Wage Against the Machine: A Generalized Deep-Learning Market Test of Dataset Value

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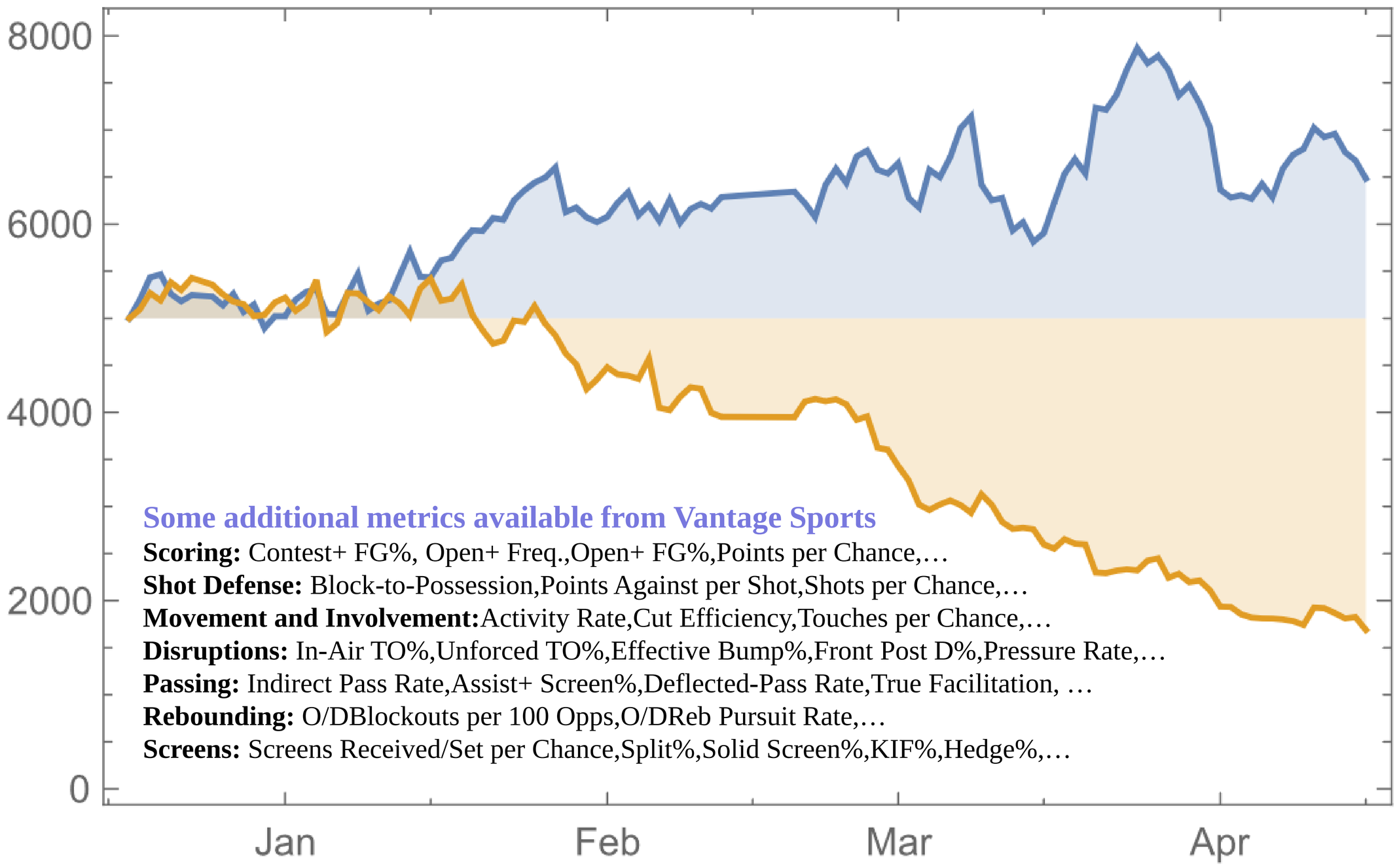
How can you tell if a particular sports dataset really adds value?

(In other words: does measuring whether a hand was up on defense *matter*?)

If you ask one genius to extract all possible insights from dataset X, and another genius to extract all possible insights from datasets X+Y, if the first genius is smarter or luckier or both, he may get more insights from less data. What's the solution?

Use deep-learning on both datasets to try to outperform betting markets.



Starting with an initial bankroll of $5,000, the daily rolling deep learning algorithm **using the standard NBA dataset** is correct on 49% of wagers and ends the season with $1,700. This means that the standard dataset combined with deep learning is unable to do better than a coin toss. (Indeed, the 49% is not statistically significantly different from 50%.) This should not be surprising, as the betting markets are indeed quite efficient, and we should expect that they incorporate all standard publicly available information.

Using additional Vantage Sports data, the algorithm is correct on 54% of wagers and ends the season with $6,500. The difference is highly statistically significant (p-value < 0.01). And it exceeds the breakeven probability.