

THE AI-POCALYPSE, MATH EDITION

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ABSTRACT. These are the notes for a talk I gave at the Laboratoire de Mathématiques de Lens on 19 October 2026 about the recent and ongoing crisis caused by AI use in the realm of academic mathematics. They consist of a (very lightly commented) selection of links to news items, essays, interviews, websites, and other ressources, documenting recent events and the wide variety of reactions and takes by the mathematical community.

I compiled it with the goal of forstering discussions among colleagues, leaving out my own opinions and with no hope of being exhaustive or even, by now, up to date.

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1. SOME MILESTONES (SUMMER 2025 - OCTOBER 2026)

- 2025/07: **Models by OpenAI and Google DeepMind win gold medals at IMO.**
No use of external tools or the Internet, strictly verified as for humans. Builds on key developments in 2024 with Google DeepMind's AlphaGeometry and AlphaProof.
- 2025/10/17: OpenAI claims GPT-5 solved 10 previously unsolved Erdős problems.
Not really. All were already solved in the literature, it just found and claimed them!
- 2026/05/20: **OpenAI claims solved unit distance problem.**
A 1946 Erdős problem in discrete geometry.
Using an internal unreleased model. Solution is elegant, human verified.
- 2026/06/02: **Leiden Declaration on Artificial Intelligence and Mathematics.**
“This declaration calls for action to address the challenges posed by the use of artificial intelligence within mathematics research. It is the result of a community initiative and is endorsed by the International Mathematical Union (IMU).”

Date: October 29, 2026.

- 2026/07: **Levent Alpöge finds counter-example to the 1939 Jacobian conjecture.**
Using Anthropic's Claude Fable 5 running "during the world cup final".
Presented entirely in a Tweet. Verified two days later by **Terry Tao**.
- 2026/07/23: **Jacob Tsimerman goes to work for OpenAI on "AI safety".**
Announced on the same day he got the Fields medal.
Long-form interview with Tsimerman.
"Are you more concerned for mathematicians than mathematics? – Yes, at the moment. I think mathematics is gonna have to change, but I do think we'll navigate that change. At the moment [...] it's more the people, especially the young people."
A pre-medal and pre-conversion written interview.
- 2026/09/08 : **OpenAI claims to have solved the Navier–Stokes millennium problem.**
Using 10'000 agents and 87 hours of computation on an internal undisclosed model.
With machine-produced Lean formalization.
Controversy on scooping of Buckmaster and Alpöge's work and general bad accreditation.
Long-form Interview with Buckmaster. *"Does it feel like you've been mugged by 10'000 agents? – Yeah..."*
- 2026/09/11: **A Severe Misalignment of AI in Mathematics.**
Declaration initially signed by 25 Field medalists, now 28, plus 8000+ other mathematicians.
"The push by AI companies to solve mathematical problems as a benchmark is detrimental to the science of mathematics, and to the mathematical community."
- 2026/09/29: **The Association for Human Mathematics** is created.
With Peter Scholze among the first 10 members, it now has more than a 1000.
"The Association for Human Mathematics (AHM) protects mathematics as a human endeavor against the threat of artificial intelligence. We work to maintain the independence of the mathematical community from the encroachment of corporate interest."
- 2026/10/06: **Sharing AI progress in mathematics.**
OpenAI publishes 719 research articles on maths and theoretical computer science, partially with Lean certificates, claiming to have solved numerous major problems in many areas. It claims that each problems took one agent and 3 hours on average on ChatGPT Pro using an internal unreleased model.
Reactions from the community:
 - **100+ short reactions from mathematicians**, collected on Proofs and prompts.
 - **Hot take by Terry Tao** on Mathstodon.

- MIAM seminar talk by Hugo Duminil-Copin: [Un grave défaut d’alignement de l’IA en mathématiques, 28 jours plus tard.](#)

His whole research subject was wiped away by this event, 16 problems he was interested in claimed to be solved. He’s preparing to slog through all that.

[A long form interview](#) on ScienceEtonnante.

- [No More Heroes - Terence Tao Talks to Numberphile About AI](#)

Short interview with Terry Tao about the OpenAI dump. *“What I’ve been saying this all year is that we are transitioning from an era of proof scarcity to proof abundance. [...] and now we’re drowning in proofs, but we’re not getting all the understanding. [...] So I guess we are seeing the end of the romantic era of mathematics, the age of heroes.”*

- Many junior mathematicians, most likely to be affected in the short term, have eloquently shared their thoughts about this moment, for instance [Sophie Maclean](#) and [Ming the Mathematician](#).

