2018 Annual Letter

Yiqiao YIN
Founder and President
YIN's CAPITAL LLC

January 7, 2019

Abstract

This is the 2018 annual letter to shareholders. This year our after-tax return was 57% while S&P 500 Index ETF lost 7%, a big punch back to the market since last year we lost to it.

Contents

List of Figures

1 PERFORMANCE

Go back to Table of Contents. Please click TOC

Date	My Return	S&P 500	$1 Simulation: My Performance	Market
			$1	$1
January 3, 2011	(0.35)	0.02	0.65	1.02
February 1, 2011	0.24	0.03	0.81	1.06
March 1, 2011	(0.02)	(0.00)	0.79	1.05
April 1, 2011	0.10	0.03	0.88	1.08
May 2, 2011	0.06	(0.01)	0.93	1.07
June 1, 2011	(0.04)	(0.02)	0.89	1.05
July 1, 2011	(0.04)	(0.02)	0.85	1.03
August 1, 2011	0.05	(0.05)	0.89	0.97
September 1, 2011	0.05	(0.07)	0.93	0.90
October 3, 2011	0.06	0.11	0.99	1.00
November 1, 2011	0.49	(0.00)	1.47	0.99
December 1, 2011	(0.27)	0.00	1.08	1.00
January 3, 2012	0.10	0.05	1.18	1.04
February 1, 2012	0.09	0.04	1.28	1.09
March 1, 2012	0.10	0.03	1.41	1.12
April 2, 2012	(0.03)	(0.01)	1.36	1.11
May 1, 2012	(0.01)	(0.06)	1.35	1.05
June 1, 2012	0.54	0.04	2.08	1.08
July 2, 2012	0.06	0.01	2.19	1.10
August 1, 2012	(0.12)	0.03	1.92	1.12
September 4, 2012	(0.07)	0.02	1.78	1.14
October 1, 2012	0.90	(0.02)	3.39	1.12
November 1, 2012	0.04	0.01	3.51	1.13
December 3, 2012	(0.01)	0.00	3.49	1.13
January 2, 2013	0.02	0.05	3.55	1.19
February 1, 2013	0.11	0.01	3.95	1.21
March 1, 2013	0.03	0.03	4.07	1.25
April 1, 2013	0.02	0.02	4.17	1.27
May 1, 2013	0.20	0.02	5.00	1.30
June 3, 2013	0.19	(0.02)	5.96	1.28
July 1, 2013	(0.04)	0.05	5.72	1.34
August 1, 2013	0.06	(0.03)	6.07	1.30
September 3, 2013	0.06	0.03	6.43	1.34
October 1, 2013	0.06	0.05	6.82	1.40
November 1, 2013	0.06	0.03	7.23	1.44
December 2, 2013	0.06	0.02	7.66	1.47
January 2, 2014	0.06	(0.04)	8.12	1.42
February 3, 2014	0.06	0.05	8.61	1.48
March 3, 2014	0.01	0.00	8.70	1.49
April 1, 2014	(0.67)	0.01	2.83	1.50
May 1, 2014	(0.75)	0.02	0.71	1.53
June 2, 2014	4.96	0.02	4.23	1.56

