

# Repurposing Augmented Reality Browsers for Acts of Creative Subversion

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## Abstract

Consumer facing Augmented Reality (AR) technology offers innovative new ways for consumers to engage and interact with brands and products via interactive advertising and experiences. Conversely, this technology also creates new channels that can be exploited and subverted by those who wish to generate critical reflection of consumerist culture. This paper aims to highlight that consumer AR technology presents new and unique opportunities for activists interested in subversive communication.

## Keywords

Augmented Reality, Creative Disruption, Activism

## Introduction

While designers working with political and/or activist intent is by no means a new concept, in the graphic design space there has been an increasing amount of interest and discussion around where the focus and energy of practitioners should be aimed. Broadly, it has been said that the current industry has devolved to predominantly serve and maintain an “environment so saturated with commercial messages that it is changing the very way citizen-consumers speak, think, feel, respond and interact” [1]. It has been suggested that those who can should be using their abilities as cultural intermediaries to rather be challenging and exposing the inadequacies of the status quo for the greater good of our society [2–4].

One act which aims to challenge and subvert communications of the mainstream media, ‘culture jamming’, has been brought to prominence over the last twenty years by the Adbusters Media Foundation through their anti-capitalist magazine *Adbusters* and other publications [5]. Culture jamming uses the practice of ‘détournement’ propagated by the avant-garde Situationist International collaboration in the 1950s and 1960s to generate “simple acts of creative resistance that raise awareness, reframe debates, and reclaim and maintain individuals’ sovereignty” [6]. The Situationist International

were concerned that we live within a modernist representation of reality delivered through mass media known as the ‘spectacle’. The act of détournement was conceived to reveal the spectacle of everyday life through the creation of “expressions that de-familiarize the spectators so that they must take on a distanced critical reflection upon the spectacle’s underlying processes of exploitation” [7]. In the case of culture jamming, détournement has been deployed by activists through a wide variety of activities—from inserting colourful knitted objects into the urban landscape [8], to coordinated events where advertising in the public sphere is simultaneously removed and replaced with alternative messages [9].

Augmented Reality (AR) refers to “a real-world setting or set of objects” being “augmented by a computer-generated overlay” [10]. In the broader marketing, advertising and media landscape, consumer facing AR (through the use of a smart phones, tablets, or wearable devices) has been promoted as another channel to engage consumers within a heavily saturated digital environment [11]. The typical use of AR in this manner has been to create ‘hypermedia’ opportunities, where digital information and media is superimposed over traditional print based objects such as advertising, packaging, and signage [12].

This paper aims to highlight that the ability to augment information over reality offers unique opportunities to those interested in revealing the otherwise obscured spectacle. Consumer facing AR in particular should be further investigated as a tactical tool for creative subversion due to its low-cost accessibility and the low level of technical ability required to create augmentations.

## Background

### Culture Jamming

While the term culture jamming has been recently popularised by organisations like the Adbusters Media Foundation, it should be noted that the techniques of détournement and creative acts rallying against globalisation, consumerism, environmental destruction, and

patriarchal dominance had been proceeding under the banner of culture jamming before it's mainstream popularity.

Dery defines culture jammers as those whom "introduce noise into the signal as it passes from transmitter to receiver, encouraging idiosyncratic, unintended interpretations" [13]. One playful example of disruption mentioned earlier is the practice of 'Yarnbombing', which involves "stealthily attaching handmade fibre items to street fixtures or parts of the urban landscape" [8]. Culture jams can also take the form of advertising 'take-overs' — also known as 'billboard banditry' [13], and more recently, 'subvertising' [14] — where existing advertising is altered to communicate an alternative message. This form of culture jamming can be undertaken by a single activist spontaneously pasting over a sole piece of advertising—or by larger, connected groups with specific targets and objectives utilising high visibility 'camouflage' uniforms and specific keys to unlock panels and access ladders.

