

AI Ambiguity: Flipping the Switch

by Taymour | April 12, 2022

The AI topic generates a lot of buzz, but as with any major debate, some claims must be taken with a grain of salt. The fact that AI means different things to different people almost guarantees that some claims are a stretch. Definition aside, AI's underpinnings are complex and constantly evolving, which means the discipline requires constant interpretational flexibility. Some practitioners, in their own self-interest, will take advantage of this ambiguity by initiating AI projects that might never be realized. Therefore, upright practitioners must call out blatantly false or misleading claims. This paper's focus is to make the reader aware of an exploitation in a branch of AI called [machine learning](#). Without attempting to define this subdiscipline too strictly, we'll simply say that machine learning is a way of solving problems with data, using computers.

Actionable Levers

Machine learning does not physically solve problems; rather, it proposes a means to an end. A machine learning project's outcome is a description or prediction that leads to a recommendation for a person (software, robot, etc.) to perform a certain action. In other words, machine learning itself does not save lives, reduce costs, or generate more revenue. Rather, the decisions based on AI's recommendations are what make the difference (i.e., the recommendation to prescribe a particular medication cocktail could save lives, or the decision to hire more or fewer people could affect revenue). Machine learning's outcome, in short, is information, which must have a corresponding lever or action that a person, software, or robot will take to realize its benefits.

AI Claims

A red flag should go up whenever claims of success are directly attributed to machine learning. For instance, a recent presenter at a Nashville [analytics conference](#) claimed to have saved millions of dollars for a hospital system using AI. While machine learning did evaluate every imaginable metric to measure hospital productivity, according to the presenter, machine learning *itself* saved lives and money...not the actions taken based on its recommendations. Because of the nebulous nature of AI and the complexities involved in machine learning, some participants may not have appreciated the missing link between the machine learning analysis results and the necessary actions that had to accompany them.

In the case of the presenter's example, the hospital nurses' patient response time ostensibly decreased by over 35% due to machine learning. When asked how this improvement occurred, the presenter claimed that machine learning produced an optimal efficiency metric which nurses incorporated into their daily routines. What the presenter left out, however, were insights into how humans fulfilled machine learning's recommendations. This omission should have at minimum raised red flags for the listeners.

Furthermore, the presenter claimed that AI transformed a declining hospital chain into one of the world's most efficient and profitable health care institutions by using machine learning algorithms to analyze collective workflows across multiple failing locations. Missing once again, however, was the "how." Unfortunately, because of the disconnect between AI insights and human actions, the accuracy of the presenter's claims about AI's effectiveness is unclear. If the failing hospitals were in fact converted into efficient and profitable sites, the recovery may have resulted from actions unrelated to the AI analyses. As the number of AI providers proliferate, similar claims, obscured by the ill-defined and evolving AI field, become increasingly common.

Making AI Actionable

While the mathematics and computer science skills needed to create machine learning algorithms are highly complex, applying the algorithms industrially is far less involved (especially with pre-trained machine learning procedures). The difficulty lies in solving for the right outcomes and connecting those outcomes with the right levers. An analytic plan involves not only using machine learning to crunch data, but also evaluating how an entity can incorporate the machine learning models' recommendations into its employees' daily workflows, interconnected processes, and culture.

To illustrate, consider the nursing example from above. Let's assume that a machine learning model did indeed optimize the time nurses take to perform major tasks in order to help them utilize their

respective schedules more efficiently. Moreover, machine learning suggests that the length of time nurses should take to respond to a patient is X, a 35% decline from the pre-optimized state. That alone is fantastic, but it doesn't account for the nurse's choices and the consequences of those choices. To respond to patients more quickly, nurses might decrease the time it takes to perform other tasks or even eliminate some tasks altogether. If time allocations were what was being solved for (the presenter did not define the target or outcome variable), and the new time-allocation recommendations could realistically be implemented, they would have to work in conjunction with other machine learning recommendations that humans would also need to adopt.

With over three decades of advanced analytics experience in Fortune and media companies, I have learned that it's excruciatingly difficult for people to implement more than two or three major changes to their job specifications at one time. The troubling part of the hospital AI presentation was that the actionable complexity associated with any machine learning project was not discussed. Questions that begged more explanation of how the machine learning results were actually used remained unanswered, hidden in a safe cloud of AI ambiguity. If a machine learning project's final resting place is in a presentation, versus application in a hospital, manufacturing assembly line, retail store, or software delivery system, it becomes totally self-serving. Fortunately, examples abound of machine learning recommendations that result in actionable outcomes. However, unless a clear explanation is forthcoming about what actions are required (or were taken) to make machine learning actionable, you should maintain a sense of caution when interacting with individuals' claims about AI's seemingly mystical powers.

Some researchers have argued that AI is overhyped, while others believe its potential is being underestimated. Regardless, many AI claims don't stand up to scrutiny. Another issue is that people who work with AI often make bold claims that the general public cannot understand or verify. Machine learning application is difficult; it can't be done on a whim. If you're looking to use machine learning in your business, do plenty of research and find a trustworthy team to help you out. Be careful when interacting with companies that promise the world with their AI-powered products; implementing these projects takes more than just flipping a switch.

