



The great pig in the sky

Interview with Theo Botschuijver

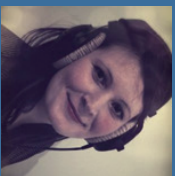
by Hanna Schraffenberger
& Jouke Verlinden





In my adolescent years, I stumbled upon a documentary on Dutch TV that had a huge impact on my dreams of the future. It featured a funky designer-computer scientist who was enthusiastically creating a pre-Kinect depth camera. He did this by hacking a Polaroid ultrasonic sensor and x-y frames, controlled by an Apple II with a custom-built graphics card. The documentary made my head spin: computers were cool, technology can “augment” the process of creating art ... Years later, while I was graduating on VR technology in the US, I found out about this funky designer-computer scientist’s longtime collaboration with VR artist Jeffrey Shaw. Uncanny! They certainly explored the future in the past... If anyone should be consulted about the future of Augmented Reality, it should be him: Theo Botschuijver.

To be honest, I hadn’t even heard of Theo Botschuijver before my colleague Jolke suggested that we’d interview him. After checking Theo’s website [1], it turned out that, although I didn’t know him, I knew many of the works that Theo had realized together with media artist Jeffrey Shaw. More importantly, his oeuvre featured many Augmented Reality pieces - some of them were realized long before I was born. Of course, I was intrigued... What was someone who had been working with AR in the 1970s doing now and what were his plans for the future?



When we arrive, the door to Theo’s studio is open. We call out a shy “Hello?” and after some seconds of uncertainty, we enter the studio. Theo’s workplace is spacious; it is filled with his old works, big sawing machines, lasers and materials in all shapes and sizes. The huge studio is also rather cold. We find Theo and Hannie - Theo’s partner and business associate - in a small and comfortable little side-room. Hannie is filling the stove with wood and Theo’s self-made inflatable windows do a good job at keeping the cold outside, illustrating Theo’s expertise when comes to inflatables. We take off our jackets, get acquainted with Theo’s dog and before we know it, we are entangled in a conversation about the beginning of Theo’s career.

Early career

“I would probably have pursued a degree in fine arts, hadn’t it been for my art teacher in high school who pointed me towards a new school in Eindhoven, which had just started and which offered a degree in industrial design.” The combination of technical classes, difficult theory and ap-

had studied in Italy and wanted to do some things in Europe. There was a farm close by Eindhoven where all kinds of people could work and experiment. In 1967, we started working together, up until 1983. We called ourselves the Event Structure Research Group.”

Walking on water and a smoking octopus

The Event Structure Research Group is behind many of the early inflatables, such as the ‘Air-ground’ (1968), a large inflatable playground and the ‘Waterwalk’ (1969), an inflatable that allows a person to enter it and walk over water by walking in it. *“Wait, I can show you!”* Theo takes out a book in which he keeps track of all his projects. As the pages turn, we get more and more familiar with his work. There’s commercial work, such as amusement park-like experiences designed for big car companies to promote their latest model. There is political work; an inflatable world-bomb that has circled over the heads of demonstrators at the peace demonstration at the Museum Square in Amsterdam in 1981. There are sketches for shoes that use piezoelectric materials to shine when you walk. There is an inflatable Octopus. Most works come with an accompanying story. *“It’s always different how the public reacts. In the case of the octopus, people were starting to attack it with knives. But with time, you learn to anticipate things that could go wrong. We hooked the octopus up to a smoke machine. So that after the attack he emitted smoke from all his wounds. Until someone run off with the smoke machine....”* As diverse as his work is, inflatables - most of which Theo made himself - in all sizes, forms and figures form a recurring theme throughout all of his work. If there would be a professorship in inflatable production, his name would be the first to come up. His collection includes figurative ones (the Octopus), useful ones (an inflatable drum-set), architectural pieces (domes and buildings), beautiful objects (clouds), some questionable ones (huge breasts that can serve as party decoration) and finally, a collection of augmented inflatables.

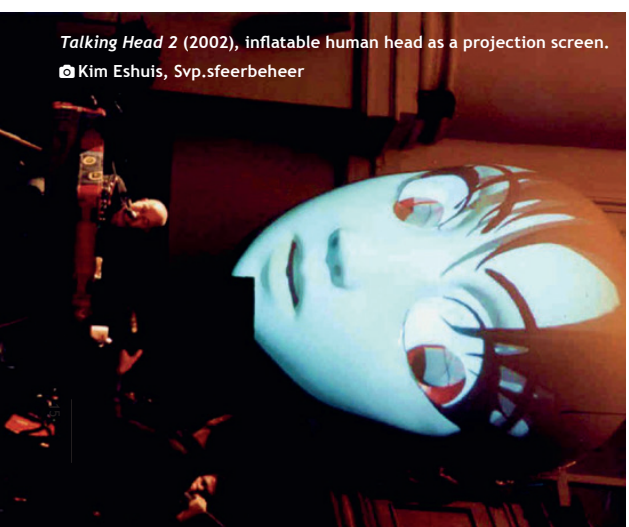
Augmented Inflatables – Inflatable Reality

Theo’s augmented inflatables are designed to be presented in combination with a virtual layer that is projected onto them. Theo figured out how he could combine a physical, inflatable object and a virtual layer that is projected onto this object in his *Talking Head* series.