Date	My Return	S&P 500	$1 Simulation: My Performance	Market
July 1, 2014	0.14	(0.01)	4.81	1.54
August 1, 2014	0.04	0.04	4.98	1.60
September 2, 2014	0.28	(0.02)	6.38	1.57
October 1, 2014	0.01	0.02	6.47	1.60
November 3, 2014	(0.20)	0.03	5.16	1.65
December 1, 2014	(0.12)	(0.01)	4.52	1.63
January 2, 2015	(0.34)	(0.03)	2.98	1.59
February 2, 2015	(0.37)	0.06	1.88	1.68
March 2, 2015	0.37	(0.02)	2.57	1.64
April 1, 2015	0.27	0.01	3.26	1.66
May 1, 2015	0.74	0.01	5.66	1.68
June 1, 2015	(0.27)	(0.03)	4.13	1.64
July 1, 2015	0.00	0.02	4.15	1.67
August 3, 2015	0.12	(0.06)	4.66	1.57
September 1, 2015	(0.09)	(0.03)	4.24	1.52
October 1, 2015	(0.04)	0.09	4.07	1.65
November 2, 2015	(0.06)	0.00	3.84	1.66
December 1, 2015	(0.01)	(0.02)	3.82	1.62
January 4, 2016	0.08	(0.05)	4.12	1.54
February 1, 2016	(0.28)	(0.03)	2.95	1.49
March 1, 2016	1.14	0.07	6.32	1.59
April 1, 2016	0.23	0.03	7.76	1.65
May 1, 2016	0.21	(0.00)	9.41	1.64
June 1, 2016	(0.07)	0.01	8.79	1.66
July 1, 2016	(0.04)	0.00	8.48	1.67
August 1, 2016	0.02	0.04	8.69	1.73
September 1, 2016	0.08	0.00	9.39	1.73
October 1, 2016	0.06	(0.01)	9.93	1.72
November 1, 2016	(0.00)	0.00	9.92	1.72
December 1, 2016	(0.22)	0.02	7.72	1.75
January 1, 2017	0.15	0.02	8.84	1.78
February 1, 2017	(0.06)	0.02	8.33	1.82
March 1, 2017	0.40	0.05	11.67	1.91
April 1, 2017	(0.34)	(0.02)	7.69	1.87
May 1, 2017	(0.02)	0.01	7.56	1.90
June 1, 2017	(0.20)	0.01	6.07	1.92
July 1, 2017	0.17	0.00	7.12	1.93
August 1, 2017	0.05	0.02	7.47	1.97
September 1, 2017	(0.18)	0.00	6.16	1.97
October 1, 2017	(0.10)	0.01	5.53	2.00
November 1, 2017	0.36	0.02	7.54	2.05
December 1, 2017	0.10	0.02	8.27	2.09

Date	My Return	S&P 500	$1 Simulation: My Performance	Market
January 1, 2018	0.25	0.02	10.34	2.13
February 1, 2018	0.34	0.05	13.90	2.24
March 1, 2018	(0.12)	(0.04)	12.28	2.14
April 1, 2018	(0.13)	(0.04)	10.74	2.05
May 1, 2018	0.04	0.02	11.14	2.10
June 1, 2018	0.09	0.03	12.15	2.17
July 1, 2018	0.01	0.00	12.26	2.17
August 1, 2018	0.02	0.03	12.54	2.24
September 1, 2018	0.31	0.04	16.39	2.32
October 1, 2018	0.04	(0.01)	17.11	2.30
November 1, 2018	(0.08)	(0.06)	15.73	2.16
December 1, 2018	0.05	0.03	16.55	2.23
January 1, 2019	(0.02)	(0.11)	16.19	1.97

2 BATTLE OF VERDUN

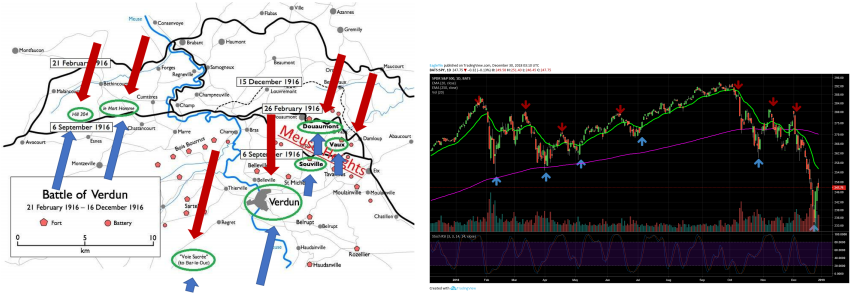
Go back to Table of Contents. Please click TOC

The 2018 stock market is a civilized Battle of Verdun with money throwing away on the field instead of bodies.

Figure 1: This figure presents candle stick of the entire year of 2018.

Looking back at 2018, I still could not believe I started this year shorting the entire market. I flipped sides back and forth for 5 times (the first 3 I closed books with almost 50% gains and the last 2 I gave back almost half of gains away). It was certainly interesting reading the history of Battle of Verdun that was fought between French and Germany in 1916 during WWI. However, it was rather brain-hurting than amusing when I was in the battle than reading it.

Figure 2: This figure presents the map of the Battle of Verdun and the candlestick charts of stock market for the year of 2018.



The French and the Germans, in order to fight for the advantageous of the geographical location, pushed the battlefront back and forward multiple times as if two giants are slicing open a tree trunk with a big chainsaw. Except that it was their men who were sacrificed. The stock market in 2018 was very much like a chainsaw battle slicing open the wallets of the American people. Instead of blood and sweat, the Americans bled out the hard earned cash from their pockets.

