# EULOGY FOR THE PROGRESS BAR

OLIVER SMITH

The tasks that we use computers to achieve often appear slickly decoupled from the frictions of the physical world. Poke a rectangular formation of pixels and you've moved money around the globe, crashed a stock market,[1] or perhaps caused state-wide panic over incoming (fictional) missiles.[2]

The feeling of immediacy in digital action is an illusion, carefully managed through the design of user interfaces. No computation is truly instantaneous: it is necessary to provide feedback, and the progress indicator is a common way to do so. It may take the indeterminate circular and pulsating form of the looped animation, or the more determinate percent-done, often a linear, horizontal progress bar.
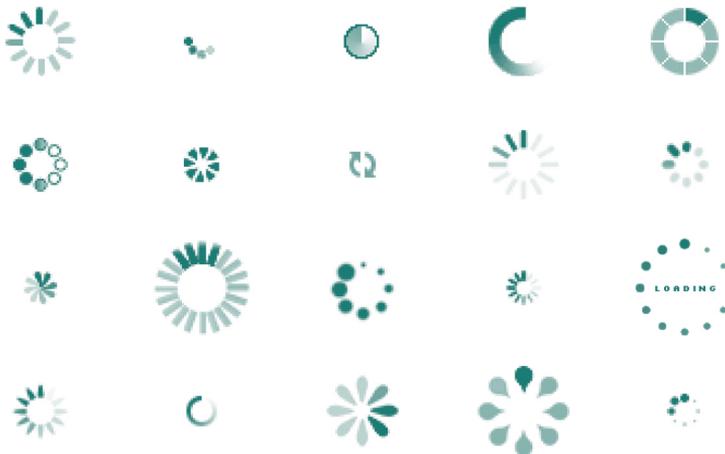
A rogue's gallery of looped animation progress indicators[3].

The American computer scientist Brad A. Myers identified the importance of progress bars in digital interfaces in his 1985 study, describing them as items that fill up "like the giant thermometers in charity drives…as progress is made".[4] Observing users undertaking the thoroughly uninteresting task of querying a transport database, Myers found that the use of percent-done progress indicators reduced users' anxiety by allowing users to feel that their action would be successful. Furthermore, if the progress bar offered an estimated time to completion, they could plan their wait time more effectively, using it "in some productive manner".

MICROSOFT MINUTES

In reality, however, knowing how long a task will take is difficult. Inaccurate time estimates were so common in the Windows operating system at the turn of the millenium that they became known by some users as "Microsoft Minutes". Copying files in Windows could begin with a high estimate such as an hour, drop rapidly to a few minutes, and in reality take ten minutes to complete. Alternatively, copying a single small file could appear almost finished before giving an estimate of over two years to completion.

A somewhat inaccurate Windows file copy dialogue with a progress bar and time estimation in "Microsoft Minutes".

Long-time Windows developer Raymond Chen offers a technically accurate if slightly dissatisfying explanation for the first of these scenarios: "The copy dialog is just guessing. It can't predict the future, but it is forced to try."[5] That does not explain, however, why the second scenario occurs to such extremes in Windows but not other operating systems.[6] What's certain, however, is that the wild variance is a complicating factor in the intention to lower the user's anxiety using progress indicators. In attempting to present a predictable, smooth interface, the progress bar is hindered by the physical realities of computation, including network communication delays, overworked hardware, and erratic user requests.

A YEAR'S PROGRESS

The Twitter account @ProgressBar201X recontextualises the progress indicator: instead of measuring computational task completion, it measures the passage of time over a year in one-percent increments. The bot automatically tweets a new progress bar image every three or four days, as another percent of the year elapses. For the most part, the tweets receive a few thousand likes and retweets, but at key points this engagement spikes. For example, the 50% point of 2018 received ten times as many replies as the average tweet, including hyperbolic reaction GIFs and declarations that posters had wasted the year thus far, such as the always relatable "fuck i've done nothing shit shit shit".[7] While the progress bar of the year is extremely stable and predictable, unlike our fluctuating personal experience of that period of time, it doesn't seem to lower anxiety levels. It allows us to participate in a performative, melodramatic version of progress that, like Hogarth's *A Rake's Progress*, is all always downhill.

