Let the Diners Into the Kitchen

By Noah Giansiracusa

Imagine a tech company announces new robot workers that can prepare food better than human chefs. If you think of dining out as sitting at a table and having your meal brought out to you, this sounds like an excellent development. Let's replace the humans in the kitchen with these bots and enjoy higher quality food!

But what if the restaurant's patrons are invited inside the kitchen to see how the food is made and are explained what's involved. They learn how techniques from around the globe have been passed down for generations. How cooking is both an art and a science, constrained by rules and patterns but rich with creativity at its heart. How ingredients are thoughtfully procured from farms and distributors with an eye toward locality, seasonality, and sustainability—ensuring long-term production is not sacrificed for short-term convenience. How menus are crafted to balance familiarity with ingenuity. How young chefs learn from experienced ones by working alongside them. How food is among the most timeless, universal ways humans have for connecting with each other.

What if, in other words, dining out is more like watching an episode of the hit TV show *The Bear*? I think it's fair to say that this is a dining experience the public would think twice about giving up to automation.

Unfortunately, most people outside of math think all we do is serve up problem solutions on a platter. They don't know that math is about human understanding, not just mechanically establishing truths. That it is one of the longest running shared stories in human history, one that has transformed society and is treasured by its adherents. That it is a precious social endeavor, not a speedbump on the road to lucrative tech IPOs.

That's because we haven't done enough to bring the public inside our mathematical kitchens. Perhaps we haven't even put enough effort into sharing the human side of math with each other—at least, not publicly.

Ask yourself if the following scenario rings familiar, not necessarily in its details but in its broad contours. While picking your kid up from an after-school activity, you learn that one of the other parents is also a mathematician. What starts as friendly banter develops into a research collaboration. You're in different fields but have found a topic of mutual interest and realize that by combining your backgrounds you can provide a new perspective on an old problem. Before long, you have an innovative joint result together.

When chatting with colleagues, you eagerly share the amusing origin story to this theorem. When giving seminar talks, you downplay the serendipity but still gesture at it. Then in your

formal write-up—that is to say, in the research paper, the one truly public record of this result—the human backstory is not mentioned. All that readers see is the theorem and proof, whose ideas are stripped down to a series of checkable lemmas and calculations, preceded by an introduction that aims to convince an anonymous referee the problem is important.

You've written for precision, clarity, and efficiency, maximizing the likelihood that the paper is accepted into a research journal. In doing, so you've minimized the humanity of your work. You've kept your reader out of the kitchen.

To reassert our role in math and reclaim the human value of math while Silicon Valley threatens to take these away from us, I believe we must radically embrace and expose the human side of math. We must do so now, before it is too late. This can take a variety of forms. I suggest a few here and leave you to surface others.

- **Blogging.** This is a great way to share behind-the-scenes aspects of math by letting readers into your own private kitchen, so to speak. You can discuss what's happening in math, share your perspective on others' results, tell the story behind you own results, reflect on your life as a mathematician, and much more. There are many excellent blogs by mathematicians already, but there's always room for more. If you're not up for starting one, visit others and leave comments. The more we publicly engage each other, the more society will see that mathematics is a living, breathing community.
- **Write op-eds.** This isn't for everyone, but it's worth considering. It is a powerful way to speak directly to people outside of mathematics and show them that we matter. The best opportunity here is when there's an event in the news that you could use your math background to help unpack for audiences. Don't just target big name national newspapers; local or special interest outlets have real impact too and might especially appreciate the expertise you provide. I am happy to offer op-ed guidance and feedback—please don't hesitate to contact me!
- **Social media.** I say this with a slight shudder, but social media is a convenient and productive way of building community and showing the world who we are and what we do. Keep in mind there are many platforms and content formats, and that audiences generally like accessibility and relatability. That means a post doesn't need to be a polished piece of writing; it could be a video of you walking your dog in the afternoon while talking about your favorite math moment from your day.
- **Rethink the research paper.** This suggestion might push the envelope a bit further, but here goes. Since research papers are the standard currency in math, a currency that is being rapidly devalued by AI, perhaps we should find ways to inject more

humanity into them. For instance, we could add a “backstory” section to our papers explaining the human elements that went into the collaboration/project/result. Or a “digestion” suggestion offering an informal human-centric interpretation of the main result(s). I don’t know, I’m just thinking out loud here. But a useful guiding principle could be to think of what you can provide that an AI cannot, or would not.

The Bourbaki movement focused attention away from informality in math, training us to be clear and concise. We are in a different era now. Math is not adapting to confront imprecision and gaps in arguments; it is adapting to confront AI. To put the matter bluntly: The more we act and write like robots, the more we hand our profession over to them. The details of how best to resist this are not obvious, but the overarching strategy is. We must show the world the human side of math. We must let people into our mathematical kitchens.

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