

Drawings Of

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Sixty frames per second: Using the ‘distancing’ quality of hand drawing to interrogate the logic of virtual worlds.

Contemporary videogames offer us spatial experiences within increasingly realistic worlds. They simulate cities, planets and even galaxies. While these navigable virtual spaces become ever more realistic, they often remain akin to giant stage sets – encapsulated territories possessing defined edges one is not supposed to transgress. Anyone playing a modern *first person shooter* game might marvel at the realistic depictions of a city, and despair at strategically placed barriers and *invisible walls*. But there is one group of players who regularly transgress the confines of these virtual architectures – cheaters and hackers. A widespread method of cheating is for the player to float through these edges of space, whether to gain an advantage, or simply explore beyond the fringes of the world.

While there are many community created tools to allow players to do this, many games include commands that can be activated, allowing the player to subvert the game space. *Noclip* is a cheat command that is ubiquitous to first person shooter games, and can be traced back to id Software’s 1993 game *Doom*. Once entered, the code suspends collision detection between the player’s avatar and the world around them – effectively making one a ghost. Such commands offer an entry point for what is commonly known as ‘counterplay’, playing against the rules of the game. Ethnographer Tom Apperley and media theorist Michael Dieter argue that cheats represent ‘an amplification of a disruptive force across an otherwise reiterative structure.’ American media theorist Daniel Reynolds further defines such cheat commands as *virtual world naturalism*, arguing they allow wandering exploration as ‘a form of counterplay that remakes a game, in a more free-form, exploratory way, out of its own raw materials.’

Recording such virtual spaces through a screenshot can also be a transgressive act. Screenshot artists such as *Dead End Thrill*’s Duncan Harris regularly compromise and break game worlds, overloading their computers in pursuit of the highest resolution imagery. As each screenshot is captured by the player, the represented space is mediated through the computer screen, which according to American media theorist Alexander Galloway is a key example of Flusser’s *significant surface*, that is, a ‘two dimensional plane with meaning embedded in it or delivered through it’.

In the context of this I would like to discuss an aspect of my research into the relationship between videogame space and architectural space that is predicated on the act of hand drawing. This project applies what American games theorist John Sharp has termed ‘distancing’ methods, in order to judge the artificiality of virtual game worlds. For Sharp, such work opens ‘a space for exposing the questioning the peculiar trajectory of 3D videogames toward even greater verisimilitude.’ While digital artists such as the Dutch-Belgian collective JODI or the German film maker Harun Farocki have covered similar topics in relation to virtual space, I use the hand drawing, and the act of drawing itself, as a distancing mechanism.

Such a project is impossible without playing games in order to gain first hand evidence of their architectural structure, and so this project is a double-layered form of counterplay: first reframing the virtual world by cheating (and recording screenshots) and then by transcribing its logics into a series of hand drawings. These studies were conducted across various game titles that use the same game engine software, allowing me to make comparisons between them.

My process begins by using cheat codes and taking in-game screenshots as architectural photographs, navigating game levels in a ‘ghostly’ fashion to search the fringes of their encapsulated spaces for curious phenomena. When the camera leaves spaces designed to be navigable, strange conditions emerge and the level’s proscenium is revealed, showing all the fragments, effects and boundaries that constrain the player.

Following my initial image capture procedure, I categorise screenshots in relation to the architectural properties they present, and use these as the basis for constructing inked hand drawings. By taking these screen-based images back into the ‘pre-technical image form’ of a hand drawing, I reveal tropes, strategies and ways of viewing virtual worlds through the construction of the representation. The transcription of such videogame conditions into the form of the architectural drawing requires a procedure of translation on my part, where utilising protocols such as 2-point perspective, elevation or section is a critical re-encoding of the types of spatial conditions found within the game.

I produce my drawings in a portrait frame, rather than the near-ubiquitous landscape format of digital screens which reforms the represented space under a set of equivocal, but divergent rules. The framing and defining of space through pen lines enmeshes architectural drawing protocols with the spatiality of the screenshot. If the screen’s pixel matrix ultimately reduces

a virtual scene into a set of colour values then the use of a consistent pen weights and techniques explores how drawings may have similar equalising effects.

The format of my drawings is US Tabloid size – a stock commonly used in the comic book industry to create original drawings for reduction to the modern standard comic book size. The use of this paper ‘protocol’ reinforces that my drawings could be considered either discrete pieces or part of a wider organising narrative structure like a comic.

What is in question here is the transferring – and transformation – of videogame spaces into an architectural context. The drawings I produce from this process could be read as disparate moments from a temporal experience, or a frame-by-frame distortion of an architectural space around the machinic eye of the virtual camera.

