# Elon Musk discusses the shift towards synthetic data in AI training



During a live-streamed conversation with Stagwell chairman Mark Penn on X, Elon Musk discussed the current state of artificial intelligence (AI) training data, noting a significant shift in trends within the industry. Musk remarked, “We’ve now exhausted basically the cumulative sum of human knowledge …. in AI training,” indicating that he believes the available data for training AI models has reached its limits. This statement mirrors sentiments expressed by former OpenAI chief scientist Ilya Sutskever at the NeurIPS machine learning conference in December, where he noted that the AI industry had reached "peak data."

Musk's concerns suggest implications for how future AI models will be developed. He strongly advocated for the necessity of synthetic data—data created by AI models rather than harvested from the real world—as an essential avenue for overcoming the limitations of current training datasets. “The only way to supplement [real-world data] is with synthetic data, where the AI creates [training data],” Musk elaborated, suggesting that this approach may allow AI systems to engage in a form of self-learning and self-grading.

The trend towards synthetic data is already being embraced by leading technology firms. According to Gartner, it is projected that 60% of the data used for AI and analytics projects in 2024 will be synthetically generated. Major players in the tech industry, such as Microsoft, Meta, OpenAI, and Anthropic, are incorporating synthetic data into their AI models. Notably, Microsoft’s Phi-4, introduced earlier this week as an open-source project, utilised both synthetic and real-world data for training. Similarly, Google's Gemma models and Anthropic's Claude 3.5 Sonnet have also leveraged synthetic data in their development processes. Meta has further refined its latest Llama series of models using this approach.

The use of synthetic data in AI development also brings financial advantages. AI startup Writer reported that its Palmyra X 004 model, which was predominantly trained on synthetic data, cost approximately $700,000 to develop, a stark contrast to the estimated $4.6 million cost associated with developing a model of similar size at OpenAI.

However, reliance on synthetic data is not without its challenges. Research indicates that training on such data may result in model collapse, wherein AI systems could become less innovative and exhibit increased biases in their outputs. This is particularly concerning because models that generate synthetic data are influenced by the data on which they were initially trained; if this foundational data is flawed or biased, those shortcomings are likely to be reflected in the model's performance.

In summary, as the AI sector grapples with a dearth of real-world data, the transition towards synthetic data represents a pivotal development in the industry's trajectory. The implications of these trends will likely shape the methodologies and outcomes of AI innovations in the years to come.

Source: [Noah Wire Services](https://www.noahwire.com)

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