

the trees using names taken from cultures and traditions from far, far away. As a child in public schools in Seattle in the 1960s I was taught stories and legends located on the East Coast – Paul Bunyan, Headless Horseman, Paul Revere, Hiawatha – which to me seemed equally far away as Japan. Stories located in the towns, hills, valleys and lakes around me were few. Some local Native American names lived on – Tacoma, Tukwila, Sammamish – but as a child in the 1960s I rarely heard the stories behind the names.

Moving to Boston I was delighted finally to live in a place where American legends had walked the earth, and I experienced for the first time how the abstract American stories I had grown up with in Seattle were indeed spatially embedded in the landscapes of New England. Moving on to Bavaria in Germany I realized that Catholic countries also had animist traditions similar to Asia. Local spirits were codified into Catholic saints, but the way they ‘augmented’ the local landscape was the same. The statues of saints in nooks of buildings, the crucifixes with Christ marking crossroads or places where people had died in car accidents give these guardian spirits from an unseen but contiguous world a familiarity and visual presence as part of our daily life.

VIRTUAL DREAMS

Art-making is often if not always a conjuring practice, bringing that which is there but unseen – thoughts, ideas, memories, wishes, fantasies – into the visible realm. I began creating 3D virtual worlds in 1994, working at Worlds, Inc. as the producer and creative director for *Starbright World*¹, collaborating with Starbright Foundation’s then chairman Steven Spielberg to create an online 3D community for seriously ill children. The cyberspace dreams of these early times is for me best explicated by Margaret Wertheim’s book *The Pearly Gates of Cyberspace*². Even in Western European culture we used to have a realm for our dreams, she said, and we called it the heavens. As astronomy and other sciences pushed back the known frontier between the visible and the invisible, even the heavens became explicable and that realm was lost – until cyberspace opened up an infinite canvas for this part of our imagination.

In the virtual worlds and avatar communities in the mid 1990s we thought we all would start parallel, virtual, online existences in which we could create ourselves anew and realize our personal dreamworlds. The technology however was too awkward, the processors and the Internet connections too slow, and the user base for our worlds



Border Memorial: Frontera de los Muertos, by John Craig Freeman and Mark Skwarek, 2010, augmented reality.

Screen capture of calaca model from the Border Memorial project in the Central Burying Ground, Boston Common, for the show Manifest.AR@ICA, Boston. Screenshot by Hana Carpenter.

– *Worlds Chat* from Worlds, Inc., blaxxun’s *Cybertown*, *Deuxième Monde* from Canal Plus³ – never extended beyond a small dedicated community. By 2002 the virtual communities of the first generation all went bankrupt or looked for other ways to earn money.

Only shortly thereafter in the mid 2000s this dream was resurrected when *Second Life*⁴ restarted old technology long proclaimed dead, and enjoyed the widespread availability of DSL Internet access and fast graphic processors. For a couple of years it seemed that every second day newspapers in Europe and the USA carried articles about how we would all move into *Second Life*, live out our dreams as avatars and virtual landowners, and earn immense amounts of money in the process.



Infiltr.AR, by Sander Veenhof and Mark Skwarek, 2011, augmented reality.

Artist's screen mockup of AR balloon with tweet in Pentagon from the AR artwork *Infiltr.AR*. Image by Sander Veenhof.

When and why did *Second Life* fade out of the limelight? Was it when Facebook and Twitter allowed an even larger spectrum of people to create their own virtual communities based on text and image communication rather than on 3D construction? Now people can communicate their most inane thoughts and images to each other instantly, without investing hours in building a virtual world. Beyond merely increasing the volume of chatter, friends in both Istanbul and Hong Kong have told me that Facebook has changed the art scenes there, providing a structure through which independent artists and organizers can reach a much larger audience than intimate word of mouth informality had allowed them to reach before. So even in this modest example, communities created through Facebook have real world effects on a much larger scale than *Second Life* or early virtual communities ever had.

The rise of cell phone networks in countries with few installed telephone lines, and the occurrence of Twitter-feed revolutions bring us much closer to the 'everyone is connected' utopian ideal that was always the dream of cyberspace advocates. The technical divide continues unabated, of course, and a smartphone that has to be re-charged every day whether you use it or not is of little use to an impoverished farmer.

AUGMENTED DREAMS AND NIGHTMARES

Even in the overdeveloped countries of the world, however, the device of choice is no longer a laptop but a cell phone or the promise of the golden mean presented by the iPad. In 2010 augmented reality (AR) using images and 3D objects also became very practicable on smartphones. Many media artist friends accuse me of artistic elitism for using a medium that not even they own – but those same people refused to use cell phones when they first came out, and would they deny them to the bush farmer today?

