Carpenter!

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Imagine, hammers and saws that autonomously create architectural masterpieces, in which people can also have a very pleasant stay? You find it hard to imagine anything more than an added episode of a Walt Disney movie (*Beauty and the Beast*)? Then you'll understand my surprise last week, when I attended a (para-) medical conference, where some healthcare professionals were seriously said to believe that AI systems such as IBM's "learning" computer (Watson) will at least partially render physicians superfluous.

Since time immemorial, our ancestors have had tools. And indeed, a hammer is stronger than a human fist. More generally, together with the control over fire, an enormous reinforcement of our human forces and speed stems from the use of levers and moments (physics: the moment). We have artificial "arms" in very different forms (from classic levers to pulleys, from wheel spokes to crankshafts). Language - including logic, mathematics and data - is even a more powerful tool than fire and levers. But a learning algorithm finding patterns and generating predictions from a large amount of "available" data, given the most desirable outcome, is not a physician or a physical therapist, any more than a hammer is a carpenter.

In machine learning, people - physicians and physiotherapists, for example - stay responsible for defining both the available data, and the desired outcomes. Lots of thinking, experimenting, knowledge and insight are necessary. And the growth of knowledge and insights remains both critical and constantly dependent on developments, and therefore on professionals. Professionals need to interpret (new) patterns, or qualities of predictions in specific contexts; they need to decide what to do in any (general or specific) context. The quality of our work can increase through the use of tools. However, through blind trust it can also lead to terrible excesses. Owning a hammer and saw doesn't make someone a carpenter. If AI becomes more of a part of the medical profession, the demands on the doctors become even higher!

Of course I understand that in innovation there is always fear of the consequences, which can not be overseen in advance. But with improving the tools in construction, for example, the total turnover of the construction industry has increased enormously over the past few thousand years. In short, doctors and physiotherapists will not be redundant by using machine learning, but at best, even become better professionals, with an even greater share of healthcare.

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