Response to Letters to the Editor regarding the editorial "Artificial intelligence, machine learning, and the human interface in medicine: is there a sweet spot for oral and maxillofacial radiology?"

To the Editor:

Thank you for your interest in the editorial and for your commentary regarding Artificial Intelligence (AI). I understand the complexity of creating a "virtual oral and maxillofacial radiologist" and the potential limitations of replicating a dynamic human thought and decision-making process. However, is that our true quest, or should we dare to dream beyond that? I agree with your point of view regarding the need for enormous amounts of data and multiple complex scenarios and resolutions required to even envision a rudimentary machine learning system that can diagnose radiographic data. Although this may have seemed impossible a few years ago, present-day technology and the rapid evolution of computational algorithmic options predict that we will be able to build such robust processing systems very soon. I envision them to be hybrid machines that can crunch clinical, radiographic, and diagnostic scenarios rapidly to generate options that can help the radiologist make a more empowered diagnosis. An observational projection by Intel's cofounder Gordon Moore in 1965, often referred to as Moore's law, predicts that the number of transistors in a dense integrated circuit doubles about every 2 years. This concept has taken a spike in the right direction since then and is doubling faster than the projected 2 years. This has led to the development of very small space-occupying data processing and storage devices. These machines with "smart cell makeup" have laid the foundation for several applications that require crawling a long and complex data path at lightning speed. So, what we can rely on is the power of the "exponential," which facilitates turning a small thing into a mammoth undertaking by simply compounding it several times. To give this concept a graphic representation, if we folded the current-day data-carrying digital transistors over a few times, 42 foldings later, we would be half way to the moon from Earth. Such is the power of data processing today, and it is only predicted to become exponentially larger. With the evolution of such robust machines powered by AI, the idea of multiple gizmos in all shapes and forms buzzing around in medical and dental offices may not be too far into the future. My point in the editorial was to observe that nothing completely manual or machine-driven can glean the best results. The quest is to find that elusive sweet spot in the AI−human interface. I am very confident that this magic is waiting to happen . . . soon.

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