The Future of AI - Seizing New Opportunities

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Abstract

These days we cannot spend a day without hearing about artificial intelligence (AI) or machine learning (ML). Even if we survive a day without hearing about them, every moment we take advantage of AI and ML and we are being taken advantage of by them (whether or not we realize it). In short, they are everywhere.

In this talk, instead of directly discussing AI and ML and their applications, we will start addressing Digital Transformation based on a book written by Thomas M. Siebel. The confluence of four major technological forces – cloud computing, big data, AI, and the internet of things (IoT) – is causing a mass extinction event in industry after industry, leaving in its wake a growing number of organizations that have either ceased to exist or have become *irrelevant*. At the same time, new species of organizations are rapidly emerging, with a different kind of DNA born of this new digital age, such as, Amazon, Google, Netflix, and Spotify. Successful digital transformations require the mandate and leadership of an organization's top executives: Digital transformation must be driven from the top down. We will explain why Digital Transformation follows the pattern of Punctuated Equilibrium, *i.e.*, mass extinction and subsequent speciation, not Darwinian Evolution, which is continuous evolution by survival of the fittest. We will provide advice on how CEOs and other senior leaders should prepare for these changes.

We will briefly show the history of AI and how and why it has become the game changer for many industries ever since the dramatic image-recognition milestone of the AlexNet designed by Prof Hinton's student Alex Krizhevsky for the ImageNet challenge in 2012. Since then, many statistical learning problems that had been long believed to be impossible to solve have been solved by many artificial intelligent (AI) and machine learning (ML) technologies even outside of computer vision field. These fields include (but not limited to) natural language processing (NLP), speech recognition, semantic segmentation, recommender system, anomaly detection, and various time series methods.

The latter part of this talk will discuss how Amore Pacific can continue to be successful and dominate the market by transforming itself into a data-driven company by leveraging the AI/ML technology and its full potential. Based on the discussion I had with people from Amore Pacific in the prep meeting on 21-Sep-2020, we will try to answer questions such as how it should collect, store, analyze, and optimize data, how it can take most out of the data related to image processing (IP), computer vision (CV), manufacturing, and supply chain, and how it can use AI for product personalization.

Lastly, we will discuss one of the most interesting topics in AI: The Singularity. When will the singularity come? Or more importantly, will the singularity ever come (with the architecture of the current statistical learning methods, *e.g.*, deep neural network)? The singularity is a hypothetical point in time at which technological growth becomes uncontrollable and irreversible, resulting in unforeseeable changes to human civilization. I will share my point of view on this scary and intriguing topic, which I hope will encourage dynamic and active discussion among the audience.

Some topics that Amore Pacific proposed to discuss

- General introduction to AI and ML and differentiated insight

- Advice on data collection, storage, analysis, application, and optimization
- Guide to taking most out of the data related to IP, CV, manufacturing, and supply chain
- Advice on whether Amore Pacific should train existing employees or hire new ones
- Advice on whether Amore Pacific should try to obtain as much data as possible or as clean data as possible
- Amore Pacific does a lot of things in an analog fashion. What should Amore Pacific start to become a data-driven AI company?
- Amore Pacific is considering collecting and using skin, hair, and dental data. What technology should R&D apply to use the data for personalization for the customers.
- One of the problems Amore Pacific has is that people are collecting data in silos. How should they solve this problem?