There are lots of explanations out there and I am certain many more scholars who study financial market will try to establish causality like they have been doing. On top

of what they have explained which consists of but not limited to (1) greed, (2) false assumptions, (3) management teams' skeptical decision making process, (4) volatile political regime, and (5) rise of interest rates, let me offer one more explanation.

The heat from watching the innovation of Artificial Intelligence had never been higher. AI is a young man's game. Money is controlled by the elders. To invest in the vehicle driven by AI not necessarily profit, it requires a lot of solid, peer-reviewed, and full information exchange in the conversations, which in my opinion have not had been discussed and explored sufficiently. A lot of investors (the elders) jumped right into the ocean of AI tech entrepreneurs without the appropriate channels of consulting work. From statistical point of view, you can train a machine to learn a lot of things and predict a lot of things accurately by data snooping and manipulation. However, not all of them and sadly perhaps a small portion of these accurate results (if you can get the man power to do them accurately) is valuable to investors. Hence, it is much more likely to make irrational decisions than we did on the sub-prime mortgage in 2008.

In the last crisis, we want to sell mortgages to people. Investors, without the understanding or ignoring the math, greedily took the deals to a point the system failed. This year, we want to sell AI ideas (ideas not profitable business) to people. Investors, without the thorough understanding once again, have greedily taken the deals just so they can bring the word "AI" to their friends and family. To make matters worse, managers have brought in clients with a single word "AI" in the document without the actual ability of explaining what it is.

A natural business-making and -generating mentality is nurtured in our world which is to move forward and follow the trend under time constraint. It starts as over-extrapolations of justified "AI" market. The "AI" market is initially justified because innovation in chip market has brought in faster computers. The faster computers are able to train machines to learn complex structure of data sets in shortened period than before. The trained machines are then used to provide us high prediction results (but not causality and non explanatory results) for management team to use to make business decisions. The first few who explored and excavated this field were obviously successful because they have put in decades of work. The work usually came from some research facility in prestigious universities. A few of these projects later the society recognizes the value and profits that can be scalped from this field and that was when things get heat up. Media starts to came in to swirl the dark pool even dark. Values are numbers people imagined. As "AI" goes up in value, net worth and spending/income levels rise. Investors, business people, and financial intermediaries all jump in on the ride which supports the leveraging-up process. The boom also encourages new buyers who do not want to miss out on the action to enter the market, fueling the emergence of an "AI" bubble. Quite often, uneconomic lending institutions lend recklessly.

Knowing this as a fact, my guidance to clients this year had not been focusing on the market by "AI" at all. Though using AI technology myself, I have not made a single decision solely based on any machines no matter how accurate and well trained they are.

Any solutions in this situation? Well, you want to be a cat in dog fight.

3 COFFEE BEFORE ALGORITHMS

Go back to Table of Contents. Please click TOC

I once said to my students, "a good statistician can turn a cup of nicely brewed French vanilla into a beautiful bug-free algorithmic program". I have revisited this statement many times years after I said it and I still think it is true.

It is not the coffee or algorithm. Instead, it is about the correct mind set to get one's day started which is what a successful people need. A industry providing such service is what I prefer and recommended to investors during a volatile market environment.

Human minds work a mysterious way. When we have had a bad month, quarter, season, or year, we want to cleansing our work or life habit in order to continue our lives. The process of cleansing existing bad work/life habits is a big challenge. Eventually on paper, this process can be reflected as consistent increasing salary (money inflow) and less and more stable living expenditures (money outflow). The task is to allow the process to work itself out in an orderly recognize manner. The best-managed cases are those in which the self-disciplined (1) swiftly recognize the magnitude of the inconsistent or damaging living habits that hurt your credit, (2) learn to give up on decisions that are net losses,[1] (3) create or restore robust living habits to allow for future borrowing in a credible manner.[2]

Companies that are in assistance of above challenge for us are: Starbucks, Coca-Cola, Netflix, and Amazon for the year of 2018. Yes, some of them have been operating with leading "AI" technology, but none of them have been making their profits solely based on investment in "AI" ideas. Many scholars have thorough understanding than I have so I would refer my audience to read the 10-K or Morningstar reports of these companies for detailed information. One thing I can bring on the table is that these companies have money-generating vehicle built on a wide group of daily-use-base clientele.[3]

[1] In my book, the cutoff for loss cutoff is not 0%. Instead you should make about 7% to 10% to consider positive because that is the market return.