Through my counterplay within virtual game worlds I see conditions emerge such as edges of artificial skies, low-resolution phantoms and geometries lacking interiority suddenly obtaining it. These are transcribed into drawings that formalise these conditions as architectural outputs. I take the measure of these phenomena through drawing to divulge the architectural methods of transfer implicit in their spatial construction.

I will now go into detail about the process of constructing a number of these drawings, and how this explores the synthetic nature of video game spaces. These drawings represent what American media theorists Bolter and Grusin would call *remediations* of videogame space – a refashioning of an interactive, digital media into the physical artefact of the paper based architectural representation. Addressing Villem Flusser’s notion of the ‘black box’ as the invisible workings of the camera-machine, my drawings represent attempts to transcribe the inner processes of the virtual camera into a series of architectural situations. They become studies into how the virtual camera assembles space through swerving logics once it is used in a transgressive fashion.

Hall of mirrors

One of the most visually evocative phenomena of this virtual world naturalism is an effect called *hall of mirrors*. This is an idiosyncrasy caused by repeatedly rendered game space. As procedures, games are driven frame-by-frame, both in their coded structure and in the visual rate of update for the virtual camera. As such, we can find ourselves on the fringes of contained game space. Being able to ghost through walls means we can sit *within* them,

straddling a cultivated interiority and exterior hinterlands. At this point the virtual camera becomes confused as to what it should be rendering. Space seems to strobe, stretch and reflect. Repeated visual artefacts build on one side of the threshold, as if the virtual camera was having its retina burned by flashing lights.

Acting as Flusser's 'operator' I could manoeuvre my avatar into position halfway within a threshold and watch as the virtual camera automatically creates a perpetually shifting landscape of the seen and seen unseen. In this case, the architecture of the *hall of mirrors* is repetition with a progressive typological distortion. Captured through screenshots, we can see this emerging over time. The drawing then becomes a vehicle for reframing this condition. Just as the virtual camera distorts because it is continually defining pixel values within the field of the screen, so the production of the drawing becomes a progressive distortion of delineated space. Starting from the right-hand side of the camera's liminal position, I draw a sequence of progressive architectural distortions. The drawing contains nine stages of distorted architectures defined by my lateral sweep of the mouse, producing a horizontal movement in the virtual camera.

Given contemporary videogames are usually designed to run at 60 frames per second, this drawing can be read as a distorted architectural typology frozen in time, or as 0.15 seconds of a virtual camera rendering space. While the camera automatically creates technical images, working by hand I had to consider my own dexterity in being able to draw these progressive distortions. Without an underlying rough layer to the drawing, and working in pen from right to left across the page, each stage of drawn distortion becomes an unpicking of a frame as rendered by the virtual camera. It might be that at this point I am Flusser's 'black box' - an architect drawing by hand standing in for the algorithms of the game's camera.

In this case drawing is able to articulate the invisible boundaries in virtual worlds between the ontological interior and exterior of a space. To draw frame-by-frame so to speak, is to mirror the irrepressible, consecutive rendering of frames of the virtual camera. The drawing exists both as a representation of this glitch phenomena as seen by the avatar, and an attempt to draw methodologically *as* the virtual camera itself.

Dissolving space

As we reach the edge of game spaces, we not only face the rupture of geometry and represented architectures but also deviations in the behavior of virtual lighting systems – as if

our eye were a physical camera trapped between two different aperture settings. When we place ourselves halfway within the edge of a virtual architecture we place the camera into a crisis. As the game cycles through its frames, one part of our view becomes increasingly overexposed and unintelligible. The other side of the liminal edge remains resolute, continuing to uphold the carefully cultivated architectural facsimile. Once more, it becomes Flusser's black box – automatically generating visual phenomena as its carefully maintained limits are transgressed.

Exploring the fringes of a game level these lighting effects begin to cause situations where space dissolves in front of the camera. Situating the avatar on the line between the contained and uncontained space causes the envelope of a virtual building to become an invisible buffer from the dissolving landscape on its 'exterior'. The avatar's camera becomes unable to discern the constructed scene and the environment breaks down into pure illuminated brilliance. The simulation of light for visual verisimilitude betrays the camera's virtuality once removed from the cultivated limits of game space.

By drawing this boundary in elevation, the edge effectively disappears as it does in the virtual camera. The equalizing quality of the line also allows for the definition of virtual geometry and camera-borne phenomena on an equivocal level. In the end they are both constituted by colour values defined by the game engine. As part of a 'significant surface' of the screen they are as spatial as one another. We can see an architecture that behaves in two different manners either side of this invisible border. Although the drawing in this case is a snapshot, rather than a temporal reading, the protocols of architectural drawing can once more be used to elucidate spatial conditions that emerge from the black box of the virtual camera.

