Spot an AI data centre from space

Starter · A weekend · Free · Step-by-step guide

Online version: https://ai-safety-sandbox.vercel.app/projects/spot-a-data-centre/

Summary

Pick a known AI cluster from Epoch AI's GPU cluster data, find it in free satellite imagery and document how it has grown over time.

Why it matters

Verifying international AI agreements may depend on finding large data centres. The Federation of American Scientists has shown satellite imagery can track them.

What you will have at the end

A short visual report with before/after images and estimates.

Steps (tick each box as you go)

- [ ] **1. Read the method (30 min)**
  Read FAS's report on tracking hyperscale AI data centres with satellite imagery. Note what visible clues they use.
- [ ] **2. Choose a site (30 min)**
  Pick a cluster from Epoch AI's GPU clusters dataset with a publicly known location.
- [ ] **3. Find it and go back in time (2 hr)**
  Use a free tool with historical imagery. Capture images from several dates and estimate building footprint and power infrastructure.
- [ ] **4. Estimate what it could hold (1 hr)**
  Using public figures, make a rough, clearly-labelled estimate of capacity. Show your uncertainty.
- [ ] **5. Write it up (1 hr)**
  Explain what satellites can and cannot tell us, and what that means for verifying agreements.

What you need

- A computer
- A free satellite imagery tool with history
- A weekend

What you will learn

- Open-source intelligence methods
- How compute could be monitored

- Limits of outside verification

Key terms

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).

Compute
The raw computing power (specialised chips running for a long time) used to train and run AI models. Easier to measure and track than data or ideas.

Source and links

FAS — Tracking hyperscale AI data center growth with satellite imagery
https://fas.org/publication/tracking-hyperscale/

Epoch AI — GPU clusters
https://epoch.ai/data/gpu-clusters

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.

Try next: Explain one way to verify an AI agreement
https://ai-safety-sandbox.vercel.app/projects/explain-a-verification-mechanism/

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