For those of us who went through the beginning days of online 3D virtual worlds, the AR technology of today brings a strange feeling of déjà vu. The limited display resolutions, bitmap sizes and polygon counts of the mid 1990s

Tiananmen SquARed, by 4Gentlemen, 2011, augmented reality.

Screen capture from *Tiananmen SquARed* in front of the ICA Boston, for the show Manifest.AR@ICA, Boston.



Jasmine Rain (birdcage), by Tamiko Thiel, 2011, augmented reality.

Artist's screen mockup of *Jasmine Rain (birdcage)* in Tahrir Square, Cairo, using a photo from Ramy Raouf under the Wikipedia Creative Commons Attribution 2.0 Generic license.





the leak in your home town, by Mark Skwarek and Joseph Hocking, 2010, augmented reality.

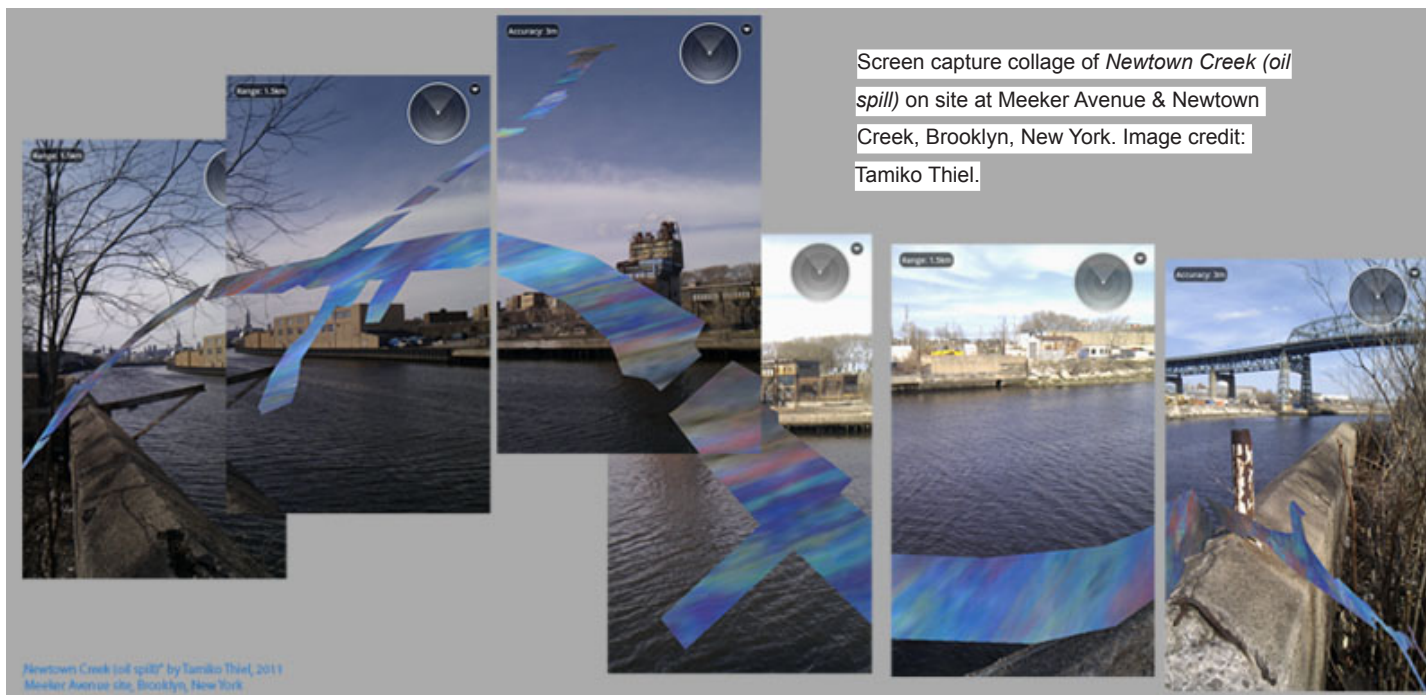
Screen capture from *the leak in your home town* taken at a BP gas station.

are similar to the restrictions on content for augmented reality on smartphones today – the visual equivalent of a tweet. The huge benefit of AR on smartphones however is that we need only create virtual objects, not entire virtual worlds, and we get a relatively high-resolution context for our virtual objects for free – through the camera lens of our smartphone. So the ‘site’ in ‘site-specific artwork’ is already there, and all we have to do is add the ‘artwork.’