Skybox

The Skybox is typically a box that hangs above the using a 'cube mapped' six-sided texture to produce a constant, seamless, sky across the contained space of the game level. This allows for the suggestion of expansive spaces in the background of a scene without the need to model large amounts of backdrop geometry.

As the skybox is predicated on a normative relationship to the virtual camera, disrupting this link produces a series of effects that allow us to understand the way in which these landscapes work. Drawing is used to expose the skybox as a conditional context.

Even within older games, the skybox is often matched to modelled geometry. Large

structures are created as part navigable geometric space and part background mapped images. The screen as a matrix of pixels once again becomes the unifying surface – this time between a mapped texture of a building, and a three dimensional representation. The skybox works much like a dynamic movie matte painting, a splicing of the painterly and constructed, exposed together onto the virtual camera. If the composition of geometry and mapped image might recall Pozzo's facsimile dome at Sant'Ignazio, then the perspectival virtual camera collapses distinctions much as a photograph might enmesh the visual tricks of the faux-ceiling into the building itself. The drawing similarly enmeshes these two perspectives. Moving through the edge of a rock face exposes the skybox mapped onto a plane out of the camera's normal view. The texture appears out of context and sky becomes floor. By utilising combinations of perspective and elevation I expose architectural spaces within the drawing that emerge in the parallax gap, a continuous fringing between geometry and pure image - where the lines between the two are fluid and ever changing.

Lightboxes and (in)direction

Distant light sources and atmosphere are implied in a comparable way to the skybox. Often such light sources are presented to the player as the end of a tunnel, or an inaccessible space or opening. A geometry mapped with a light emitting material on a geometry encasing the opening is often exploited to suggest a further set of spaces beyond the confines of the contained level.

Seen through my transgressive game play, these constructed environmental conditions represent a system that appears equivocal to the directed lights and reflectors of a photography studio shoot – the light emitting surfaces are directed to filter down through space and create an architecture of suggestion through light and shadow, rather than by overtly indicating scale or context through trompe l'oeil or similar effects. Exposed through the drawing, we see these inaccessible spaces as part of a wider network of elements, an equivalent to architectural services working to uphold a suggestion of spatial scale.

Transcribed into drawn lines and missing their luminous light sources, we see the convoluted landscape of tunnels and air ducts whose utility lies in generating architectural atmosphere as a fragmentary virtual infrastructure.

Thick atmospheres and oscillating edges

Another phenomena that manifests in Source Engine games is what we might call a *thick atmosphere*, where an encroaching fog starts to desaturate and fade the scene at a certain

distance from the virtual camera. This fog primarily masks the *draw distance* of the virtual camera – the point at which it will no longer render a scene. Short draw distances see the camera abruptly stop rendering the world, so fog is often used to conceal this edge of space. Through this obfuscation it also becomes an atmospheric catalyst, subsuming geometries into a murky gloom. These thick atmospheres become a meteorological manifestation of the tightrope between computational power and experiential quality of the game space.

These effects encode memory efficiency within the realms of the atmospheric. Smoke and mirrors is not only a device for shrouding or obverting a viewpoint, but also a unique aesthetic property of many videogame environments.. As we reach the edge of the fog, a new phenomena occurs where the thick atmosphere exchanges places with that outside of the container. All that is solid in the game world becomes void, and all that is void becomes solid. As we move back towards the edges of the level, things reverse back to normality. The definition between positive and negative space can change in a moment in the game space. Once more the screen, and subsequently the drawing, encodes both the ‘physical’ and the ‘atmospheric’ together into one architectural language. To draw this exchange as a pen drawing is to encode this spatial swap into a permanent condition, where both the thick atmosphere of fog, and the modeled geometry of the game world are both read as architectural equivalents.

Noclip World

Ultimately as I explore video game worlds through this manner, I come to understand how to affect certain behaviours in the camera. Through placing this machinic eye at a certain position within a game, I can encourage certain spatial phenomena to appear. This wandering counterplay frames the player as an explorer, Daniel Reynolds’ ‘naturalist’ who can rebuild the protocols of virtual space through its composite parts. The act of drawing allows me to transcribe and record these conditions, and frame them by ‘distancing’ them from their original media form. These representations become snapshots of a moment in time that suggests a temporal event, taking place either side of the static image. Drawing becomes the tool to expose glitches in virtual videogame environments, and reveal the contingency that underpins even the most realistic digital depictions of space.