As mentioned, the approach of subverting public advertising space has a rich history of activities reaching back far before the term culture jamming was popularised. Notable collaborators B.U.G.A. U.P. (Billboard Utilising Graffitists Against Unhealthy Promotions) targeted cigarette advertising billboards in Sydney, Australia, from 1979 until this form of advertising was banned in 1996 [15]. At the same time in the United States, collectives such as the Guerrilla Girls and the Billboard Liberation Front were also rallying against the status quo using billboard takeovers as their means of dissemination [16,17].

### *Physical Take-Over Approaches*

A recent example of part a large, international, coordinated advertising take-over action can be found in the 2017 *Subvert the City* campaign, which managed to disrupt five hundred advertising panels across multiple continents during a week-long event. *Subvert the City* was co-ordinated and executed by numerous individuals and collectives across the globe under the umbrella of Subverters International and their manifesto, calling on activists to take back the public sphere and "imagine an alternative" where "public art and ideas replace advertising" [18]. The campaign included a variety of physical take-over approaches from crude acts of simply defacing billboards with paint to coordinated replacement of bus shelter advertising with pre-printed posters [19].

Included in the Subverters International are the group Brandilism, who have notably distributed a professionally designed and detailed *Street Ad Takeover Manual* via their website. The manual includes details on generating artwork, standard advertising print sizes, legal issues, how to create fake high visibility uniforms, and links to other activists who distribute specialised access keys [20].

The *Subvert The City* campaign was also referred to and publicised through the hashtag #SubvertTheCity. Social media has become a significant tool in enabling large scale co-ordination and publicity for culture jamming activities, especially due to the increased availability of internet access via mobile phones [21]. Lasn once proclaimed the internet as being "the most potent meme-replicating mediums ever invented", [5] but even he could not have predicted how effective social media has been at disseminating culture jamming outcomes. The recording and online publication of results creates the opportunity of the jam 'going viral'—being extensively shared online—reaching a far wider audience than those who saw the original physical intervention [6,9].

### *Using Projected Imagery*

Other activists have recognised the potential for reaching a wider audience through documentation and social media. In the case of *Emoluments Welcome* by artist Robin Bell, a 'physical' outcome was only active for a fleeting few minutes in a single location while the published video recording spread much further. In this example, Bell used a concealed projector to project anti-Trump messages such as 'PAY TRUMP BRIBES HERE', onto the façade of the Trump International Hotel in Washington DC. The projector was physically blocked within minutes by hotel security, however images and video had already been shared by the artist and onlookers before this occurred [22]. The projection enjoyed further exposure and media coverage through mainstream outlets including the BBC, CNN, New York Times, and the L.A. Times [23].

A similar intervention was staged in Brisbane, Australia, during the 2014 G20 Summit. In this instance, the artist/designer collective Dirty Work installed disguised projectors into the G20 safe zone, allowing them to project anti-G20 messages such as 'G20: CORPORATE PLUNDER' and 'G20: FESTIVAL OF FAKERY FOR PHONEY FUCKERS' on walls throughout the precinct [24]. Again, like the Brandalism example, detailed and professionally presented instructions for how to create the mobile phone activated projectors they used were later released online [25].

Using projected imagery is an interesting development in that it allows for take-overs with much larger physical canvases as both examples projecting images on buildings far bigger than billboards. Anywhere there is a suitable surface to project onto can become a potential site of intervention, unlike physical take-overs which are limited to existing advertising spaces.

### *Using Augmented Reality*

AR offers unique opportunities for culture jammers to "place their messages at specific locations anyplace on the face of

the earth and share those messages with others either physically at the site or online” [26].

While technology enabling AR has existed for some time, there has been an increasing level of hype over the last decade predicting AR to be the next ‘big thing’ in mainstream consumer technology. This hype has intensified in recent years due to the advancements in mobile device technology and mainstream success of apps such as *Pokemon Go* and Snapchat Lenses. Technology giants Google and Apple [27] share this belief and have invested heavily into consumer-facing AR hardware such as the wearable technology like Google Glass, and software like Apple’s ARKit.

In his excellent review of AR activism, Skwarek [26] outlines the few initial ventures that have taken place using this technology and the benefits of using AR as an activist tool. The advantage of AR being able to infiltrate inaccessible locations and spaces is a common characteristic of his analysis.