[2] Everyone has an ideal work/life balance. Such optimal level does not sustain and requires constant work to maintain.

[3] End of the day, I prefer companies that use whatever legal tools they can to serve a group of audience that will never leave them. This is not just a coffee company or a soft drink company. They are not scalping money from other people's pockets either. They are a group of hard-working people that provide the necessary tools for another group of people in America to (1) survive, and (2) thrive.

4 HOW WE OPERATE

Go back to Table of Contents. Please click TOC

4.1 Our View for Marketable Securities

My view for marketable securities such as common stocks that we own as interests in business, not as ticker symbols to be bought or sold based on some 3-minute thinking by the irrational or "target" prices listed by the media. Instead, we simply believe if the business of the investors are successful our investments will be successful as well.

At Yin's Capital, we do not differentiate trading and investing. Some of the positions we held for years and some we held for month or even days. There is no single style that we follow as I suggested multiple times in my past letters. We look at business cycles and our investment cycles are dependent on the prior as well. Like Bayes' Theory, we look at the market with some sort of pre-knowledge (prior). We collect data and we put in the efforts to investigate it with careful manner so that we can build up more experience (posterior).

In long term, we would expect earnings collected from these companies to be large enough to acquire new businesses.

4.2 Research and Development

I am the only one responsible for R&D at this stage. I have not incurred any costs and I do not see a need to incur any in the future either. The essential purpose of R&D is to acquire experience to gain understanding of the US capital market and the world market. The main force in R&D come from (1) years of reading and collecting research results spanning all related fields, (2) years of consistent conversation with scholars and practitioners in the field.

Scholarly, I believe Journal of Financial Economics (JFE) and AQR Research Publication can be of good sources for us to understand. I have approached many sources over the past years to under what academia thinks of financial market and JFE have been the most prestigious one. There are hatred comments, however, I have received claiming that leading financial journals such as JFE are the big guys following efficient market hypothesis (EMH) and do not care about the little guys such as Scott Sumner, a blogger famous for his economics articles on personal blog. I do not believe there is a conflict here. One can read journals and also blogs to gain different aspects of information.

Practically, I believe a list of giants such as Buffett or Dalio can be of good sources to follow. On my website, I have provided a list of SEC filings by these guys. These names include but not limited to Third Point LLC, Pershing Square Capital Management, L.P., Greenlight Capital Inc, Paulson & Co Inc, Lone Pine Capital LLC, Bridgewater Associates, LP, Berkshire Hathaway, and AQR Capital. Each of these filings reflect a giant's personality and financial behavior, which lead to insightful data set that one can collect and study from.

4.2.1 Novel Concept in 2018

Every year I propose some new concepts to our investors. This year the novel idea is falls on the definition of support. Support is a terminology traders often use (though incorrectly) on the desk. Loosely speaking, a support is a price level that historically the price has touched and bounced back from. Let us formally re-write this definition.

Mathematically speaking, we have the following definition: Suppose that a function $f : X \to \mathbb{R}$ is a real-valued function whose domain is an arbitrary set X. The set-theoretic support of f, written as $\text{supp}(f)$, is the set of points in X where f is non-zero,

$$\text{supp}(f) = \{x \in X | f(x) \neq 0\}$$

As you can see, if one refers to a candlestick chart (which all traders do), one can find himself entire time frame of data set is the support. How can one simply pick a random price level to choose as support? The answer is that you can't. Price follows random walk. It is the only conclusion that the support by traders' terminology is also random. Hence, the old definition goes nowhere.

Suppose one wants to consider an argument consistent with the mathematical definition. This implies that one needs to look at a new chart. Instead of candlestick chart as the target function f, one should consider some transformation such that there exists some points in the domains that the value of the function f is zero.

The first and most simple transformation is to look giants' entry. Consider Berkshire Hathaway as a giant. We can collect a time-series data plotting 1 if Berkshire acquires a stock and 0 if else where. On daily chart, Berkshire hardly ever acquires stocks and it does so fairly infrequently. We would have seen a time-series chart that has a lot of 0's and a few 1's. In this case, we have a target function with domain X to be days and output $f(x)$ as 0's or 1's. The few days that we have 1's mean something here.

The second approach is a collective way of the first one. Instead of one giant, we can look at multiple giants. That is why I kept a list of giants' SEC filings. Every giant contributes 1 when they enters a position. Collectively, one can look at a daily chart that has many 0's, but a good amount of 1's, 2's, 3's, and etc. The higher the number indicates that there are many more giants involved.