Four years ago in 2007, William Gibson published his science fiction novel *Spook Country*, in which he described artists making AR art using technology that is still familiar today, but both futuristic and dated. If we wanted to make the sort of high-end artworks he describes, with huge intricately textured undulating creatures or deathly lifelike human corpses, we might actually use the clunky virtual reality visors attached via cables to heavy laptops in suitcases he describes in the book. But who wants to use this antiquated hardware for an audience of one, when you can create simpler artworks that can be enjoyed by a large audience of the hiperati, slipping their own small, svelte handhelds in and out of their purses and pockets?

AR technology on smartphones in 2011 is however unstable and erratic, and large objects especially seem to delight in staying mostly just outside of the display, regardless of how you twist and turn to try to catch them. It’s like bird watching – you never know exactly what you’ll see, how large and where it will be. These uncertainties provide a similar delight, however, when the artwork dances across

Newtown Creek (oil spill), by Tamiko Thiel, 2011, augmented reality.



Screen capture collage of *Newtown Creek (oil spill)* on site at Meeker Avenue & Newtown Creek, Brooklyn, New York. Image credit: Tamiko Thiel.

Newtown Creek (oil spill) by Tamiko Thiel, 2011
Meeker Avenue site, Brooklyn, New York

your screen like those hidden entities I always hoped to catch a glimpse of as a child.

The current roster of AR artworks encompasses a number of AR squids and sea monsters, and death does loom large as in William Gibson's novel, but in much more mediated forms. In *Border Memorial: Frontera de los Muertos* ⁷ John Craig Freeman and Mark Skwarek place images of calacas (traditional Oaxacan wooden skeletons commemorating the dead) on locations at the border where human remains have been found – and also in public spaces in U.S. cities that profit from these dangerous crossings. Using calacas to represent the thousands of migrant workers who have died trying to cross the fortified U.S.-Mexican border, this work hopes to bring the human cost of cheap, migrant labour into public view.

Other works use the power of remote GPS placement to infiltrate places that governments keep under tight control. *Infiltr.AR* by Sander Veenhof and Mark Skwarek enables viewers to send tweets to balloons placed inside the White House and Pentagon with messages to the Powers That Be ⁸. In *Tiananmen SquARed* the artist group 4Gentlemen has placed virtual versions of the Goddess of Democracy in Tiananmen Square and of the Tank Man on Chang-an Avenue in Beijing ⁹ – and worry about the political consequences if people are caught trying to look at them. Also geolocated in Tiananmen Square is a work of mine originally conceived for and placed in Tahrir Square in Cairo: *Jasmine Rain (birdcage)* ¹⁰. In these vast public spaces the viewer is surrounded by a soft, animated rain of jasmine flowers – while confined to a golden birdcage that questions this promise of freedom.

These works place versions both at the actual physical sites memorialized by the artwork, as well as in public or museum spaces in other regions of the world, in the hope of maintaining awareness of these far-away events in the public mind. A different twist on this strategy is *the leak in your home town* by Mark Skwarek and Joseph Hocking.

VF betaAR series, by Will Pappenheimer/Virta-Flaneurazine, 2011, augmented reality.

Screen capture of *VF betaAR*, "Farmville Swirl" documentation on Central Ave. in Bushwick, near Fermi Playground, Brooklyn, New York. Screenshot: Will Pappenheimer.



