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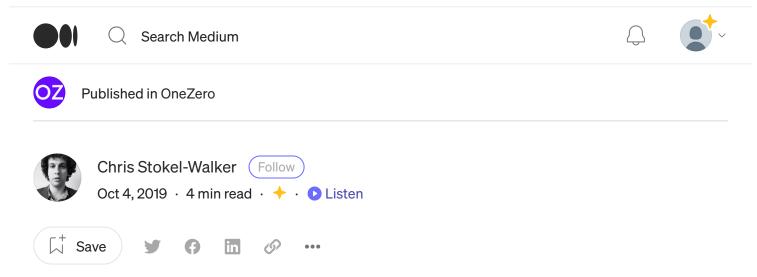🔖 Save   🐦   f   in   🔗   •••

Researchers Are Making Memes Accessible to the Blind

If you're visually impaired, most internet memes are inaccessible. That needs to change.

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Credit: BSIP/Getty Images

For the 1 million Americans who are <u>legally blind,</u> an increasingly large part of the internet is cut off to them.

Scroll through Twitter, Instagram, Facebook, or TikTok and you'll find them littered with memes, coded images, and in-jokes utilizing pop culture references. Now imagine you're blind. How would you see and understand them?

That's a challenge that researchers at Carnegie Mellon University are trying to tackle. In a recent paper titled "<u>Making Memes Accessible</u>," the group trained a system to classify and parse memes with up to 92% accuracy, making it possible for visually impaired users to share the joke, too.

It's an unenviable task. "Memes are often in-jokes that are supposed to exclude outsiders," says Scott Wark, a meme researcher at the University of Warwick. "They're inaccessible by design."

Many visually impaired people use screen readers and built-in accessibility tools within operating systems to help navigate the screens sighted people have no problem with. Such screen readers rely, in the case of images, on alt-text, or written descriptions of what an image depicts. The use of alt-text is limited at the best of times, and even more so in the world of memes.

"The stereotypical image we might have of a meme is the image with captions at the top and bottom," says Wark. "But memes have gotten a lot weirder over the last few years. Many don't really have a punchline like a joke does. A meme like "<u>Is this a pigeon?</u>" seems incredibly hard to parse as text, because it isn't linear."

Jemma Gilboy, a senior lecturer at Nottingham Trent University, is equally heartened by the research. "A program that can classify these [memes] with a 92% accuracy rate could be extremely useful for meme consumers with visual impairment," she says.

Wark is happy to see researchers start to think more about how to make memes accessible. "The web — and memes — isn't always accessible because it relies on users to generate content, for free," he says. "Just as the web is poorly moderated because

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most companies have no incentive to do it better, online culture isn't always accessible because this labor isn't accounted for."

That's the fundamental reason the researchers decided to tackle the problem. "Back in the day, Twitter was all text when it launched," says Cole Gleason, one of the authors of the paper. "It was pretty accessible for visual impairment. But the visual content on Twitter has been increasing over time — images, videos, GIFs, things like that."

At the same time as the proportion of visual content on social platforms increases, humankind's ability to understand them decreases. Researchers forecast the number of people who are registered legally blind will double by 2050. Making content more accessible will therefore be crucial.

The Carnegie Mellon system scans through memes it encounters and cross-checks them against a database of pre-existing conceits, before describing the image in the alt text of the file. "The thing we're exploiting with memes is that for many of them, the visual content is reused and the text content is overlaid," says Gleason. "The fact that visual content is reused means we can match that."

Researchers then use optical character recognition for the overlaid text. Depending on the resolution of the original image, and the content of the text (the system doesn't like acronyms like "ROFL" and "gg," which are commonplace in memes), the textual recognition can be highly accurate too.

On a scale of 1 to 5, where five showed they totally understood the joke, blind and visually impaired users scored the automated alt-text as 3.95. Gleason considers that a success: "Sometimes memes are actually fairly odd, and so it might take a lot of exposure to it to understand it," he says.

There were some drawbacks to the system, though: the memes researchers used were relatively outdated — more Success Kid than the latest TikTok trend — which could be a problem, says Gilboy. "The study is relying upon older, but still extant forms of memes (image macros) to explore the possibility of increasing accessibility," she notes. Though she's hopeful we could see a re-meme-naissance.

"If the program becomes widely available and widely used, this could result in a revival or evolution of older forms of memes, or could influence a generation of new formats

and styles — especially if blind or visually impaired users could be encouraged to participate in meme authorship."

Still, automating the process of completing alt-text for memes is vital because as a society, we're lazy and privileged.

"Most of us aren't going to be tagging our memes with alt-text," Wark admits. "Maybe accessibility, like moderation, is something we should demand as standard in online culture instead of something that only applies to official websites. Memes are the biggest popular cultural form to have emerged in a decade. Shouldn't we all get to make some stupid shit if we want to?"

And that stupid shit should be accessible to all.

Accessibility   Memes   Digital Life   Internet Culture   Alt Text