On the traditional press:

- The Guardian 2026/10/07: [OpenAI’s release of mathematical findings draws concerns from experts](#)
- The Atlantic 2026/10/08: [OpenAI Just Carpet-Bombed Mathematics](#)
- Le Monde 2026/10/10: [Nouveau coup de massue d’OpenAI sur les mathématiciens: « Ils ont annihilé mon domaine de recherche »](#)
- Le Figaro 2026/10/11: [«J’ai pleuré» : un mathématicien désespéré face à l’intelligence artificielle qui a réduit son domaine de recherche à néant](#)
- 28 minutes ARTE 2026/20/14 : [L’IA va-t-elle détrôner les génies des maths ?](#)

2. COMMUNITY DISCUSSION

- [Proofs and prompts](#)

“A communal blog for mathematicians’ thoughts on how AI is changing what it means to do mathematics, from PhD students and professors, skeptics and enthusiasts alike.”

- [Séminaire Maths & IA à midi \(MIAM\)](#)

Twice monthly online seminar organized by the French mathematical society.

- [Terry Tao’s blog](#)

Many posts on the topic of AI & math by Tao and contributing guests.

Tao is an interesting case in the debate: he now uses AI in many ways while warning about its perils. In a self-referential twist, he even has an [AI-maintained webpage](#) about his own public views about AI.

- **Panel Discussion: AI in Mathematical Research**

Heidelberg Laureate Forum discussion with Michael Harris, Peter Scholze, Jacob Tsimerman, and Geordie Williamson on 2026/09/15. An exchange between some very different views on AI in math.

3. MORE FOOD FOR THOUGHT

- **On proofs and progress in mathematics**

A classic 1994 essay by William Thurston on the goals and practice of mathematics.

“We are not trying to meet some abstract quota of definitions, theorems and proofs. The measure of our success is whether what we do enables people to understand and think more clearly and effectively about mathematics.”

- **The fall of the theorem economy**

An essay by David Bessis elaborating on Thurston’s points more relevant today.

“The first rule of the Intuition Club is: you don’t talk about the Intuition Club. The second rule is, if you really want to talk about intuition, make it sound casual and accessory, because we ain’t the psychology department. The third rule is definitions are worth zero points, expository work counts negative, and the best jobs should always go to the people who proved the hardest theorems.”

- **If math is more than proof, we need to better celebrate the rest of it**

An essay by Grant Sanderson of 3Blue1Brown.

“I want to propose that we more firmly define a notion of a “motivated explanation” and that we give novel and compelling motivated explanations academic credit similar to what generating new proofs of open problems has had historically.”

- **There’s never been a better time to go into math**

Here Grant Sanderson strikes an optimistic note: *“I will make the case [...] that there has never been a better time to go into math, there has never been a better time to fund math, and that maybe the most radical change that we’ll see in this moment is a reframing of how we assign academic credit, but that the actual institution of math and what it is remains surprisingly unaffected, even in a hypothetical future where machines can do anything that mathematicians can currently do, but better.”*

- **Why do we need human mathematicians anymore?**

An essay by Po-Shen Lo.

“I think every human industry which wishes to remain human-led after AI should publicly adopt this fundamental axiom as a primary priority. AXIOM: We (humans) should help humanity flourish.”

- **Some late-night thoughts on AI and the future of research in mathematics**

An essay by Matt Baker.

“It seems quite likely that good teaching and good exposition will be more highly valued than before, and that research prowess alone is not going to cut it in the age of AI. This, I humbly suggest, could end up being one of the positive outcomes of the AI revolution.”

- **Scott Aaronson: The Mathocalypse, Will Intelligence Matter Anymore?**

Long-form interview with Scott Aaronson, computer scientist and blogger.

- **The Weimar of knowledge**

Neurobiologist and blogger Giorgio Gilestro on the wider and deeper economic issue of the inflation of AI-produced text ushering in an era of techno-feudalism.

“The real problem is that any activity based on intellectual capacity is about to be hyper-inflated. Academia will fall first, the rest of the job market will follow.”

