

MAN VS MACHINE

Deep Deep has The Right Stuff

BY HARRY HUO

The winning streak of our stock-picking AI, Deep Deep, continues. Since its inception on Oct 17, Deep Deep's portfolio has returned 22.55%, winning all the competitors' portfolios (Berkshire Hathaway by 2.37% and Aggregate Value Fund (AVF) by 1.64%) and all the competing benchmarks.

Over the past month, our machine learning AI has risen 2.21%, beating MSCI All Country World Index, MSCI All Country Asia Pacific All Cap Index, Dow Jones Industrial Average and AVF except Berkshire Hathaway.

Using a vanilla "buy and hold" strategy with just 15 stocks from 15 countries with no leverage, no sectoral concentration, no thematic bet, no bonds and treasury bills, Deep Deep has beaten everyone and everything.

This month, we bought Bumitama Agri, Neoto Co, Xxentria Technology Materials, PT United Tractors and Huaihe Energy. On the other hand, we sold Hutchison Port Trust, Sempio Co, Bai Sha Technology, PT Bukit Asam and Jointown Pharmaceutical.

How do you make an AI?

Readers have asked me: How do you "make" an AI? Most laymen think AI is some out-of-reach computer science field that only the gifted and those cool, brooding hackers like Elliot Anderson in *Mr Robot* can handle. Can you explain this in simple words, they ask? Challenge accepted. Let us try to demystify AI in 30 words. How do you start an AI project?

1. Import data
2. Clean data
3. Split data into training set vs testing set
4. Create model
5. Train model using training set
6. Test model using testing set
7. Evaluate results and improve model

We may not fully understand the process but just by reading the seven major steps, we will intuitively get this — it is feeding tons of data into a software so that it learns to recognise patterns and you keep testing it to see if the software has predictive power. Wash, rinse and repeat until you get it right. You need perseverance and resilience.

I have mentioned before in this series that the AI development process is akin to inventing the lightbulb. To me, this is the irreplaceable, priceless value of a data scientist — his steadfast mind to deal with endless failures until it works. It is 20% brilliant insight and 80% pure brute force, repetitive work.

That is our secret sauce. It is our selection of more than 150 financial indicators, the simplification of the Deep Deep model into a digital outcome (instead of predicting the stock prices which many have tried and failed) and the endless testing, debugging and validation that created Deep Deep. Our team took four years to develop the AI and we are still improving it.



Intel looks undervalued but there are other fundamental reasons why the Aggregate team stayed away from this counter

15 stock picks for May

Stock	Country	Price (US\$)	% of portfolio
JB HI-FI	Australia	31.23	7.54
Wajax Corp	Canada	17.36	5.96
Huaihe Energy (Group) Co	China	0.36	6.23
Mercedes-Benz Group	Germany	73.57	7.11
CK Hutchison Holdings	Hong Kong	6.78	7.74
Bumitama Agri	Singapore	0.43	6.24
PT United Tractors	Indonesia	1.72	6.47
Hamakyorex Co	Japan	26.58	7.81
IJM Corporation	Malaysia	0.36	6.55
Alliance Global Group	Philippines	0.24	6.62
NEOOTO Co	South Korea	4.87	6.21
Xxentria Technology Materials Co	Taiwan	2.27	6.23
TTW Public Company	Thailand	0.26	5.98
Tyman	United Kingdom	3.19	6.52
Huntsman Corp	United States	25.46	5.68

*Cash level at less than 2%
*Price (US\$) as at May 9

What's the problem with AI?

AI is not flawless and invincible. We have often said there is a 60% probability our AI can beat the market which translates to around 6% out-performance above the market performance. Imagine going to the casino with a 6% advantage!

However, one of the biggest problems with AI is transparency and traceability. The AI may be able to predict an outcome but it cannot precisely explain why it reaches that decision in a succinct, easy-to-understand manner.

This is a much-quoted story about a medical research team using AI to predict malignant skin cancer just by scanning the photos of the skin tumours of patients. To the joy of the researchers, the AI worked miraculously with predictive power far exceeding human doctors.

Then a smart researcher realised this — when a tumour is malignant, they tend to use a ruler to measure its size and that ruler was included in the photo.

So, they were essentially training the AI to look for rulers rather than detecting skin cancer! Had they implemented the "successful" AI, it would have been disastrous and kudos to the researcher who discovered the error.

The stock that we did not buy

We want to use this opportunity to highlight the importance of human analysis in stock pickings despite possessing a powerful AI like Deep Deep.

Since September last year, Intel has been highly ranked by Deep Deep. Month after month, Intel was cho-

sen by Deep Deep as top 3 in our US stock rankings. We know that Intel has fallen from its lofty perch. Today, Intel is undervalued at 1.15x price to book value versus its historical five-year average of 2.7x as well as the semiconductor industry P/B at 12x.

