Summary Analytics

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Summary Analytics for Financial Services

The financial services industry has been on the leading edge of data analytics, machine learning (ML) and artificial intelligence (AI). Whole new segments of the industry have been created such as peer-to-peer lending and robo advisory service, the latter of which is expected to reach US$1-trillion in assets under management in early 2021.[1] Even with these huge successes, the use of ML/AI in financial services is just beginning. Research firm Omedia predicts that, "financial services AI software revenue is expected to grow from $2.0bn in 2020 to $9.1bn in 2025."[2] When financial services companies are investing at these levels, the expectations are high and competition fierce. Yet, Dimensional Research found that 96% of companies have run into training related problems – including data quality, labeling required to train an AI system, and building model confidence – with 78% of their ML/AI projects stalling at some point before deployment.[3] Pactera Technologies's survey showed that 85% of AI projects ultimately fail.[4] How do you get the benefits of AI when the odds are against you?

Developing an effective AI model requires extensive repetition with trial and error of historical data. But often the historical datasets are overwhelming in size and need manual labeling before the models can be tested. With Summary Analytics's mathematically proven artificial intelligence techniques, you can shrink the datasets through summarizing and prioritizing without loss of fidelity – delivering better insight while reducing time and cost, and significantly reducing the amount of manual data labeling required. This minimizes the common problem of operator fatigue errors in data labeling and the resultant errors in the models.

Worldwide Financial Services AI Software Revenue[2]

Likewise, Summary Analytics can help with training your AI models. The computational power required to train state-of-the-art AI models is doubling every 3.4 months[5] as Moore's Law continues losing steam, no longer doubling processor performance every 18-months. So far, this problem has been addressed with machine learning algorithmic advances and increased parallel compute power. These help, but more is needed to stop runaway AI analytics costs and delays. A new complementary tool is needed, adding "informational efficiency" to the process. That tool is Summary Analytics. Our software-as-a-service (SaaS) offering summarizes and prioritizes data sets before running expensive analytics. Summary Analytics enables early model testing on significantly reduced and prioritized datasets, while saving larger (but still reduced) datasets to be used for final optimization of the model.

But costs and delays are not the only concerns. Financial services firms are under intense scrutiny about bias in their ML and AI algorithms. We can help here, too. Summary Analytics's AI techniques enable you to measure and control diversity mathematically. Often the biases in the historical datasets are obfuscated by their enormity. Our unique technology enables summarization of even the largest datasets to ensure that all aspects of the data are equally, fairly, and fully represented in the summary. Also, unlike other approaches to bias removal, our unique technology does not require any changes to the downstream machine learning (ML) analysis methodology.

How does it work? Professor Jeff Bilmes from University of Washington in Seattle developed propri-
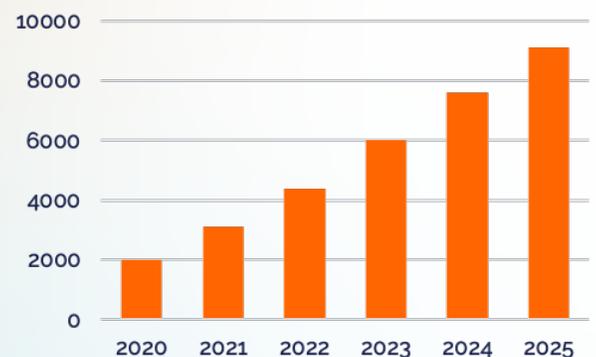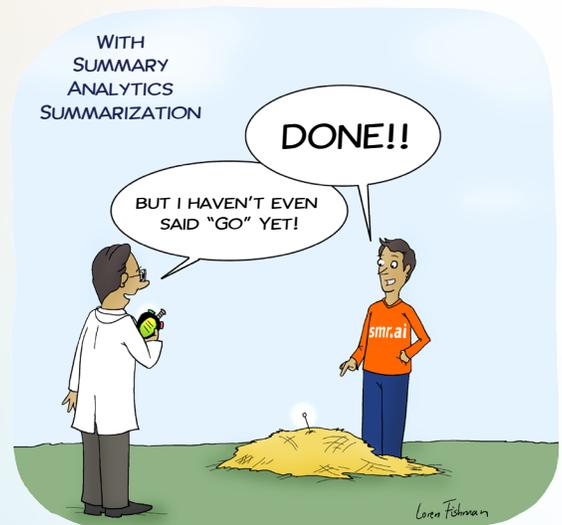
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etary calibrated submodular (CaSM) functions which mathematically analyze and order data along the lines of diminishing marginal returns. We automatically prioritize the data in terms of its biggest contribution to the information content of the entire data set, and then relegate any redundant data to the end. CaSM functions are extremely processor efficient – orders of magnitude faster than typical AI algorithms. They don't replace AI algorithms, our CaSM functions just make machine learning run much faster since the data sets are vastly smaller but still contain all the important information.

Summary Analytics is more than just deduplication, we eliminate redundancies even among massive numbers of unique records. We eliminate the unnecessary and shrink the haystack so finding the needle of insight is faster and less expensive. Of course your data is more complex and dynamic than a single needle in a haystack, with new streams and data churn constantly adding new and removing old hay and needles. Worried about what to do with old data? We help create a data hierarchy to focus on the important data, whether old or new.

ML and AI are impacting financial services across all segments, whether insurance, lending, credit cards, foreign exchange, trading or investment services. And the impact is felt across all functional areas from cybersecurity, fraud detection, and credit risk analysis, to back-office automation, investment recommendations and stock trading. These technologies are improving operating efficiency through better and more automated decision making, while improving customer satisfaction. And they are reducing risks across the board, which is more important than ever in our current volatile environment. But developing the ever-increasingly complex AI models and training these models is getting more expensive as the datasets required to do it right grow in size. Summary Analytics's "universal" summarization works great on customer profile data, market data, and more. Whether health records, network logs, biological signals, sensor data, or even images, audio, and video streams – the bigger or more redundant the data, the more Summary Analytics can reduce time and costs and dramatically improve your odds of AI success.

Bigger data? Bring it on!

[1]https://buyshares.co.uk/robo-advisors-industry-to-reach-987-4bn-value-in-2020-a-19-3-increase-in-a-year

[2]The AI Summit Series, "AI for Financial Services – A Market Facing Accelerated Growth Potential," a report delivered by Omedia.

[3]https://content.alegion.com/dimensional-researchs-survey

[4]https://www.techrepublic.com/article/why-85-of-ai-projects-fail

[5]https://www.technologyreview.com/s/614700/the-computing-power-needed-to-train-ai-is-now-rising-seven-times-faster-than-ever-before/?utm_source=newsletters&utm_medium=email&utm_campaign=+the_download.unpaid.engagement