

**MOTHERBOARD**  
TECH BY VICE

# This Device Makes People Find Others More Attractive By Playing Fake Breathing Sounds

Masque induces psychological changes by altering how users perceive their breathing.

By [Daniel Oberhaus](#)Jul 17 2018, 10:06pm [f Share](#) [t Tweet](#)

IMAGE: XIN LIU/MIT MEDIA LAB

The funny thing about consciousness is how unconscious we are of all the nuanced ways our environment and physiology shape our subjective experience. A loud sound or bright flash of light may arrest our attention for a moment, but most of the time our brains are being bombarded with external stimuli and internal feedback that never quite becomes a focal point of our mental activity, even though it helps shape it.

A new research project by MIT Media Lab's Xin Liu demonstrates the powerful influence these subtle inputs can exert on our conscious experience. It's called Masque and it's a wearable that purposely alters the user's perception of their own breathing. By altering this input, Masque is able to shape user behavior and perception in predictable ways without needing explicit instructions.



IMAGE: XIN LIU, HONGXIN ZHANG/MIT MEDIA LAB

The Masque device was created by Liu in partnership with the industrial designer Hongxin Zhang, who drew inspiration from Renaissance-era Italian Carnival masks. The device wraps around a user's face and measures respiratory rate using a sensor placed directly below the nostril. Near the ear is a bone conduction headphone, which delivers sound through the bones in the skull so as not to interfere with the ability to hear sounds naturally through the air. Furthermore, bone conduction headphones can create the illusion that perceived sounds are coming from inside one's own body.

After measuring a user's breathing rate, Masque then plays back the sound of breathing at a different rate in the user's ear and can adjust this mediated breathing in real time as the user's respiratory rate changes. As Liu found out over the course of two pilot studies, the mediated breathing produced by the device can lead to significant changes in the psychological state of the wearer. In other words, the user's subjective state is affected more by perceived changes in the fake respiratory rate.

In the first study, participants took a shortened version of a GRE test and were asked to report their stress levels afterwards using a well-established rubric for quantifying anxiety. The participants were divided into two groups, each of which heard a different respiratory rate in their masks. According to Liu's results, which have yet to be published in a peer-reviewed journal, those who were subjected to fast and loud fake respiration through Masque demonstrated a "statistically significant" increase in anxiety than those exposed to slower and softer fake respiratory cues.



IMAGE: XIN LIU, HONGXIN ZHANG/MIT MEDIA LAB

In a second study, Liu used twelve male, heterosexual volunteers to gauge how Masque would affect their arousal. To test this, Liu exposed each of the subjects to fourteen photos of women for thirty seconds each, and then asked them to rate the photos based on how exciting, attractive and friendly they found the woman in the photo. According to Liu's results, the subjects rated pictures as more attractive when they heard loud and fast respiration that sounded as though it was coming "from themselves."

Liu told me that being exposed to fake respiratory cues through Masque didn't actually result in physiological changes in the users. In other words, hearing loud and fast breathing through Masque didn't cause the users to breathe louder and faster themselves. Despite the lack of physiological changes, however, the device did result in predictable psychological changes.

**Read More: [MIT Researchers Have Developed a 'System for Dream Control'](#)**

That cognitive biases can be induced in people with a device without explicit directions is a tantalizing and somewhat frightening idea. While it seems quite possible that such devices could be used to subconsciously manipulate people in the future—the mind recoils at the idea of a dating app that plays breathing sounds as you swipe—but Liu said she sees significant therapeutic potential in the device as a tool for emotional regulation. Still, she said this was a critical exploration of the tool and there were no plans for a commercial release.

"A more interesting conversation is thinking about how we can get more excited for situations too," Liu told me in an email. "In the affection study, people found others more attractive. Maybe we can use Masque and the system in situations to make people more engaged, such as in movies and games."

"We see the use of Masque a pathway for the user to understand their capacity to control affective states with bodily actions," Liu added. "If the user could be influenced by a false signal, they can also consciously breathe more slowly during a stressful event."