometric analysis, assessments related to growth and development, and the treatment outcome. In oral and maxillofacial surgery, the neural networks might be useful in orthognathic surgical procedures, extraction, and post-extractions issues, lesions related to the bone, and diagnosis and treatment planning in dental implantology. Moreover, artificial intelligence is rapidly spreading in the field of periodontology to assess periodontal and peri-implant bone loss, the prognosis of periodontitis, and its advancement. This editorial portrays that artificial intelligence has grown extremely quickly lately and it might turn into a customary device in current dentistry sooner rather than later. The benefits of artificial intelligence are improved proficiency, exactness and accuracy, better monitoring, and efficiency in terms of time. Further research is required with the utilization of neural networks in dentistry to place them into day-to-day practice by the dental surgeons.

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