Could distributed training dodge compute limits?

Advanced · A few weeks · Free · Project idea

Online version: https://ai-safety-sandbox.vercel.app/projects/distributed-training-and-compute-limits/

Summary

New methods let models train across many loosely connected computers. Use Epoch AI's simulator and recent papers to analyse whether this undermines governance based on big data centres.

Why it matters

If training can be spread out, verification that looks for big clusters may fail. Policymakers need a clear-eyed estimate.

What you will have at the end

An analysis with simulator results.

How to start (tick each box as you go)

- [ ] **1. Write your question in one sentence.**
- [ ] **2. Spend 30 minutes finding what has already been written about it.**
- [ ] **3. Collect evidence in a simple table: claim, source, how strong.**
- [ ] **4. Draft 1–2 pages: answer first, then reasons, then uncertainties.**
- [ ] **5. Ask one person to poke holes in it, revise, and share.**

Key terms

Compute governance
Using control over AI chips and data centres (who can buy, use or track them) as a lever for governing AI.

Verification
Ways to check, rather than just trust, that someone is following an agreement (for example, confirming a data centre is not secretly training a banned model).

Source and links

Technical AI Governance resource pack (MIRI TGT reading lists)
https://www.lesswrong.com/posts/GRPswd5v7haob97fA/recommendations-for-people-getting-into-technical-ai

DiLoCo: Distributed Low-Communication Training
https://arxiv.org/abs/2311.08105

Epoch — distributed training interactive simulator
https://epoch.ai/blog/introducing-the-distributed-training-interactive-simulator

Does distributed training undermine compute governance?
https://arxiv.org/abs/2605.29359

When you have finished

Write a few paragraphs on what you did, what you found and what you would try next, and share it with a friend, your society or online.

Courses, mentors, small grants and communities:
https://ai-safety-sandbox.vercel.app/next-steps/

Questions? Ask in AI Safety Cardiff University (AISCU): https://aiscu.org/

Notes