The third one is an extension of the second one: looking at volume. Volume is double blind. It does not tell us who the people are and it does not tell us which side they are.[4] One can create a cutoff for any volume of any security. Consider S&P 500 Index Fund. We can create an indicator that is 1 if the volume surpasses past 20-day average volume and 0 elsewhere.

The fourth and last one, which is also the one I use most often, would be a standardized chart. For any company i at time t, we observe price $p_{i,t}$ and we can define simple moving average (SMA) to be $\text{SMA}_n = \frac{1}{n}\sum_{i=n}^{t-n} p_{i,t-n}$ for some $n < t$. The distance between price and this particular moving average is then defined as $D_{i,n} = p_{i,n} - \text{SMA}_{i,n}$. We can have many SMAs and hence many distances Ds. Thus, we take the summation of them $S_{i,n} = D_1 + \cdots + D_n$ and the transformation $S_{i,n}/\sqrt{S_{i,n}}$ tends to a standard normal distribution. This allows me to choose confidence interval at $\alpha = 5\%, 2.5\%, 1\%, ...$ and etc.[5]

4.3 Our People

I love to work with people who understands the following scheme in their lives. The following figure represents a proposed idea in 2017 letter that argues that talent, passion, and wealth can all work together to fulfill a whole cycle. Conversely, if a career path does not check out any of talent, passion, and wealth, it is probably not the most optimal choice for one's career.

[4] A transaction has buyer and seller. Simply saying 1 million shares transaction does not indicate any profits or loss. They can also be anyone or any group of people in the market.

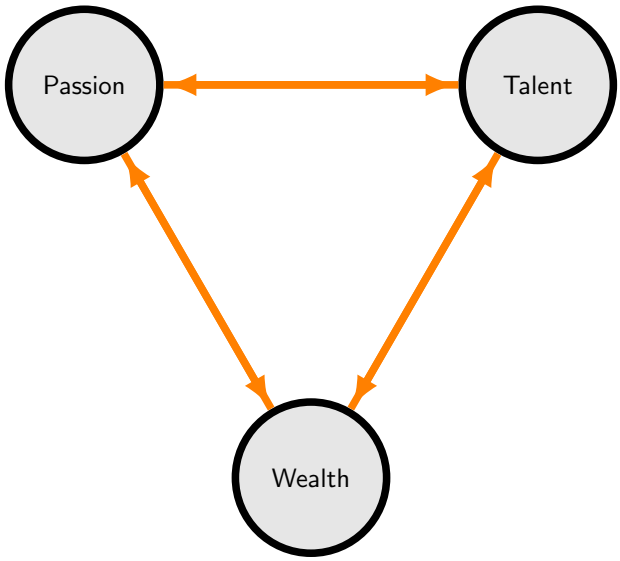
[5] There are many transformation that one can do to transform random walk into standard normal distribution. Any graduate probability textbook introduces a amount of these transformations. I like Durrett's Probability Theory the best.

Passion is not just some strong uncontrollable emotion. It is more of a disciplined and consistent determination to pursue a dream. Watching TV is merely a desire and cannot be understood as passion.

Talent is some sort of natural aptitude or skill to do something. I love playing basketball but I will never be as tall as Yao Ming. I may be able to train myself twice as harder as Yao (though unlikely) but the hard work I laid down can never cover my lack of height.

Wealth does not lie in every job in the world. Holding all other factors equal, there are some jobs that just natural pay more than the other. Today a data science graduate students fresh out of school will probably get $90k starting salary but a geology major graduate student fresh out of school who studies rocks will probably get $30k. Critics will say the society is biased and disrespect the people who study rocks. I will leave that to the economics explanation. Price is determined by supply and demand and whatever the price out there in the job market speaks for the fact. However, it is essential to look at the current economy and prices for the career you pursue.

Figure 3: This figure presents the trinity set that was proposed in the 2017 letter. The diagram proposes that Talent, Passion, and Wealth can work together to fulfill a whole cycle.



The career path that all of these three characteristics check out should be the career that one chooses. When I choose people I work with, these will be the categories that I look at. In long run, I am confident that this will be a group of people that I could say can serve investors the best.

