



# ROCKING THE BOAT

In our last editorial the Junior Minister for Financial Services, Digital Economy and Innovation within the OPM, Silvio Schembri, discussed the transformation of healthcare through AI. Indeed, the percolation of AI and machine learning technologies in healthcare may effectively translate in a cornucopia of applications. AI certainly has a role in the prediction of pharmaceutical properties of molecular compounds as well as the identification of disease-modifying targets. In previous editorials we have also discussed at length how AI can improve diagnostic accuracy in clinical practice whilst reducing the time needed to achieve such diagnosis. This results in improved patient outcomes and, on a societal level, a decrease in costs of care. In keeping with this, recently the Deputy Prime Minister and Minister for Health, Chris Fearné stated that in 2020 Malta will be introducing a monitoring system for children with diabetes ... operated with AI.

However, AI has other useful applications. In our interview with Dr Joseph Debono (page 6) we discuss the need for additional ward space and recovery beds at Mater Dei hospital. Here, AI-powered predictive analytics can be used to optimise bed management by scrutinizing both historical and real-time patient admittance rates, while also analysing staff performance in real time. Another overlooked aspect of AI is its role in caregiving, including end-of-life care. Ageing makes us face various realities, be it dementia, loneliness or limited mobility. AI may revolutionise caregiving through the use of chatboxes and affective computing by providing conversations and other social interactions to keep aging minds healthy. On page 9 we have an interesting article on affective computing by Luca Bondin & Prof. Alexiei Dingli.

The Synapse is in the process of launching a new portal offering online CPD for doctors providing single educational sessions, online courses and masterclasses which can be conveniently done anywhere, as long as there is an internet connection, even on smart phones. In this respect e-Learning will only stand to benefit from AI-driven infrastructure; machine-learning algorithms will hone on the user's knowledge and understanding of the training material and present them with relevant content more quickly.

However, the medicalisation of AI heralds a plethora of challenges, including ethical conundrums relating to the acquisition of sensitive health data and their protection. The following are important considerations. The acquisition of patients' data for use in machine-learning algorithms requires consent by patients for such use? Is re-consent needed if data are used for different algorithms? How does one validate the models which are made, and gauge their risk? If algorithms are not patent protected, will industry advocate intellectual property to circumvent audits? And will patients need to consent if their care is affected by the use of these algorithms? An in-depth analysis of each of these areas needs to be conducted.

A future editorial will discuss bias, as well as medical malpractice and product liability which may arise, especially with the use of black-boxes and unsupervised algorithms. Until we meet again, I wish you and your loved ones a New Year filled with happiness and good health! 🍀

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