Skwarek’s own *protestAR* project is a prime example of this. Aligned with the 2011 *Occupy* movement, *protestAR* comprised of inserting a virtual demonstration in front of the New York Stock Exchange. During this time, this location was under restricted access with no ability for protesters to be physically in that space. Skwarek called for protesters to submit photos of themselves complete with *Occupy* placards, which he enabled to be viewed via the app using geo-location.

Another project of note is the augmentation of the British Petroleum (BP) logo in 2010, in response to the *Deepwater Horizon* oil spill in the Gulf of Mexico. Using an marker image recognition technique, this augmentation displayed a pipe spewing oil over the top of any BP. The use of an image that can be found all over the world demonstrated incredible potential for massive distribution of the intervention, as it could be replicated wherever the BP logo was found. As Skwarek notes, when using an image that is meticulously reproduced—such as a multinational organisations logo—the “majority of the work has already been done by the activist’s target” [26].

Similar to the projected outcomes outlined above, AR allows for interplay and interaction between ‘reality’ and overlaid imagery, offering an opportunity to reveal and disrupt the spectacle. A noted example of this was demonstrated within an Apple retail store in New York City.

In 2012, Apple had found itself embroiled in a high-profile media story around a spate of employee suicides at Foxconn factories. A major manufacturer of Apple products, Foxconn had caused outrage with their ‘solution’ of installing nets around their buildings to deter others doing so. In this case, those who had access to the AR app could view an image of a worker who had suicided lying on the

ground of the retail store, surrounded by unaware Apple staff and customers going about their day.

As technology in this area improves, augmented overlays will soon become indistinguishable from the ‘real life’ image underneath [28]. Early examples of the new Apple ARKit featuring augmented objects that are dynamically lit using real-time lighting conditions demonstrates that this level of sophistication may not be too far away.

## **Tactical use of Existing Consumer Facing Augmented Reality Technology**

In the spirit of the Culture Jammers ethos of tactical appropriation of available tools, the experiments outlined below have used a consumer facing, publically available AR browser. The aim of outlining these experiments is to demonstrate that creating AR take-overs is relatively straightforward and only requires a low-level of technical knowledge. The documentation also aims to detail what conditions work best, and what conditions are not favourable. All augmentations detailed have used the *Layar* AR browser.

### **The Layar Augmented Reality Browser and Layar Creator Backend**

The *Layar* AR browser app runs on both Android and iOS devices and is free to download and use. Signing up as a content creator is also free, and provides access to the *Layar Creator* web-based backend. There are several levels of membership available, of which the premium subscription version allows the user to incorporate advanced features like Geo-Layers, video with alpha channel capabilities, and HTML iframes. While the premium level of access is required to produce more sophisticated geo-located interventions like the virtual *Occupy* protest in New York City, the basic level of membership provides a respectable set of features and operates through a low cost (currently €3 for thirty days access) pay-per-augmentation basis.

While not as comprehensive as the premium model, the basic augmentation package still allows users to overlay an existing target image with an impressive array of options including images with transparency, images with basic animations, basic video, audio, and hyperlinked objects. The basic augmentations in *Layar* work via an image recognition process. When a smart phone camera detects a ‘marker’ or ‘target’ that is found in the *Layar* database, it overlays user uploaded content in the smart phone display.

### **Selecting suitable targets to augment**

As Skwarek outlines, one of the advantages of using AR is the ability to disrupt targets that would be otherwise difficult to access using physical methods. In the opening

experiments outlined below, a local shopping centre was selected due to the variety of different panels found within one location and their resistance to physical takeovers. The nature of the advertising panels was also of interest, as the highly styled enlarged images create a hostile atmosphere for consumers with, or susceptible to issues related to negative body image.



