Comments from Ryan

Here is my copy of the PDF with inline google drive comments on it:
RG_copy_GATE_technical_report.pdf

For calibration, I spent around 3 hours reading and providing feedback, though I skipped/skimmed some sections of the paper.

Write down a summary of the main contributions of the piece
A integrated mathematical AI takeoff model that accounts for various considerations that prior models (e.g., Tom's original compute centric takeoff model and more simplified models like Daniel Kokotajlo's, Tom's more recent work) didn't include.
Write down the main strengths of the piece
As far as I can tell, the model does a better job of modeling the process of generating money using AI automation and then investing this into building more fabs. It also models a broader array of smaller considerations though it is unclear to me how much this matters.

I found it reasonably comprehensible and well explained despite not having much of a background in the relevant areas of economics. I thought the use of jargon was reasonable.

Write down any significant weaknesses

- It wasn't clear to me how the model handles the thorniest and most important questions in takeoff dynamics, like how returns on software R&D go down as you approach limits, how you model AIs become more effective at research as you train with more and more compute, whether AIs can substantially change the rate at which fabs can be built (via automation or once AIs are very superhuman potentially even via bypassing the existing semiconductor supply chain via e.g. nanotech). As far as I can tell, you make IMO fatal assumptions on these which are effectively equivalent to ignoring superhuman performance (via either speed or quality).
- I didn't have an easy time quickly understanding the difference between this and Tom's original takeoff model in terms of contributions. (Or more recent unpublished modeling.) Maybe this doesn't matter to the main audience you have in mind.
- For the target audience of people thinking carefully about AI takeoff, I think this piece could be structured much better and much more focused on novel additions and conclusions. But perhaps the main target audience is academic economists?
- There were a large number of considerations and things modeled in the paper where it was unclear to me how much it matters. E.g., for inference compute, does including it in the model make any difference?
- When I run the model on the website, the conclusions for the 95th percentile scenario are much less aggressive than my median takeoff and it wasn't clear to me what parameters were differing between earlier modeling and this.

- I think I disagree with the modeling choices made in the paper, but at several points it was unclear to me whether various considerations are accounted for (given changing some parameters as needed) or totally unaccounted for based on the paper. For instance, I didn't feel like I had a good understanding of how this model accounted for AIs getting faster and more capable over time and this potentially speeding up R&D relative to what would have otherwise happened. Based on messing with the website a bit, I think I disagree with modeling choices and can't adjust parameters to compensate, but this is unclear to me (partially because I ran into various issues with the website, see below).
- The model doesn't talk about the relative fraction of compute spent on AI R&D experiments vs on training/inference AFAICT. (Even though I think more compute is spent on research than on training or useful inference at the moment.)

Write down concrete recommendations to improve the article

For the audience of people already interested in AI forecasting, I think it would be useful to describe some of the concrete results and takeaways in the paper. I don't have a strong view about other audiences.

More generally, I think if the core audience is people like me, Tom, Daniel K., Eli, or other people somewhat familiar with the weeds of AI forecasting, I would structure the paper quite differently and change the relevant focus substantially. (For instance, Tom's original compute centric takeoff model report was much better targeted to this audience.) I assume this isn't a key target audience.

I think I disagree substantially with the modeling choices and emphasis made in the paper, possibly due to different empirical views, though this doesn't clearly result in

Comments on the website

Running the simulations was slow and there wasn't a visually salient indicator that simulations were running. I initially thought the website wasn't working, but I think it was just running the sim and this took a while. I think it should be much more clear that something is running.

For one setting of parameters I tried, the simulation never finished.

I wish the "Year" was displayed as an absolute year (e.g., 2027) rather than relative to some starting point.

I think people like me would benefit from some presets that are closer to our views (to the extent this is possible in the model).

I found the website and results kinda confusing and hard to engage with, but this might be mostly because the parameters were very different from what I think is likely.

I found setting the parameters somewhat unintuitive relative to (e.g.) takeoffspeeds.com, though some of this is unavoidable.

Our figures and graphs tend to attract the most attention in our papers. Do you have any suggestions on how to improve them?

In this exact piece, you don't really have much graphs/figures. I think the paper would be better served by having some example predictions/forecasts in the intro and maybe conclusion, at least for the audience of people in the AI forecasting community. If the main audience of the paper is economists, then I don't know exactly what you should do.