“I have several Talking Heads. I project footage of a talking face onto an inflated head. This setup is connected to a microphone so that the projected face moves its mouth when one speaks into the microphone. That way, the inflatable head appears to speak.” We can imagine that this can be quite entertaining at a party and even up an otherwise straightforward speech. However, we are more fascinated by his more conceptual, artistic, and sometimes almost romantic, works. For example, *Cloud* (1970, Event Structure Research Group, Theo Botschuijver, Jeffrey Shaw), which was exhibited in front of the Stedelijk Museum in Amsterdam. Like the inflatable heads, the work uses projection mapping, and combines virtual and physical elements in the real environment. It consists of a physical, inflatable cloud onto which - at night - a daytime cloud is projected, accompanied by mist effects and weather sounds.

Talking Head 2 (2002), inflatable human head as a projection screen.

Kim Eshuis, Svp.sfeerbeheer

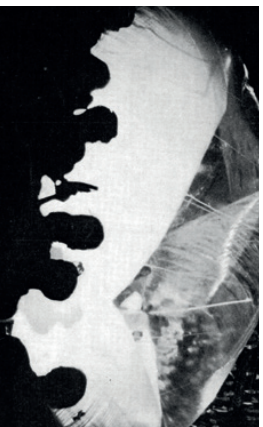




Cloud (1970), Eventstructure Research Group: Theo Botschuijver, Jeffrey Shaw.  Pieter Boersma

the city hall while a live band was playing. Then the plastic structure was inflated with smoke, while an array of film and water dye projectors constantly casted movies onto the structure. The audience was very enthusiastic and wanted to participate; some of them even undressed and jumped onto the inflatable.

As we explore Theo's oeuvre further, it becomes more and more apparent that those inflatables are not his only works that have explored key concepts of Augmented Reality, such as combining the physical and the virtual in real space, we mentioned earlier on. In fact, Theo has realized a variety of AR works long before the term 'Augmented Reality' was devised. An early performance in 1967 that experimented with architectural structures, live action and projections was "Move!Move!". The Event Structure Research Group, which at that time consisted of Theo Botschuijver, Jeffrey Shaw and Sean Wellesly Miller, prepared a pitch to bring "something special" to the Knokke arts festival that year. And their proposal was accepted! Theo made a huge inflatable projection dome. Dressed in white lab coats, Theo, Jeffrey and Sean set up the dome in



One of our favorite works is "Viewpoint" (Eventstructure Research Group: Theo Botschuijver, Jeffrey Shaw), an installation from 1975 that was shown at the 9th Biennale de Paris, in the Musée d'Art Moderne in France [2]. The installation showed images of several staged events that had taken place in the museum's space earlier. The animated slides of these events were projected onto a retro-reflective screen. Because of the retro-reflective properties of the projection surface, the events were only visible through a viewing console and the screen remained grey from all other perspectives. The projected images were aligned perfectly with the real space. Consequently, a look through the console revealed a seamless collage of projected images and real surroundings. In passing, unsuspecting visitors became part of the viewed scenery, resulting in a combination of real and virtual events taking place at the same time. *"We had staged twelve events. For example, one event showed a visitor who went to sleep on a museum bench. Another image sequence showed how we built the installation, the process of setting up the retro-reflective screen in the museum space."*

A few pages of the photobook later, we enter AR territory again. At least, the image Theo shows us looks an awful lot like an AR headset. As it turns out, that's exactly what the headset on the picture is supposed to illustrate. It is a dummy prototype of Theo's idea for a 3D desktop workspace, which is situated in the real environment. In 1986, he extracted the small CRTs from camcorders, and used half-silvered mirrors to project the Apple II's crude 3D graphics.