**Figure One: APPEARANCE DOES NOT EQUAL VALUE (Country Road) 2017 digital augmentation**

The first step in creating an AR take-over is documenting and preparing a suitable 'marker' of 'target' image. In a typical workflow, this would be the artwork file produced by a design or advertising agency, so when this is not available, it needs to be a good quality, unimpeded photograph of the intended target. Unless the photograph is taken at an exact perpendicular angle, it will then need to be corrected using image manipulation software (like Photoshop), and cropped to only include the target area.

The technique was successfully tested with an animation featuring the statement 'APPEARANCE DOES NOT EQUAL VALUE' augmented across a *Country Road* storefront (Figure One). In this case, a photograph was taken directly in front of the storefront and the image correction required was minimal. Once the marker image was imported into the *Layar Creator* interface, the application of the overlay can begin. For this outcome, an animated Graphics Interchange Format (GIF) file was positioned onto the storefront and the 'campaign' (as *Layar* defines it) was published and viewable to anyone with the *Layar* AR browser.

Other experiments in the same location were not as successful. A large hanging banner proved difficult due to the distance of the banner from the ground, and the angle required to view it. In this case, the browser could only successfully read the marker image from directly below. Another large window graphic could not be read due to

spotlight reflections in the glass, and a final panel could not be tested due to intervention by a curious shopping centre security guard. At this point, the security guard advised that there was no photography allowed in the centre and further breaches of this rule would result in eviction from the premises.

Due to these difficulties, outdoor locations were selected for the next round of tests.

### Using advertising distribution against itself

The first outdoor test proved a success in multiple ways. For this augmentation (Figure Two) a vacant billboard with advertising by the billboard company was used. This panel was selected due to the elevation and location within prohibited government-owned land, which would prove difficult for a standard physical takeover.



**Figure Two: IMAGES THAT YOU COMPARE YOURSELF TO ARE NOT REAL (UN SEE THIS!) 2017 digital augmentation, two locations**

An animated image including the statement 'IMAGES YOU COMPARE YOURSELF TO ARE NOT REAL' was successfully augmented across the billboard. This particular augmentation was a paraphrasing of the statement 'images of people in the media are not real' which resonated and promoted critical thought in adolescent girls according to a study on their relationships to body image and the media [29].

Several weeks later, the same advertising message was chanced upon in a different location. The augmentation was successfully projected on this second location and from an alternative angle. This discovery reinforced that, like the BP logo hack examined earlier, the augmentation and target shared a parasitic relationship — while an advertiser pays for further physical distribution, any augmentation enjoys the same dissemination for the cost of only one.

## Other considerations for successful augmentations



Figure Three: **WHAT TECHNIQUES ARE BEING USED TO ATTRACT YOUR ATTENTION? (H&M) 2017 digital augmentation**

Additional augmentations were executed to test different conditions and formats. The target image of the bus shelter selected (Figure Three) was taken during full daylight with the augmentation attempted at dusk. The AR browser did struggle to detect the marker in the different lighting conditions of the original image capture; however, a successful augmentation was finally achieved. The next morning, the location was covered in a blanket of fog, and the augmentation continued to display. 'WHAT TECHNIQUES ARE BEING USED TO ATTRACT YOUR ATTENTION?' relates to a lack of body image diversity in fashion advertising and is a statement designed to prompt viewers to critically deconstruct and evaluate the messages they see. Being aware of what you are seeing and developing a critical eye can work to reduce the influence of these kinds of images have [30]. The use of models of various ethnic backgrounds in the original advertising suggests diversity, but only perpetuates and reinforces an impossibly out-of-reach body shape ideal. This advertising is not about demonstrating diversity; it is about targeting a more diverse range of consumer.