- **Towards a world mathematical commons**

A proposal by Kunal Marwaha: *“We should change our mindset from explorers of the mathematical frontier to stewards of a world commons of mathematics.”*

- **The crisis of AI-generated mathematics**

Max Weinreich proposes ‘AI veganism’: *“In this essay, I present the case for total opposition to the use of artificial intelligence in mathematics. I offer proposals for how individuals, departments, journals, and institutions can act in concert to make sure that mathematics survives the coming crisis.”*

4. A LOOK AT THE TECHNICAL SIDE

- **Lean proof assistant**

An open-source proof assistant and functional programming language. Now used for certifying and verifying mathematical proofs at large scale, first by mathematicians, and now (**controversially**) also automatically by LLM models themselves.

- **Annals of Formalized Mathematics**

“Founded in 2024, the Annals of Formalized Mathematics is a MathOA-supported diamond open access overlay journal. It publishes original articles about formalized mathematics and mathematical applications of proof assistants. The journal accepts papers in English that are accompanied by a code artifact. ”

- **Hexagon**

A repository accepting AI-produced or AI-assisted math texts:

Ben Antieu explains: *“We felt that the proliferation of results proved with LLM assistance required a new model for collecting the associated papers. Besides wanting these works to be citable and reliably stored for long periods of time, we wanted to allow lower barriers for authorship and for community interest than the arXiv. We also wanted for these works to have a home besides random GitHub repositories or X/Bluesky/Mathstodon/LinkedIn posts.”*

- **SAIRS Foundation**

“Terence Tao, alongside Nobel, Turing, and Fields laureates, leads SAIR, a nonprofit organization advancing scientific discovery and guiding AI with scientific principles for humanity.”

5. SOME QUESTIONS

There is little doubt left that, as a community, we will have to adapt to major changes. We will probably have to reinvent our discipline. The recent example of computer programmers and the software industry comes to mind. Here is a list of problems and questions – by no means exhaustive! – we will soon have to grapple with:

- To use or not to use AI in one's own research:
 - If yes, how to do so in an ethical way? Can one use the proprietary models of big foreign companies (hence e.g. helping them train their models)?
 - How to deal with the inherent inequity of the financial and proprietary barrier of access to this technology? The ecological and sovereignty aspects?
 - ...and if not: is it possible to preserve one's little garden of purely human math – its practices, standards, community – from being contaminated?
- Authorship and credit:
 - How best to ensure transparency on AI use, or misuse, by authors?
 - What does it mean to be an author of a paper/result (co)written with AI?
 - Can one claim authorship for a result one does not understand, obtained with a simple prompt? What degree of engagement with the material is acceptable?
 - How to ensure humans get credit for their ideas, when they are regurgitated by AI without proper accreditation?
 - How to deal with the chilling effect on the sharing of ideas and open problems caused by the systematic vacuuming up of the Internet by AI companies?
- The coming onslaught of machine produced mathematical text:
 - Machine produced proofs are (still) often unsavory and possibly wrong. Do we want them to go through the usual channels of verification (journal submission, peer review, talk presentation, etc.)? Could we enforce that?
 - If not through the traditional channels, how to process and absorb this material? (assuming this would be of value, which appears to be the case).
 - Or can this output be ignored? If so, how to justify this to the public and decision-makers?
 - Will it still be possible for humans to referee and digest all, or any, of this?
 - If not, should we automate this process too? How?
 - What is the meaning of a proved theorem, or a mathematical theory, that no human will understand for lack of time and resources?
- What will a career in mathematics look like?

- What do we tell junior researchers? What are the career prospects?
- How do we replace theorem-proving skills for the evaluation of researchers, especially young people’s potential? Will the usual metrics still matter?
- Do we want to spend a career reading and checking AI-slop? or even well-written machine produced proofs?
- Can we avoid turning into passive spectators, merely prompting models and/or digesting machine-produced maths?
- Is this like transitioning from the artisanal to the industrial age? or worse?
- Will definitions, theory building and knowledge transmission remain a human endeavor? Or will machine get better than us in that too? What will be left?
- How do we even justify our existence (especially in pure math) to the public?
 - What is our added-value to mathematics, if machines are better than us at theorem-proving? (and possibly in the future also at asking questions, building theories, explaining, transferring skill and knowledge).
 - How do we best explain this added-value to decision makers and the public at large?
 - What will mathematics research projects and grant applications look like?
 - What will a PhD in math consist of? How do we motivate and train the next generation of mathematicians?

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