

Natural vs 'artificial' intelligence in clinical ultrasound



Executive Summary

Doctors are trained in medical science, and to consider the astute point-of-view of [Dr. Daniel A. Lichtenstein](#), the foremost expert in **critical care ultrasound**, on the "**art of reasoning**" being applied at work is indeed a revelation. This is how he describes the uniqueness of **ultrasound as a clinical tool**.

"Ultrasound is a tool like no other in medicine, not only because of its well-known qualities (non-irradiating, repeatable, etc). Most importantly, this is a work of the hand and the eye, combining the art of reasoning, the **common sense** (that is, intelligence), and **a unique opportunity for the physician to be in direct contact with the patient**," according to Dr. Lichtenstein, writing in an article for HealthManagement the Journal.

You may also like: [Zoom On: Daniel Lichtenstein, Critical Ultrasound Pioneer](#)

In this age of artificial intelligence (AI), it is worth noting how Dr. Lichtenstein keeps emphasising in the article the **purity and genuineness of emotion**, saying, "The immense strength of emotion is that it does not require any artificial help, is the pure expression of intelligence."

For him, intelligence is life, and he narrates two concerns regarding AI. First, to see the tech failing, generating comical issues – this has already begun, he points out. The second one is to see **AI** not failing, winning over human intelligence.

"Once we understand that the new technologies can do everything, their field of possibilities will no longer amaze us," he writes. "This scenario will of course mean the end of all professions which require intelligence, that is, all interesting professions, all interesting lives."

Going back to **ultrasound**, the doctor says the technique is all the more unique, as it was "recently" rejuvenated, by being extended to **critical ultrasound**. He is proud to have built critical ultrasound since 1985 using a grey-scale 1982 technology (the ADR-4000®, visible now in some museums). This technology may be antique, but the community forgot to exploit it correctly, that is, at the bedside.

"Building a new discipline using an old tool was my real pride," according to Dr. Lichtenstein, "because it could generate a simple, **elegant 'revolution'**, easy to implement, without destroying anything, without the need of a **superhuman**, artificial intelligence."

Even if ultrasound was long considered a technique in **traditional imaging**, Dr. Lichtenstein says critical ultrasound appears as a major help to the physician who has taken the best of physical examination for understanding the data appearing on the screen, helping to perform a **visual medicine**. All this occurs in a normal setting where the doctor remains a doctor (and the patient, a patient). "That is, a deal between human beings first," he notes. "**That is a deal where natural intelligence and emotion work in symbiosis, that is, a genuine philosophy. Even in the age of AI, this strength will remain a priceless help.**"

The author also wants to remind the readers that the (natural) intelligence is not a trait of exceptional people. Any human being is, by definition, intelligent, Dr. Lichtenstein says, adding that the reason many people think they are deprived of this gift is they forget that the success is done by one third of it, but also one third of work, and... one third of luck.

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