My talk is called Make It Fit. This is a theoretician's attempt to be a competent programmer in LaTex.

As the title indicates, I was trained as a theoretician. For as long as I can remember, the CFP for STOC (a top theory conference) has included a phrase something like this

"There is no page limit and authors are encouraged to use the "full version" of their paper as the submission."

And theory takes full advantage of this. Submissions range from less than 10 pages up to, well…more than 10 pages. This particular example (published as a paper in STOC 2022) has a 6 page….ToC, and is over 370 pages total.

Recently I've been moving away from theory and doing more CS Education work, which included some big culture shocks. The biggest --- as you might guess --- was page limits. And not just any page limits. Really restrictive page limits.

Page limits that would limit my fellow theoreticians to just their table of contents.

When I was making the camera ready for my first CS Education paper, I was happy with everything I had written, except the end looked something like this. A few lines too long.
I spent A LOT of time rewording and cutting content to Make. It. Fit.

Making. It. Fit. Is, in fact, a ubiquitous problem in CS. And there's plenty of prior work here.

From emails to researchers

To countless posts on stackexchange

To LaTex packages that advertise themselves as existing for environmental reasons, but are REALLY about something else.

The problem of hitting page limits is everywhere.

Indeed, we are not the first people to worry about page limits. High schoolers have been worried about page limits for a long time.

At least they used to be before chatGPT.

Now high schoolers, historically, were usually interested in the opposite of our problem. They need to stretch their content to meet a minimum page limit. But just as great ideas in algorithm design sometimes lead to breakthroughs in complexity theory, perhaps their strategies can be turned on their head and make our text fit. So what do high schoolers do?

Make imperceptible formatting changes to documents that make them longer without adding any characters. A friend of mine had a devious strategy: replace periods with larger-font periods. As you can see, you can't see the difference. But it makes it longer

Secondly high shcoolers will spell out the full-name of organizations whenever possible; more characters for free is the goal.

Our strategy will be to reverse these ideas and make our papers shorter.

We start from a nearly fitting paper. 6 lines fall onto page 7. And replace all the periods with tiny periods.

As you can see, they are smol. A surprising side-effect is that sentences now scrunch together, leading to a paper which flows faster when you read it.

And when we scroll to the end of the paper, we see that instead of the previous 6 lines on the extra page there are now 8 lines on the extra page. The opposite of what we wanted. We'll return to the cause in a moment, but for now if tiny periods make the paper longer…do \huge periods make the paper shorter?

As you can see, they are BIG. A surprising side-effect is that sentences now end much more emphatically, leading to a paper with even more confidence.

And the length? Back where we started 6 lines on the extra page.

What have we learned? Altering fonts on periods is not a good way to shorten a paper. It turns out that altering the font requires putting brackets around the period, which tricks LaTeX into not doing end-of-sentence spacing and alters line breaks in a not useful way.

And we have also learned that theoreticians are no better at writing LaTeX code than they are regular code.

We return to the drawing board and now endeavor to employ abbreviations. It turns out that others have written the starter-code for me (thank you stackexchange) and so I only have to put in the words I wish to abbreviate, for example "dynamic programming" to "DP" and "algorithms" to "algos"

Add this snippet before your \begin{document} and all copies of the phrase are instantly replaced.

As a side-effect, we use more abbreviations, which I think is something the Gen-Z kids are doing a lot of these days? I'm too old to be sure, but I think this will make our papers much more hip!

The best part is that if your paper is shorter, but not quite short enough, you can just add more rules! Just don't tell anyone you're violating the brand guidelines. These changes affect the whole document, inclduign the title and author blocks.

And after the updates, our paper now, fits! 0 lines on the last page. Ready for a submis-

What have we learned?

Don't let theoreticians write code. Even LaTeX ideas are best left in pseudocode, not actual code.

Periods are sacrosanct, don't mess with them.

And abbrevs. The best way to make things fit and sound hip

With these ideas, you too can make your ideas fit into strict page limits. At least until you become a theoretician. Or chat-gpt writes our papers too.