

Radu's Rides: A little New Year hope

Radu Craiu writes: A little while ago, I found myself in the middle of January *without* a new year resolution, and it hurt that I could not find a part of me which required at most a year to fix. This had nothing to do with me thinking I was perfect, but rather with the monumentality of the self-improvement tasks. Realistically, moving the needle in any direction worth tackling requires unrelenting effort and cannot be helped by the artificial discretization introduced through arbitrarily-chosen timelines. The other even more sobering suspicion is that most of the things we care about are outside our control. I could make my new year resolutions about acquiring funnier friends, better weather, longer limbs and more brilliant ideas, but those things do not work that way.

Sadly, a big part in my lack of self-improvement motivation is the carousel of bad news, alarming predictions and doomsday scenarios. All these make me spend a lot more time questioning my life decisions (“How did I get here?”) and much less thinking about the possibility of improving my tomorrow. But now I remember that a while back—it seems like a couple of Armageddons ago—I wrote a *Ride* about the help statistical knowledge can offer to those who are in love. If using our much-revered concepts can help us negotiate such a treacherous minefield, then the clown show of our daily life can also be tackled using the fundamental principles that have brought joy to so few. So, as we continue to limp past the made-up temporal frontier between years with expectations of gloomy days and wakeful nights, let us put on our nerdy glasses and examine how statistics can offer a new perspective and give us hope from fresh angles.

Much is said about the negative impact that global, rampant inflation has on our daily lives. Statisticians know very well how to handle the desire to do a lot with very little. When you want to fit a rich model with little data you need to get a grip. That's why we invented sparsity as an elegant and more combative alternative to giving up. I am looking forward to bragging to my non-statistical friends about my sparse closets and fridge, not to mention doll collection.

Scenaritis is what I like to call the affliction that gets so many of my contemporaries to emit conspiracy theories and depressing inventories. Let's take them apart separately.

A conspiracy theory is familiar territory to a statistician who knows too well that using a low-resolution projection of a high-dimensional data set will most likely lead to a very biased view of the world. Since most of my fellow subway riders seem to believe that one social media post is not as good as two hours of them, I will suggest to them the strategy any competent Bayesian would also follow: average over all the predictions produced by those low-

dimensional projections and enjoy ending your underground (or is it underworld?) voyage in the same mental state you began with.

Depressing inventories are what is served by people who should not be invited to parties. It does not happen often, but occasionally you may find yourself cornered by a modern-day Cassandra who would relish populating your future nightmares with their distorted enumerations. At this point, you would be well advised to whisper to yourself “biased sampling”—ideally faster and faster—until your oppressor realizes that the game is up and they retreat into the shadows.

As the bad news accumulates, the end seems nigh. I don't know what or whose end, but things cannot go on like this forever... or can they? If you've made it thus far with your unadulterated panic, remember how you have been trained to think asymptotically. The finite sample of bad news is just the start of a long and very stochastic process, so the Markovian (you wish) or the chaotic regimen (more like it) of your life still has many iterations to go before you know exactly where you will end up. Actually, you already know, but we're not here to talk about taxes.

If you are confused by social or political moves that seem unrelated to the historical trajectory predicted merely a few months ago, it is useful to remember that we often decode what is visible using latent variables. This simply means that the processes we observe are projections of a much richer class, and we must be cautious not to get intellectually, or otherwise, impoverished by them all.

Everybody fears the worst—and by that, I must assume that they mean the far tails of some life-events distribution. Most will agree that we tend to be familiar with the center of said law, which we know to represent innocuous, perhaps even rose-colored happenings. But our fears are populated by the devilish occurrences that, we think, make up its extremes. I am afraid that the middle can tell very little about the tails and, therefore, panicking about the latter while living near the former is not going to help anyone. To apply a homeomorphism to one of Tolstoy's phrases, “All lives in the middle of the distribution are the same. All lives in the left tails are different.” And you don't need to worry about the right tails anyway, the way things are going.

So here you have it. Can statistics transform the world into a better one? Most definitely maybe. But it can certainly help you stay on top of the bad vibes tsunami.

