Is the truth really out there anymore?

The Age of Fakes Is Really Here

As buzzwords go, "**fake news**" is more convenient than most, allowing one to dismiss any information one finds disagreeable, threatening, or just requiring too much thought to deal with, regardless of its relationship with any kind of reality whatsoever.

While there's no question that **fake news** is real, a big feature of the strange times we live in, it's just the tip of the iceberg. There is fakery in just about everything nowadays, from scientific papers to models on magazine covers and everything in between.

Worse, it is getting easier and easier to produce lies, and ever harder to tell them from truth. **Artificial intelligence** is being applied to creating fakes, making the problem much more difficult. We may soon live in a world where the only way to tell real from unreal is by the same machines that make it impossible for our own senses to distinguish between them.

How did we get here? More importantly, what do we do now? What can we depend on to tell us the truth?

From caves to canvasses to screens

The story of the rise of visual fakery comprises much of the history of art. Art began as an attempt to reproduce the world in images, to share with others what was seen and experienced. The magnificent beasts depicted on cave walls of the **Stone Age** were already surprisingly realistic. Animals were positioned to conform to bumps and features of the rock, shown in lively colors, running and leaping.

It wasn't "realism" as we understand it – humans were depicted as simple stick figures, and the cavorting creatures were accompanied by dots, geometric designs and symbols still undeciphered. For as much as the cave painters drew their physical world, they showed their spiritual and emotional life as well. And it is the fact that **art can make intangible ideas seem real** that makes it so viscerally powerful.

Expression of internal versus external realities varies greatly between cultures. The ancient **Egyptians**' stiff figures, impossible poses, and showing importance by relative sizes was due to their obsession with the eternal order of the gods. The similar rigidity of medieval and Byzantine art was prompted by the same, albeit Christian, otherworldly concerns.

The ancient Greeks, however, prized naturalism. Pliny the Elder wrote of the famous **contest** between the painter Zeuxis and his rival Parrhasius to see who was the greater artist. Zeuxis' grapes were so life-like that birds tried to eat them, but Parrhasius won the contest. He said his painting was concealed behind a curtain, but when Zeuxis tried to pull it back, it turned out that the curtain itself was the painting.

This set the ideal of **realism** – to fool the eye. Thus, Greek and Roman statues were not the stark white marbles seen in museums today – originally they, and most ancient sculpture, including the buried Chinese **pottery army,** were all **brightly painted**.

With the **Renaissance** and the rediscovery of **perspective** and **anatomy**, realism triumphed. During the **Baroque era**, realisitic techniques were applied to fantastic scenes, often religious or mythological, to persuade viewers of the sacred world beyond.

Photography freed artists from slavish imitation, though from the start they too manipulated scenes. The first audience in 1895 to see a **moving train** headed towards them on a screen panicked. But by the time Georges Méliès shot the first science fiction movie, *A Trip to the Moon,* in 1902, he had a full palette of special effects to use – most of which he himself had just invented. The stage was now set.

The rise of modern fakery

People have always lied, deceived, and produced hoaxes. But it was the serious demands of political propaganda and advertising in the 20th century that established hoaxing as a lasting force in the world.

Hitler relied on the "**big lie**" – an untruth so huge no one would believe it could be made up, but he blamed it on the Jews. The Allies were more subtle.

During the war, for instance, a film editor cut a shot of Hitler gladly receiving news of France's surrender to make him **look like** he was dancing. **Disinformation** was perfected to fool the enemy, and the Allies **tricked** the Nazis into believing that General Patton would lead the invasion to land at Calais by an elaborate scheme using dummy equipment, paper armies, and hoaxed radio traffic, which is still partly classified.

Movies continued to develop the art of illusion. The first full use of **computer-driven cameras** in *Star Wars* (1977) greatly increased the realism and appeal of Lucas' space Western. But it was only as true **com-**

puter animation was eventually perfected that the digital revolution could be fully unleashed.

