

**Problem: I'm not sure if the breaking news video I was sent has been doctored or when it was published.**

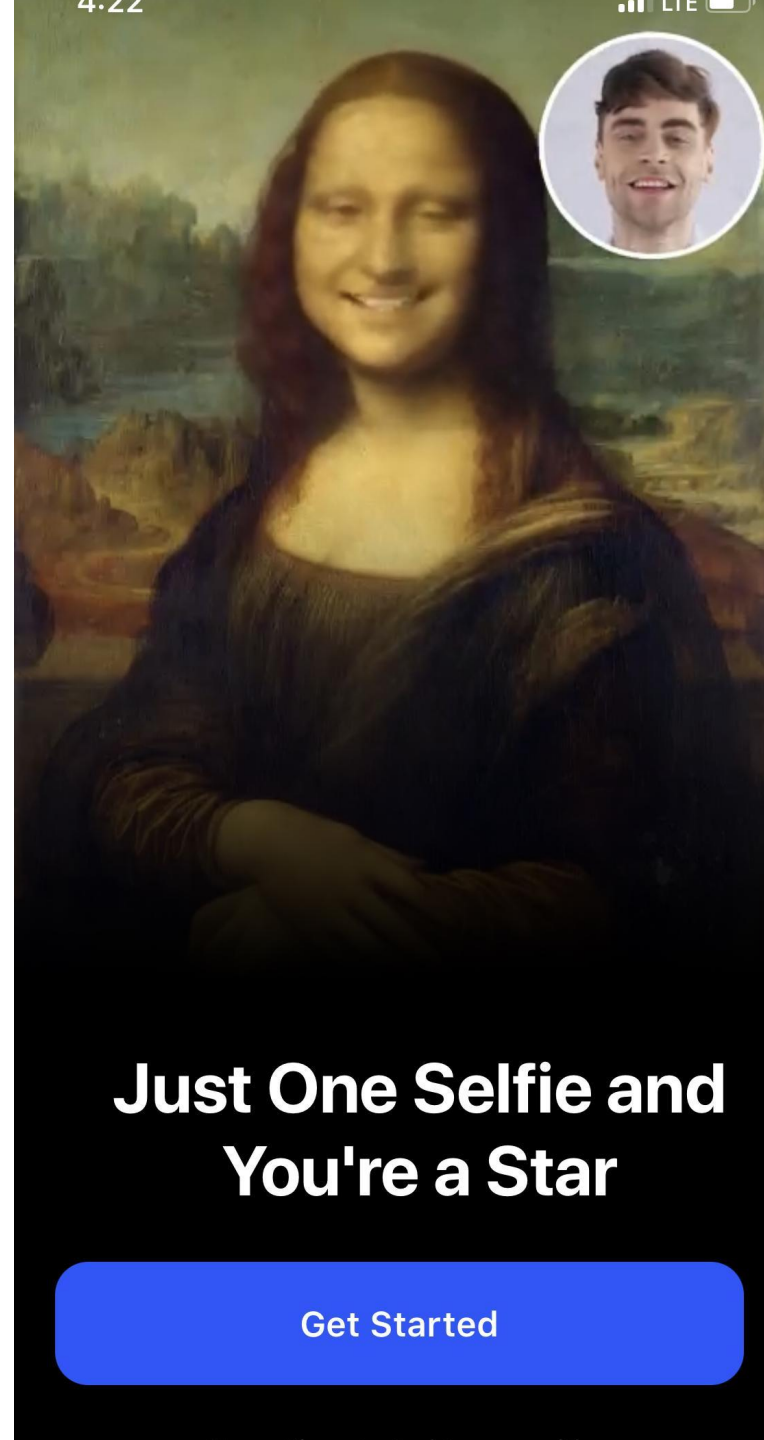
**How can I check?**

- **WatchFrameByFrame.com:** Break down a video by frame to spot green screen and other flaws in doctored videos  
-<http://www.watchframebyframe.com>
- **YouTube Dataviewer:** Track where and when a video was first posted  
-<https://citizenevidence.amnestyusa.org>



## Beware Deep Fakes

- Free mobile apps and desktop software help people transform a different face on a video or photo.
- Reface app (right) will do this
- Advanced software lets users change audio and make lips move to the audio, altering what someone said in a news clip, etc.
- Let's look at a little case study ...



## Case Study: Deep-Fakin' It ...

- Didn't know I was cast as Iron Man, did you?
- I built this in three minutes in the Reface app
- Besides knowing that Robert Downey Jr. is a better actor than me, how can you tell this is fake?



## Detecting Deep Fakes

- Unnatural eye movement, facial expressions (see Iron Man example)
- Blurring or misalignment (Iron man)
- Awkward posture or body movement
- “Skips” or choppiness between the video frame
- Poor color and shadows that point the wrong way from the sun or other lighting
- Use reverse image searches and watch videos frame-by-frame to spot errors
- “If your mother says she loves you, check it out.” Trust your gut
- **More tips from Norton:**

<https://us.norton.com/internetsecurity-emerging-threats-how-to-spot-deepfakes.html>