@ProgressBar201X is darkly watchable: it is as captivating to see the year fall away as it is to wait for a computer to complete a given task. Myers found that "when the progress indicator is present, the subjects tended to watch it on the screen since they had no other task to do. Without a progress indicator, however, the subjects apparently got bored with the screen and looked around the room."[8]

The halfway point of 2018, from @ProgressBar201X.[9]

Far from freeing us to pursue other tasks, progress indicators can capture us in a system as observers of the task's progression. Of course, when presented with a progress bar and a time estimate, we don't necessarily sit and watch it fill up. Modern systems often allow us to multitask – we may have a second computer in the form of a smartphone at hand, and our environments tend to be more diverse than the empty room under Myers' test conditions. Still, the visual experience of getting closer to the finish remains a form of entertainment and a marker of the passage of time.

What if we aren't shown a progress bar but rather a looped animation? Trends in user interface show the progress bar losing sway to the spinning, pulsating, unbounded looped animation, which often gives no indication of the progress of the task at hand.[10]

If we take a video streaming site, we will often find these animations contained within a GIF or generated by a script: created, shown, or added to the page as a task begins, they often have no further interaction with the system's progress until they are hidden or removed on completion. If, for example, you load a page with a video online and press play, you will see a loading animation. If you now deactivate your WiFi, the animation will keep spinning despite the fact that it can load no more data. Some sites are programmed to notify the user that they are offline, but more often than not the looped animation will keep going indefinitely. It is entirely surface, decoupled from the network and from the server - as much an indicator of progress as the user twiddling their thumbs.

A looped animation progress indicator, then, is a device to *capture* the user. By colonising our attention, it ties us to the task and system: distracted by the visual promise of something occurring, we are unable to plan our escape. Rendered in a hypnotically cyclical, visually pleasing way, the wait becomes an addictive moment. Depending on the dull reality of the system, application or site we're using, and the effort put into designing an "emotional" indicator, we may even prefer the wait.[11] The progress bar, in contrast, is a device with the potential to *free* the user from the task at hand. It allows us—at least in theory—to know and thus plan our newly free time. The best progress bars are not slick interstitial appeasements, forced to predict the future and carefully tuned to make us feel in control, but accurate representations of the chaotic, unpredictable nature of computers and their users. Let us remember them for their flaws, they may not move quite so seductively as a looped animation but in their miscalculations and stutters we may find some clarity, some form of truth about the computational tasks we set in motion.

1 Lindsay Fortado, Philip Stafford, Aliya Ram (2015) Flash crash: Ten days in Hounslow, Available at: https://www.ft.com/content/9d7e50a4-e906-11e4-b7e8-00144feab7de(Accessed: 19th August 2018).

2 Ashley Rodriguez (2018) Hawaiians were falsely warned about an imminent missile attack, Available at: https://qz.com/1179298/a-false-alarm-alerted-hawaiian-residents-of-an-imminent-missile-threat/ (Accessed: 19th August 2018).

3 (2018) Sample of 20 loaders, Available at: http://www.ajaxload.info/, (Accessed: 22nd August 2018).

4 Brad A. Myers (1985) The Importance of Percent-Done Progress Indicators for Computer-Human Interfaces. Human Factors in Computing systems, CHI '85 Conference proceedings.

5 Raymond Chen (2004) Why does the copy dialog give such horrible estimates?, Available at: https://blogs.msdn.microsoft.com/oldnewthing/20040106-00/?p=41193/(Accessed: 19th August 2018).

6 This leads to some ultimately fruitless speculation such as those found on the Super User messageboard (Maxim Zaslavsky (2009) Windows file copy dialog: Why is the estimation so... BAD?, Available at: https://superuser.com/questions/43562/windows-file-copy-dialog-why-is-the-estimation-so-bad (Accessed: 19th August 2018))

7 Jack Ferry (2018) fuck i've done nothing shit shit shit, Available at: https://twitter.com/jackferry0/status/1013756557618827270?s=19 (Accessed: 19th August 2018).

8 Brad A. Myers (1985) The Importance of Percent-Done Progress Indicators for Computer-Human Interfaces. Human Factors in Computing systems, CHI '85 Conference proceedings.

9 Progress Bar 201X (2018) 2018 is 50% complete., Available at: https://twitter.com/ progressbar201x/status/1013754253570166785 (Accessed: 19th August 2018).

10 Bars in general are beginning to disappear, including scroll bars in MacOS X Lion and beyond, the task bar in Windows 8's Metro user interface, the status bar in iPhone X where the notch cuts into the display.

11 Alice Kotlyarenko (2018) How To Design Emotional Interfaces For Boring Apps, Available at: https://www.smashingmagazine.com/2018/04/designing-emotional-interfaces-boring-apps/ (Accessed: 19th August 2018).