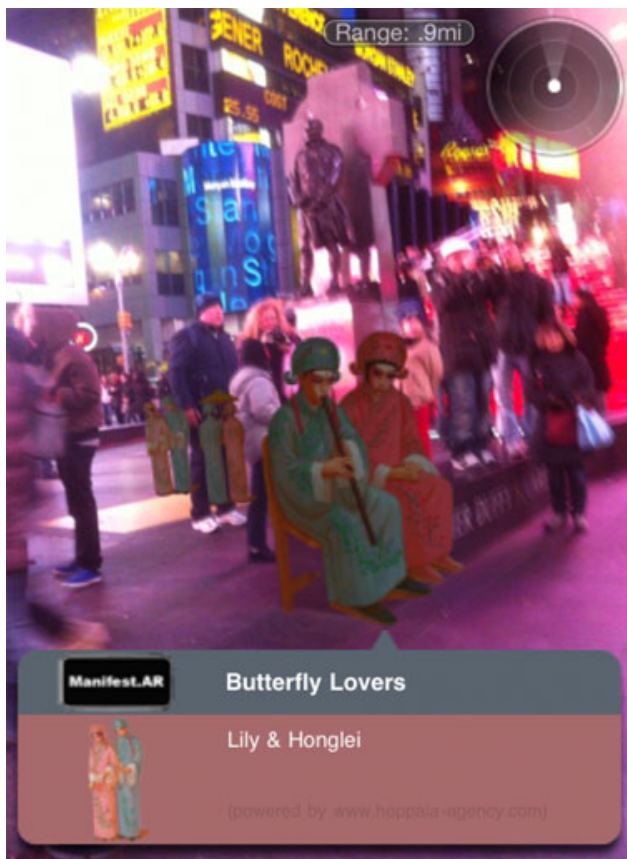


Parade to Hope by Mark Skwarek, 2011, augmented reality.

Photograph of *Parade to Hope* on iPad in front of ICA Boston, for the show *Manifest.AR@ICA* at the ICA Boston.

This work turns the BP logo at your local gas station into a memorial of the Deepwater Horizon oil spill – center your smartphone on the logo and you’ll see a plume of oil gush out of the logo ¹¹. Fears of hidden ecological catastrophes are also addressed in my *Newtown Creek (oil spill)* ¹². Viewers standing at one of the few street access points to this heavily contaminated superfund cleanup site in Brooklyn will see only a short segment of the real creek, but the augment will show them its entire snake-like form, textured with a photograph of an oil slick from the creek.

Not all artworks made in AR are about death and destruction – there are many with very whimsical imagery and themes. *VF betaAR* by Will Pappenheimer/Virta-Flaneurazine is a tongue-in-cheek plague of ‘bio-engineered and programmed hybrid (virtual) Bufo toads’ whose ‘psycho-active skin secretions’ produces bizarre visual effects in the viewers (or their displays) ¹³. The sweetly surreal *Parade to Hope* by Mark Skwarek, Damon Baker, and Arthur Peters is currently marching from Brooklyn to Boston ¹⁴. Lilly and Honglei’s *Butterfly Lovers* show elegant, star-crossed lovers from a Chinese folktale lost and bewildered in the



Butterfly Lovers, by Lilly and Honglei, 2011, augmented reality.

Screen capture of *Butterfly Lovers* in Times Square, New York.
Screenshot: Lilly and Honglei.

MoMA ¹⁸. The film's heroic portrayal of street artists made me reflect wistfully that AR is street art for artists with bad knees and fear of heights, who lacked the physical prowess and daring to climb buildings and skirmish with the law.

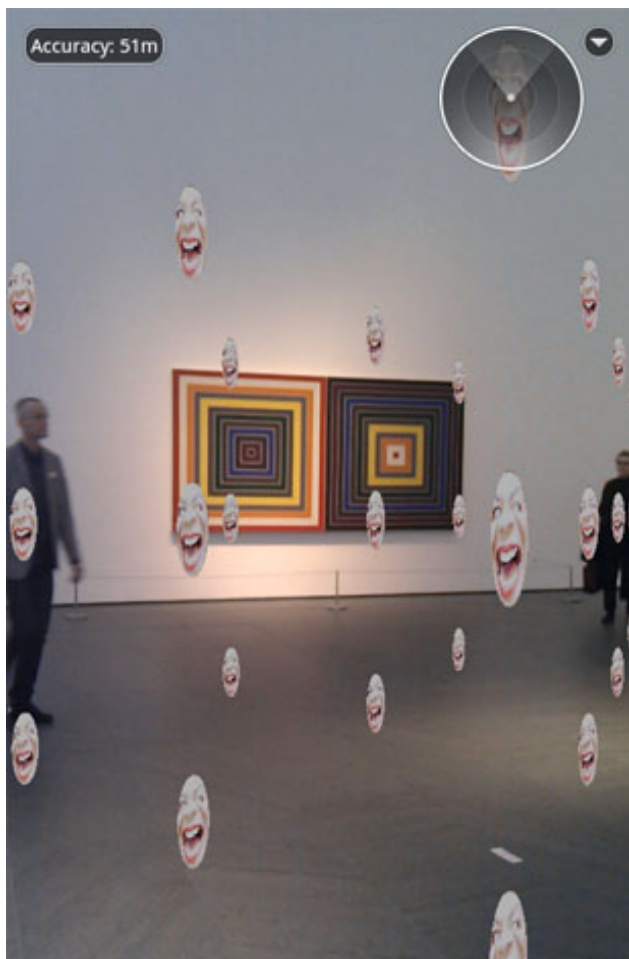
Any fantasy that AR art could gain a similarly public presence however is dashed as soon as I boot my Layar app ¹⁹. When I am in Brooklyn when the app loads, I am inundated by advertisements for apartments to rent; when in Seattle, the default is hundreds of peoples' most inane solipsistic tweets. I have to search out the 'art' categories in Layar as assiduously as I have to search out art galleries in any city, searching for known names in known locations who provide known quality. As with all technology and advertising these days, the quantity can overwhelm the quality, and filtering is a necessary evil.

lights of New York's Times Square ¹⁵. In a self-reflective vein, my *Art Critic Face Matrix* lets images of critical outrage hover in the vast atrium of MoMA New York ¹⁶.