So, logic dictates that at a certain point, Intel's stock price will revert to the mean. With the US Congress passing its Chips Act and Intel's commitment to building the world's largest chip-making complex, we know Intel is poised to make a comeback. It is a question of when — not if.

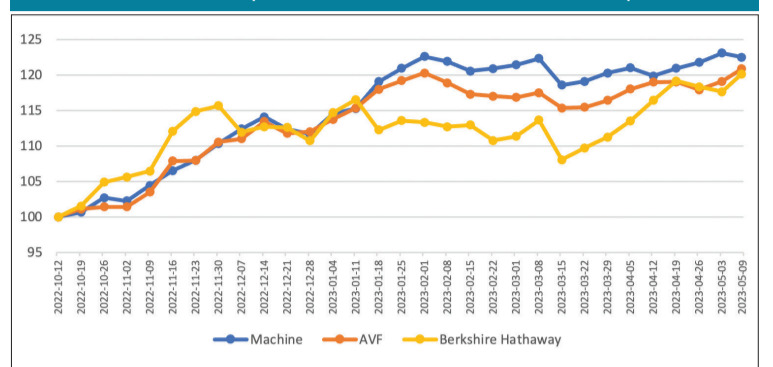
When we ask Deep Deep to evaluate US stocks with an emphasis on value investment rules, Intel was top 3 on Deep Deep's radar for several months. Hence, it begs the question — should we buy Intel as a value stock? No, we did not.

That final decision was made by our human analyst team. One of our analysts, Cheen Wee Kiang, summed it eloquently: "We did not buy Intel because looking at the fundamentals versus its peers like AMD and Nvidia, Intel really trails behind."

This turns out to be the right decision as Intel's share price did not perform well. Eric Kong, as head of the investment team and developer of Deep Deep, has empowered all of us to speak our minds. Our fund manager, Lam Ji Ming, and our analysts, Belfort Tan and Wee Kiang, are allowed to override Deep Deep's picks as long as there is a valid justification.

What if we are wrong and Deep Deep is right? That is when the power of diversification kicks in. We have 14 other stocks in the Deep Deep portfolio which are all highest ranked in

Performance comparison since Oct 17, 2022 inception



How the portfolios stack up (%)

Portfolio	1 week change	1 month change	Since inception
Machine	-0.47%	2.21%	22.55%
AVF	1.50%	1.57%	20.90%
Berkshire Hathaway	2.13%	3.21%	20.18%
Dow Jones	0.47%	-0.19%	12.64%
MSCI ACWI	0.80%	0.69%	17.67%
MSCI AC AP	1.15%	0.11%	20.84%

Top 5 performers of April's picks (1-month performance)

Stock Name	Country	Performance
Tyman	United Kingdom	18.19%
Jointown Pharmaceutical Group Co	China	11.10%
Sempio Company	Korea	9.60%
Hamakyorex Co	Japan	9.47%
Alliance Global Group	Philippines	8.94%

Top 5 countries (since inception)

Country	Performance	Contribution
Korea	56.72%	3.55%
Thailand	51.56%	3.05%
Germany	50.19%	3.40%
Japan	45.77%	2.98%
Philippines	40.76%	2.50%

their respective countries. Missing one Intel does not spell the end of the world for us. Similarly, our AVF portfolio will have 500 stocks by the end of the year and Intel's impact will be even lesser.

The real winning advantage

With the likes of ChatGPT and transformative AI engines, there will be more competitors in the AI-powered stock portfolio management space. After all, buying and selling stocks, bull and bear runs, and fundamental and technical analysis are all about pattern recognition. We also foresee financial data providers developing their own trading AI since whoever has data is king. So far, Aggregate has the first mover's advantage.

But I surmise that having a set of codes is not enough. You may have a powerful software AI. You may have some lightning-fast hardware to crunch the data. But many will lack the heart-ware and the will.

Like the researchers who thought they had brilliantly invented an AI that could spot skin cancer, you need humans to obsessively test if the AI is working. You need that ruler spotter in the team. You need humans who dare to speak up and override the AI.

While we don't buy Intel now, we abide by former Intel CEO Andy Grove's dictum "only the paranoid survive", which runs deep in Aggregate's DNA. Every week, we do due

diligence to see if our algorithm is on track. More importantly, you also need a management that has the foresight and patience to take the long view. We do not rush adopting AI because it is trendy. We do so because it works. And works supremely.

If Deep Deep has a real voice, it will say: "Aggregate has The Right Stuff." ■

Harry Huo is head, special projects, at Aggregate Asset Management

aggregate asset management
perfect alignment with your interest

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