Meanwhile, **Adobe's Photoshop** image editing program brought fake perfection to countless ads and **magazine covers** to the point where "photoshop" has become a verb for digitally altering a photo. It still takes some training and skill to do it right, however.

Hoaxes everywhere

The personal computer and the internet put the power to falsify in the hands of anyone interested, and the anonymity the net offers allowed fakers to evade detection. Tools keep improving, too.

The process of taking a person out of a picture as **Stalin** often did (or putting one in) is now **infinitely easier** and can be done with a phone app. **Apps** are also now available to easily change the background of photos while **fake background sounds** for phone calls have been around for years. Now, another artificial intelligence tool, **Lyrebird**, with just a few minutes on tape, can mimic real voices saying anything.

On the high end, **dead artists** like Roy Orbison are set to tour soon, backed by a live orchestra and light show. The high-def image is reflected off a glass sheet onstage. But it is made from films of a body double imitating his moves, while his face is created from a digital map of the real musician performing.

The method is expensive and time-consuming, but it can already be done for much less. Some Reddit users have been developing ways to use AI to swap celebrities' faces with porn stars, called "**deepfakes**", making hoax porn that may be hard to tell from real. Needless to say, the **law** hasn't caught up with it yet.

The University of Washington, in their **Synthesizing Obama** project, took a real speech and lip-synched it perfectly with an altered video of his face reading a different text. While these techniques have not been used for a serious political purpose yet as far as is known, their potential to sow chaos is huge.

It's not just people being faked – so are **scientific experiments**. 70% of reported results *cannot* be replicated. However, they still get published in non-peer-reviewed journals and are often used to make false claims of benefits from products, for instance. This can result in not just waste, but actual hazards.

The rise of social media and the greed of Facebook, Google, and Twitter for more users and their data has greatly facilitated the rise of fakery. As the ongoing research into **Russian meddling** in the **US** and various **European** elections show, state-sponsored hackers were able to create unknown thousands of **fake accounts**, with people in Moscow posing as outraged citizens of the target countries.

They did this so well that when Twitter notified users who'd been following fake Russian bot accounts, they faced an **angry backlash** – yet most was not at the hoaxers, but at Twitter for "censorship"! Not only that, hackers gamed the system with thousands of fake bot followers to increase ratings and popularity.

Ordinary folks yearning for social media status can also purchase fake followers from a company called **Devumi**, which offers to boost one's social media standing on Twitter, YouTube, SoundCloud, Vimeo, Pinterest, and LinkedIn with followers, reposts, and even comments available. Twitter followers start at 500 for $10, up to 5,000+ for only $49, delivered in just two weeks. And Devumi has competitors, too.

The *New York Times* **recently exposed** this traffic, outing actors, movie critics, and others. The offerings include totally fake accounts and some based on real folks, sometimes with names changed, but they even steal their profile pictures and other information. Devumi denies all wrong-doing, but already there is **serious social fallout** for exposed purchasers, and the **New York attorney general** is investigating.

Across the web, people have become alarmed over such fakery which threatens not just democracy but all social interaction. George Orwell warned us of where it could lead in *1984*, where the protagonist's job was to alter history in service of the dictatorship. Yet there are some who fear a **crackdown** on fake news could backfire, causing the same dire situation.

Even if AI programs can **detect fake** photos, voices, and people, the problem comes down to whom you believe – and why. Common sense helps, but since disinformation works by having a nugget of truth at the core, you need to question not only everything you see and hear but *why* someone is trying to convince you and just *who* profits from it.

This problem will not be solved easily nor entirely by technical means, but it must be, for the internet and society depend upon trust. For now, the best thing is look at all sides critically and constantly.

Meltdown and Spectre update

There have been no good solutions yet found to the twin critical flaws which we warned you about **last month**. The tech giants seem to be flailing about in their efforts, although no exploits have been found. News of any real developments in the situation will be posted on our blog when it happens.