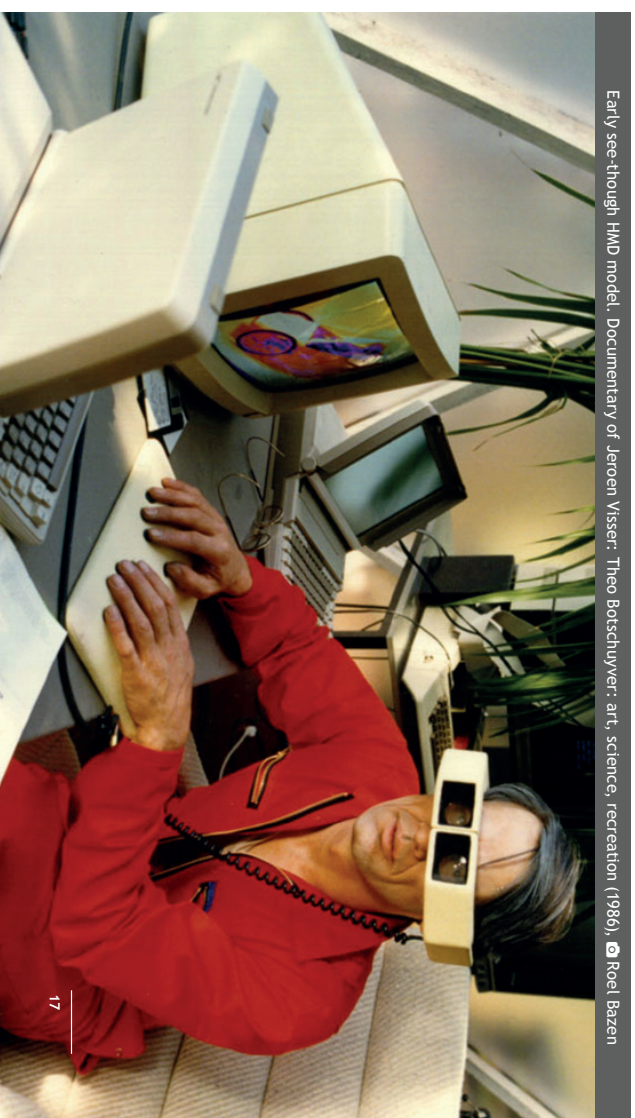
To illustrate that the headset is in contact with the computer, Theo has connected the headset to the computer with a cable. *"It turns your own living room into a memory palace. With the envisioned device, you can put your documents into your real surroundings, and store them in real space. It will be much easier to find them back... If I wear the glasses, and I look to the real book shelf, I can store files there..."*

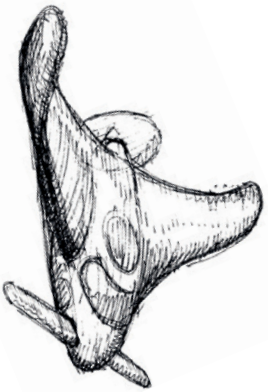
Looking back, looking ahead

Theo's most well-known work is probably the huge inflatable flying pig that is featured on the cover of Pink Floyd's album "Animals" from 1977. *"This wasn't easy. We hired a company to make*

the pig, but they wanted it to look like one of those Walt Disney pigs or like the friendly pig that stands in front of your butcher. Pink Floyd, however, wanted an aggressive and realistic pig. I made the model pigs for them and a company produced three big scale versions." Unfortunately, the team responsible for the production didn't take the necessary precautions when it came to the photo shoot with the pig. *"We let the pig fly in the sky. But even before we started with the real shoot, there was a sudden 'pling!' - the ring that connected the pig to its anchor broke... and there was no safety rip-panel. The pig drifted off! It wasn't our fault, that was the job of the firm we hired."* Now he can laugh about it, but back then it definitely wasn't funny. *"Everyone thought it was a publicity stunt but it wasn't. The pig was floating into the worst possible direction. As soon as I saw the pig drifting into the direction of the airport, I called Heathrow and warned them. They couldn't believe their ears. "Could you spell that sir?" - P. I. G., a flying Pig!" - "Oh, I see". They sent a helicopter with a sniper for the pig. At some point the pig flew so high that it was not considered a hazard anymore."* Ironically, the pig landed - and got itself injured - at a pigsty. Theo and the team involved stayed

Early see-through HMD model. Documentary of Jeroen Visser: Theo Botschuijver: art, science, recreation (1986),  Roel Bazen





up all night, first picking up the pig from the sty and then repairing its holes... and finally shot the images for the album cover the next day.