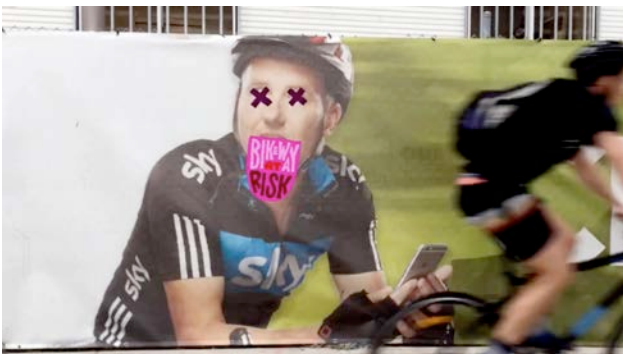


Figure Four: **BIKEWAY AT RISK 2017 digital augmentation**

Skwarek notes that the safety of the viewer is also something for the author of the augmentation to consider. This was reinforced via the augmentation shown in Figure Four. While testing, it proved difficult to stay focused on the

physical surroundings and not wander onto the adjacent bikeway and into the path of a cycle commuter while viewing the augmentation. This façade covers the construction site of the Queens Wharf development in Brisbane Queensland. In a move that has caused concern with active transport advocacy groups, the development includes plans to convert part of the most utilised bikeway in the state into a mixed-use plaza and events space. Viewing the façade through the *Layar* app, an animated tongue appears exclaiming 'BIKEWAY AT RISK'. A video recording of the augmentation was shared on social media with links on how to submit objections to the development.

## Legal considerations

While not as overt as defacing or replacing physical advertising, it must be noted that the use of the AR technology in this manner is not without legal risk. Augmenting a subversive message over a target image created by a third party will contravene multiple terms and conditions set by the employed browser. These breaches could result in actions ranging from accounts being disabled to prosecution from third party copyright holders.

As Skwarek explains, while there are no existing laws which specifically address the use of augmentations, he predicts that in the future "laws will be passed addressing image recognition and all the things it can affect" [26].

Activists using AR should make themselves aware of these risks and aim to protect their identities if this is a concern. Using Virtual Private Networks and pre-loaded credit gift cards can be employed to assist in providing some anonymity in this instance.

## Discussion

The use of AR as a tool for subversion has several key benefits.

Firstly, alternative messages can be augmented to appear wherever target images exist. Depending on what that target image is, the distribution of the augmentation could range from a single specific site (such as the bikeway augmentation), to being viewable globally (such as the BP augmentation). Importantly, the amount of effort and financial cost involved for both of these situations remains the same.

Together with projected culture jams, AR can also reach locations that would be otherwise inaccessible if approached with a traditional physical replacement strategy. As more locations become hostile to protest and activism in general, this could prove to be a valuable benefit in communicating alternative viewpoints and messages.

The interplay between the overlaid message and the target it is augmented onto creates an interesting situation where

the spectacle is both revealed and simultaneously viewable. As technology sounding AR improves and becomes indistinguishable with reality, this will become a move important intersection for culture jammers to explore.

This is not to say that augmented interventions will or should replace the more established forms of culture jamming. This paper has aimed to promote the benefits that AR can add to existing techniques.

AR also has limitations that should be considered. These include the exclusive nature of the augmentation itself, which is invisible to everyone who does not have the knowledge to point and scan with the appropriate app. A physical or projected image however, is far more public and inescapable of attention. It should be noted that the ability to simultaneously activate and document the augmentation allows for immediate distribution to a much larger audience.

Issues around safety of participants also needs to be further investigated and considered, as does legal ramifications that might affect the author of the augmentation. While the legalities of augmentations of this nature are still developing, there is no doubt that if this kind of augmentation becomes more popular, copyright holders and targets will aim to actively protect their images from augmentation in the future.

## Conclusion

In this paper, I have outlined projects using three different culture jamming techniques (physical replacement, projected imagery, and AR projected imagery) for the purpose of exploring some of their associated benefits and limitations. While still in its infancy, the practice of using AR as a tool for creative disruption is already proving to be an exciting avenue for culture jammers to incorporate in their toolkit. The AR projects I have undertaken and described have aimed to provide a roadmap for others to build on, as well as demonstrate the potential for AR to be used in new and unique ways by activists interested in subversive communication.

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## **Conference Committee**

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All submissions were thoroughly evaluated in a review and meta-review process by the Program Committee consisting of distinguished experts from around Australia. We are grateful to all our reviewers and sub-reviewers for their hard, timely, and meticulous work that provided extensive and constructive feedback to all our submissions and had a decisive contribution to the success and high quality of this event.

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