5 HUMAN-AI HYBRID

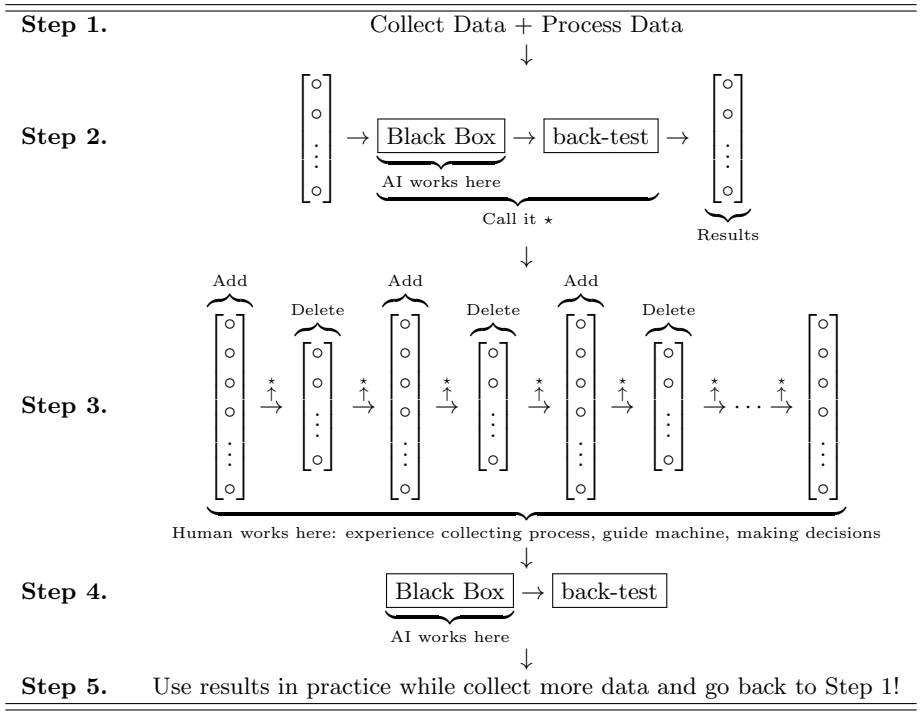
Go back to Table of Contents. Please click TOC

Last year in the annual letter, I introduced to my audience this iteratively reinforced and interaction-based human-AI learning process.

The procedure starts with a definition of a unit of analysis which consists of but not limited to (1) data set clean-up and processing, (2) feature selection, (3) model fitting / machine learning, (4) training, tuning, and prediction, and (5) testing results. In the following diagram, this unit of definition is what I call a "black box", a virtual room where AI works. Such a room is essentially a virtual lab that programmers and coders design virtual environment to test an experiment (it can be anything from testing a distribution, machine learning problem, or etc.). This room is designed and programmed by humans but the orders are executed by machines. This sums up Step 1 and 2.

With the unit of analysis clearly defined above, it is necessary to have humans in the procedure to check results, guide research directions, and make sound decisions. The unit of analysis defined above is like a transportation. The advancement in the above is merely an update from horse carriage to driving. However, we still need human decisions in the equation to point the directions. This is illustrated by Step 3, 4, and 5.

Together, the five steps form a complete cycle. The data science / data mining / machine learning / AI research (or whatever fancy media terms you can think of) is merely parts of this big learning cycle. These components together form a big human-AI hybrid that somehow organically work together. In the field of data science, there are many human-AI hybrids out there. All of them together as a whole form a competitive jungle. It is a mighty jungle that corrects itself. Some human-AI hybrids survive. Some do not. Some survive for a short time and die. Some fail but revive in the future. It is like a free market paradise that learns to evolve in time.



When it comes to technological innovation, my suggestion is always to try it first. This is why in academia people do research and in industry firms have analysts. It might not be rational to dump billions of dollar immediately either. There is that sweet spot in between just like every other spectrum.

The fact is that we are facing lots and lots of data today and we already hit a point when human minds can no longer do the math required to reach sound decisions which is why machines are coming into our lives. I have never seen big resistance politically since we had steam power. There are always the shallow minded who fear and resist new innovation and nobody can stop that, but I believe that we together, collectively, can help each other to embrace the emerging technology rather than fear it.

This future of ours will be a human-AI interaction-based digital platform and people will need to absorb the knowledge of AI is capable of in a sensible and correct manner. Cars have hit and killed people but you still buy cars instead of horses. I see similar trend down the road for our generation. Ideals are peaceful. History is violent. It's only a matter of time before AI becomes the next "car" that kills people but everyone will "own" it.