One more gig in the sky

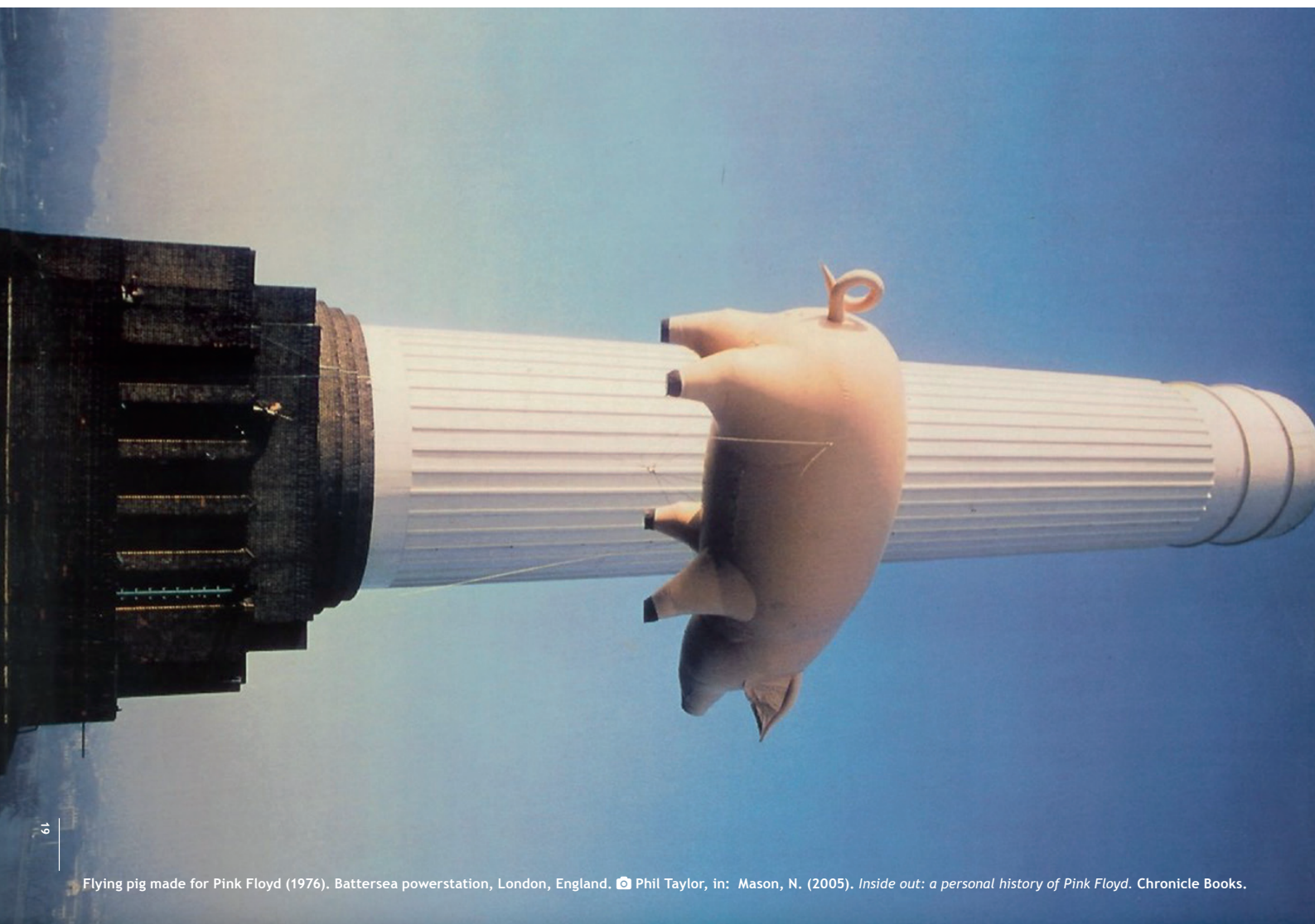
So far, the flying pig has been one of Theo's most well-known projects. However, when it comes to the future he dreams about one more great gig in the sky: the airwing - a combination of airship and airplane. "We used to have two prevalent ways of flying, the airship and airplane. I always found it weird, that those were so at odds with each other... And after the Hindenburg disaster in May 1937, the airship era ended. But there are also catastrophes with airplanes and we still have those. Anyway, I have always been fascinated by the idea of a synthesis between the airplane and the airship.... to combine the aerodynamics of a wing

with the concept of a helium filled balloon with a minimized weight." We can see sketches of the wing on Theo's walls. We wonder, whether Theo is still planning on building an actual airwing. "This is a dream, yes, this is a dream. Unfortunately, we would need a lot of money to realize it, or we need to collaborate with a big company. The airwing has to be filled with helium and that's expensive. In the end, I envision it about 200 meters in size. But even to realize a small one, approximately 18 by 20 meters would be fantastic. That idea is very attractive to me. The airwing would be great as a means for transportation. But also as a place to live... I can envision whole villages floating in the sky." ■

References:

1. Botschuijver, T., & Van den Dop, H. (n.d.). Spatial Effects, <http://spatialeffects.nl/>, accessed on 6 May, 2014
2. Shaw, J. (n.d.). Viewpoint. Retrieved from http://www.jeffrey-shaw.net/html_main/show_work.php?record_id=46, accessed on 6 May, 2014

Airwing - a synthesis between airplane and the airship (computer model by Wick van Rij)



Flying pig made for Pink Floyd (1976). Battersea powerstation, London, England. © Phil Taylor, in: Mason, N. (2005). *Inside out: a personal history of Pink Floyd*. Chronicle Books.