The Right Tool For the Job

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Recently I read an (article)[https://fortune.com/2021/10/12/whats-big-in-a-i-this-year/] describing the transition some companies are making with AI usage. Instead of simply using AI to tweak or optimize margins, some companies are using AI to make critical decisions at the heart of the company. One example they used was Ocado Group, so I did some digging to see what Ocado Group (has to say)[https://www.ocadogroup.com/technology/blog/how-we-improve-forecasting-and-availability-neural-networks-and-deep-learning] about its use of AI.

Forbes was right; Ocado Group does use AI for making key decisions that humans used to make: forecasting demand for their clients so they can appropriately stock their stores. What I found more interesting was the relative simplicity of some of the models they use. When I read about developments in Data Science (especially since AlphaZero), it feels like models are being made deeper, larger, quicker to train, and more accurate in many domains, but these deep learning frameworks require vast amounts of data to train. Ocado Group does rely on deep learning and keeps up with recent innovations for the clients that it has plenty of data on, but not for all clients all the time.

When clients first join Ocado Group, especially in new regions or with new products, and especially for short-term forecasts, short training time and low data requirements are great advantages. They use simple heuristics and feed-forward neural networks for many of these predictions, and they retrain models very frequently, making up for the lack of long-term accuracy with continuously updated models.

When I was first introduced to Data Science, I thought these simple models were a stepping stone in my education: Something I needed to learn on the way to bigger, better models that can handle more data, but not something with much practical value. As I continued learning I realized there's a time and a place for each type of model: sometimes quick and good enough beats slow and great, interpretability can trump accuracy, fairness can be an ethical or legal requirement, etc.

Ocado Group's demand forecasting strategy is a great example that choosing the right tool for the job is the foundation for practical applications of Data Science.