Three dimensional AR artworks engage viewers not just as images, but as objects with an extended presence in space, especially when the artwork extends beyond the display. *VF betaAR* encloses viewers in a closed cloud of whirling psychedelic hallucinations. In *Jasmine Rain (birdcage)* viewers can turn around and look up and down to explore the confines of their cage. In *Newtown Creek (oil spill)* the artwork is too large to be seen all at one time, and viewers must turn and twist their bodies to follow the windings of the virtual creek in their smartphone displays, engaging their kinaesthetic senses in a way that gives the virtual a physical presence.

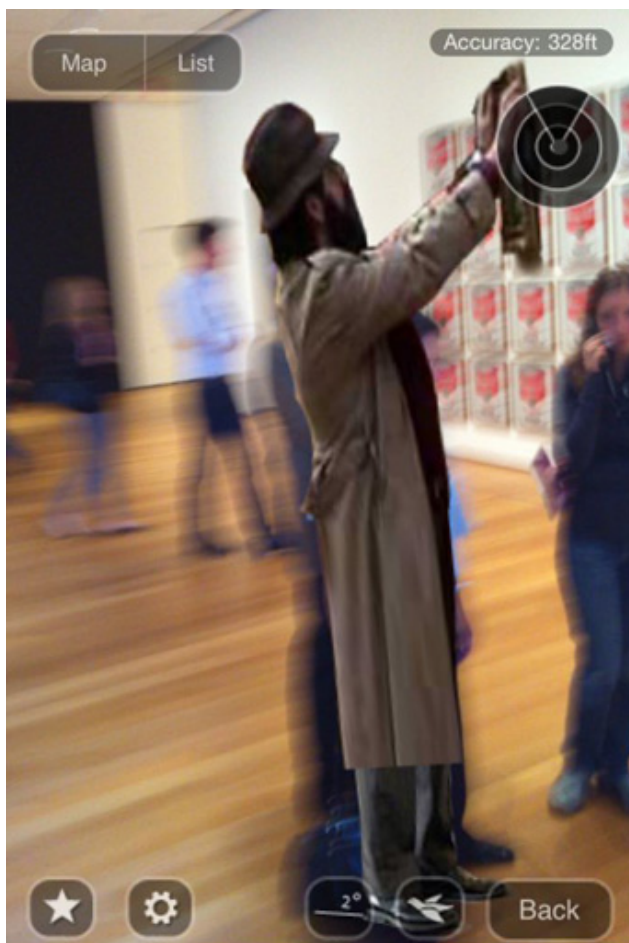
If we want physicality, shouldn't we all grab spray cans and ladders and augment the walls of the nearest buildings with graffiti? Street art is one of the few categories of visual art that is actually seen by large numbers of 'normal' people who might not go to museums and galleries at all. One of the AR artworks in MoMA, *Banksy re-enactment* by Sander Veenhof ¹⁷, recalls a scene from the film *Banksy: Exit Through the Gift Shop* in which street artist Banksy surreptitiously hangs one of his artworks on the wall of

Once I know where they are, however, I can go by and check in on my favorite AR artworks as old friends, who are always there whether I have the time to look them up or not. Perhaps with time, even in my empty old hometown Seattle, the (cyber)space around us will be vibrantly alive with images and entities of fantasy, fact and imagination from the past, present and future. ■



Art Critic Face Matrix, by Tamiko Thiel, 2010, augmented reality.

Screen capture of *Art Critic Face Matrix* in atrium of the Museum of Modern Art in New York, as part of the guerilla AR intervention “We AR in MoMA.” In the background: paintings by Frank Stella. Screenshot: Tamiko Thiel, 2011.



Banksy Re-enactment by Sander Veenhof, 2010, augmented reality.

Screen capture of *Banksy Re-enactment* in the Museum of Modern Art, New York as part of the guerilla AR intervention “We AR in MoMA.” Screenshot: Will Pappenheimer.

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