TECHNOLOGY ARCHITECTURE

SUMMARY:

In the past, the skills required to make an accurate dermatological diagnosis have required exposure to thousands of patients over many years. However, in recent years, artificial intelligence (AI) has made enormous advances, particularly in the area of image classification. This has led computer scientists to apply these techniques to develop algorithms that are able to recognize skin lesions, particularly melanoma. Since 2017, there have been numerous studies assessing the accuracy of algorithms, with some reporting that the accuracy matches or surpasses that of a dermatologist. While the principles underlying these methods are relatively straightforward, it can be challenging for the practising dermatologist to make sense of a plethora of unfamiliar terms in this domain. Here we explain the concepts of AI, machine learning, neural networks and deep learning, and explore the principles of how these tasks are accomplished. We critically evaluate the studies that have assessed the efficacy of these methods and discuss limitations and potential ethical issues. The burden of skin cancer is growing within the Western world, with major implications for both population skin health and the provision of dermatology services. AI has the potential to assist in the diagnosis of skin lesions and may have particular value at the interface between primary and secondary care. The emerging technology represents an exciting opportunity for dermatologists, who are the individuals best informed to explore the utility of this powerful novel diagnostic tool, and facilitate its safe and

ethical implementation within healthcare systems.

FIGURE1:

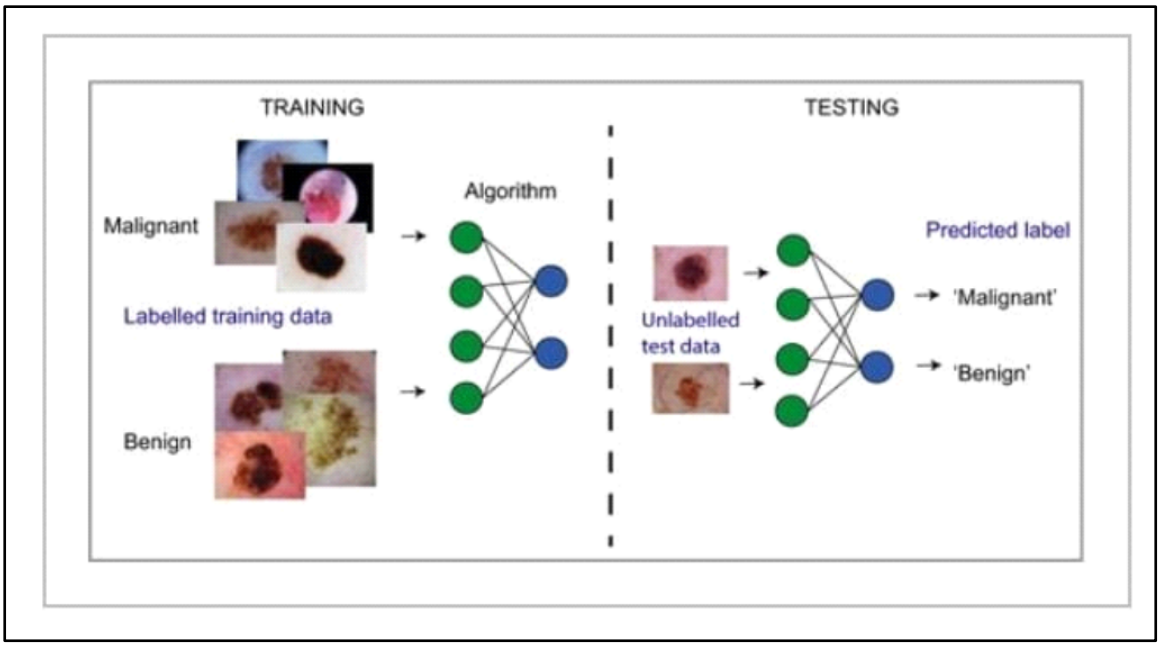


FIGURE2:

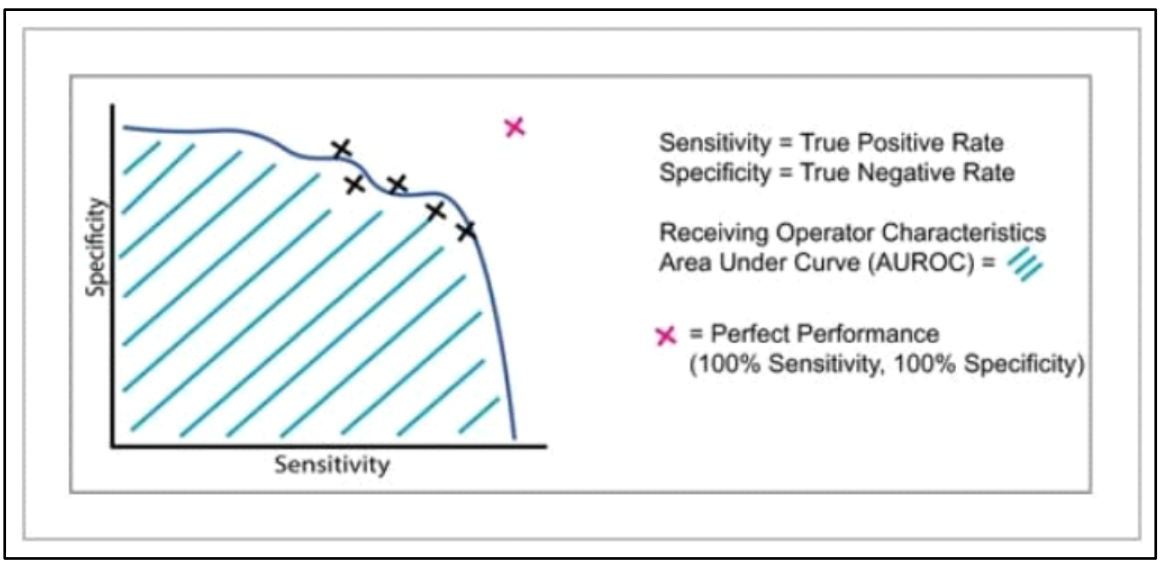


FIGURE3:

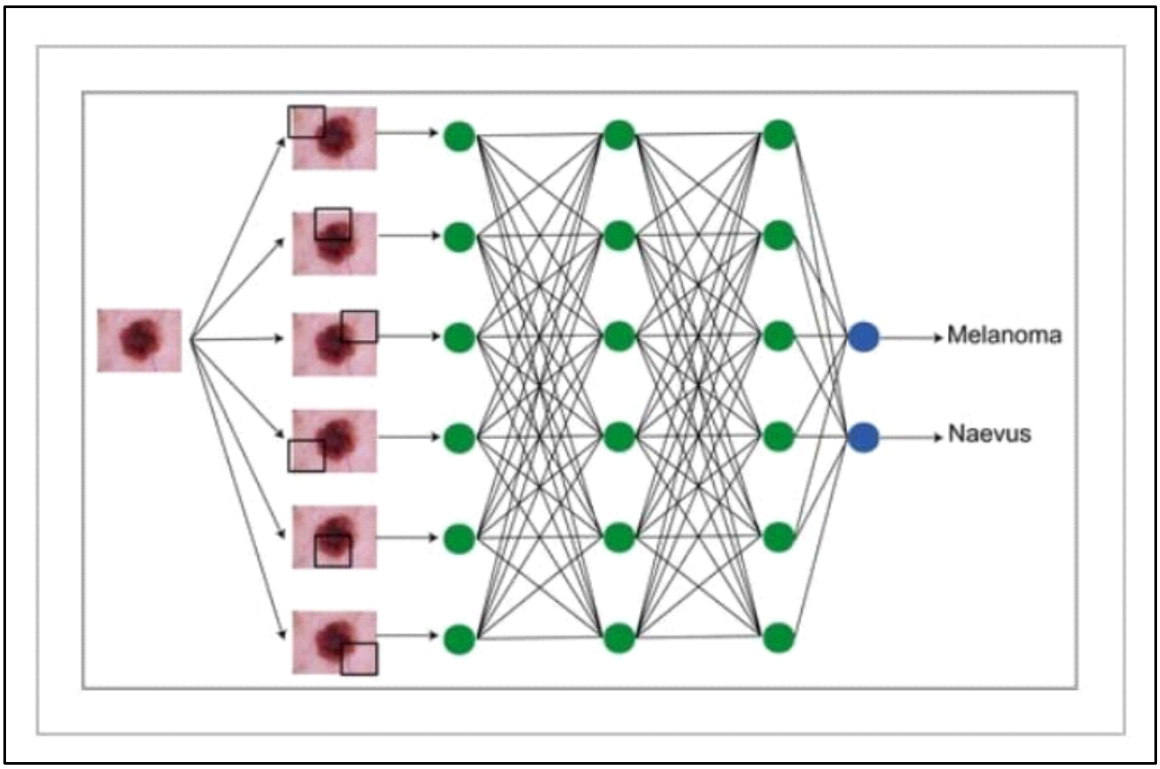


FIGURE4:

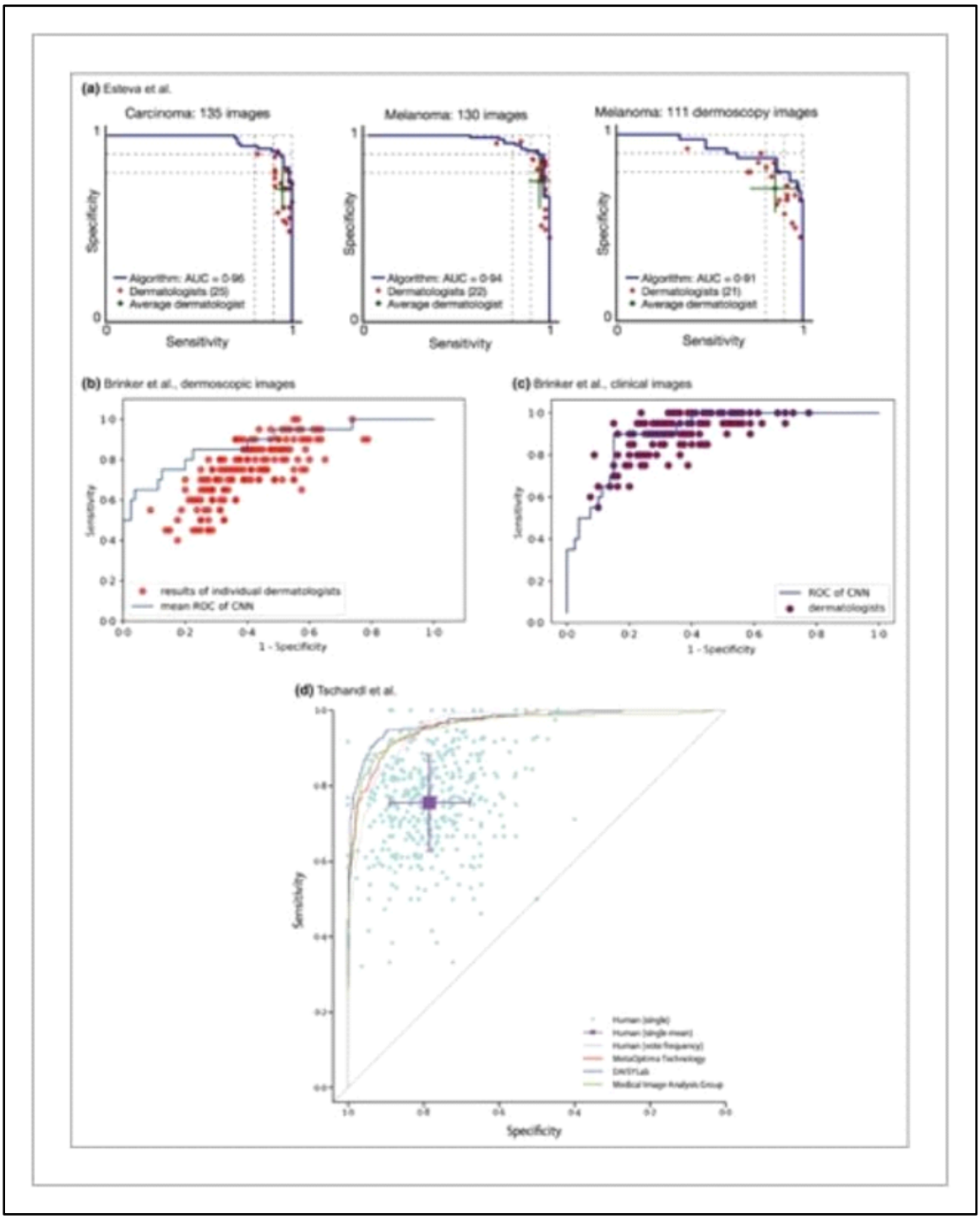
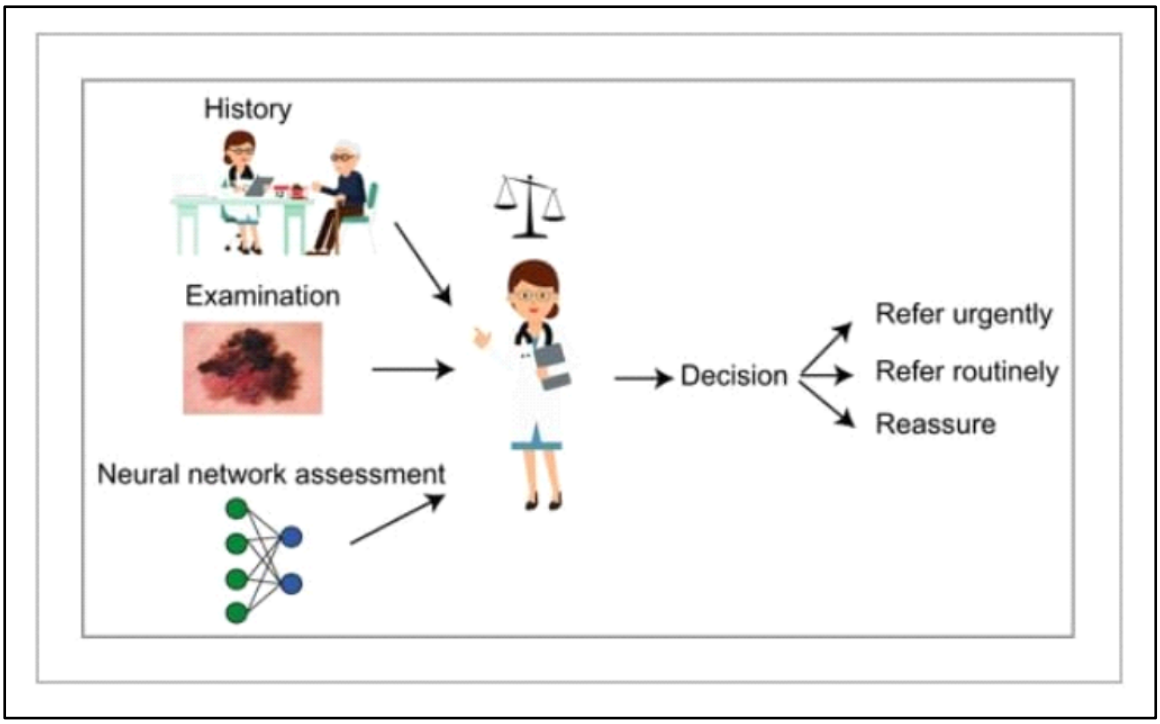


FIGURE5:



CONCLUSION:

Dermatology, this very much holds true. Technology adoption could improve clinical pathways, and enable our neediest patients to access dermatology services more efficiently. It is unlikely that they will threaten our profession; in reality they represent an opportunity for personal learning, service improvement and leadership that could be transformative for our future healthcare system.