

Model Collapse

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Model Collapse Latest News

Researchers recently showed that adding just one outside data point or prior knowledge to training can reliably prevent collapse in tested models.

About Model Collapse

- Model collapse is what happens when **AI models** are **trained on data** that includes content **generated by earlier versions of themselves**, known as **synthetic data or model-generated data**.
- **Over time, this recursive process** causes the models to **drift further away from the original data distribution**, **losing the ability to accurately represent the world** as it really is.
- This means that **large language models (LLMs)** and other complex AI systems are increasingly **ingesting generated data** that is statistically **simpler than the human-generated data on which they were originally built**, leading to **irreversible defects in future models**.
- Instead of improving, the **AI starts to make mistakes that compound over generations**, leading to outputs that are increasingly distorted and unreliable.

- This takes place because any **errors present in one model's output** during its fitting are **later included in the training of its successor**.
- **AI Model Collapse Can Cause:**
 - **Limited creativity:** Collapsed models can't truly innovate or push boundaries in their respective fields.
 - **Stagnation of AI development:** If models consistently default to "safe" responses, it can hinder meaningful progress in AI capabilities.
 - **Missed opportunities:** Model collapse could make AIs **less capable of tackling real-world problems** that require nuanced understanding and flexible solutions.
 - **Perpetuation of biases:** Since model collapse often **results from biases in training data**, it risks **reinforcing existing stereotypes** and unfairness.
- Some **solutions** include **tracking data provenance, preserving access to original data** sources, and **combining** accumulated AI-generated data with **real data to train AI models**.

Source: MSN

Source: <https://vajiramandravi.com/current-affairs/model-collapse/>

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