

Using AI Tools

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What is generative AI?

Rooted in **Generative Adversarial Networks**.

The network has 2 parts that work together in a way similar to Alan Turing's **Imitation Game**:

- A **generator** is given input (say, a user's request for a picture of a cat¹) and comes up with an attempt to represent what it "thinks" the input demands.
- The **discriminator** then judges how good the representation is ("This is a picture of a real cat" or not).

Lists of some tools

- "[AI Tool Categories](https://aitoolguru.com/categories)" (from [AI Tool Guru](https://aitoolguru.com))
<https://aitoolguru.com/categories>
A bit overwhelming with close to 6,000 tools
- "[The best AI productivity tools in 2024](https://zapier.com/blog/best-ai-productivity-tools/)" (from Zapier's [blog](https://zapier.com/blog/best-ai-productivity-tools/))
<https://zapier.com/blog/best-ai-productivity-tools/>
38 vetted apps in 13 categories

Generative AI weaknesses

- Limited understanding
One might say "no understanding" since we're nowhere near "thinking computers" yet. But ignoring that quibble, tools that work the best seem to be those that limit their scope.
- Dependence on training data
AI isn't complex enough to have very sophisticated theories of reality, so training it requires huge quantities of training data.
- Resource intensive
Ingesting all that training data takes energy, but so does the processing to generate requested output.

1 What the generator will actually get is a bunch of vectors that a different component of the system has determined represent "Draw a picture of a cat," but we can ignore that.

- Ethical and legal challenges

- IP

The training data involves crunching the Internet. Or scanning paper books etc. in order to use them as data.

- Plagiarism

This is the more serious problem (IMHO). There is controversy about whether the training process constitutes making illegal copies, but using output that is too close to being someone else's (copyrighted) work is more clearly a violation.

Ethically speaking, even if a work is now in the public domain, putting it out as your own is unacceptable. And in the academy, even improper citation for what turns out to be someone else's work is a mortal sin.

- Hallucinations

I got some interesting examples of this as I played around to prepare for this program. I asked ChatGPT for some books about AI. It came up with a list of 4, and though the first 2 were real and correctly cited, the 4th was completely bogus (though I might have figured out how it came up with it), and it gave the wrong author for the 3rd.

The secret

Just as the key to good writing is to rewrite, getting generative AI to work for you will involve looking at output and either editing it further or tweaking the prompt that you use with the AI to see if that gets you improved output.