Construction, Projection, Distraction:
Contexts and Technics of the First-Person Video Game

by

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I. Images of the City

Video games are built not just from bits and bytes but from rhetoric. Eerie chimerical contraptions compiling various file types, labors, illusions and agendas, to occupy one's world is to occupy a limbo between seductive persuasion and a radical, ever-abiding skepticism. *3D* game worlds are especially entrancing, using the power of the computer to enfold a rich lineage of imaging techniques and their attendant experiential intentions, from Quattrocento perspective to Cubist tessellation, particle systems and material shaders to trompe l'oeil and, well, video. Graphical histories, industrial histories, political histories, histories of architecture, of recreation and of exposition: video games house all of these, and these contexts constitute the tectonics of that house. Wielding them, I hope to explode the first-person 3D video game, and determine a path to proceed thereafter through its ruins of polygonal plywood.

The conceit through which I plan to funnel these notions is that of video game as Potemkin village. *Potemkin village*, a term for any flimsy, propagandistic decoy construction, takes its name from Grigory Potemkin, 18th century governor of New Russia and favorite of Catherine the Great. As the (somewhat apocryphal) story goes, after the Russo-Turkish War of 1768-1774 and the subsequent annexation of Crimea into the Russian Empire, Catherine II embarked on a trip along the Dnieper River to inspect the newly acquired territories, the whole affair organized by her triumphant lover General Potemkin. Supposedly, Potemkin would keep one step ahead of Catherine as she made her way down the river, erecting and then dismantling phony portable settlements at each stop ahead of her arrival. The truth is more likely (especially given his and her intimacy) that his installations were simply embellishments intended to advertise future splendor (King 37-42). This fact does little to nullify my analogy, for promise and deferral are just as entrenched in the rhetoric of video games as is outright deceit.

In brief, my project is to be a real-time first-person video game developed in the 3D engine Unity. In it, players adopt the role of a bureaucrat who has graduated from military service and now finds himself more or less reenacting the Potemkin myth: keeping one step ahead of an official inspector as she makes her way down the river and through the canals of the town(s), applying surfaces to the facades of buildings or else installing altogether

phony/superficial set pieces (and perhaps even obscuring/erasing/dismantling/demolishing "eyesores"). This bumbling official would like to implement actual livable infrastructure, but finds himself compromised at every turn by limited time, resources, and the cold, vector-based evaluations of the inspector AI to whom he must defer—heuristics and kludges shall make up the majority of his practice. It hardly helps that this tourist turned tour guide has the job of an urban planner but the interface—through a sort of storybook concretizing abstraction—of a footsoldier-flâneur. This embodied first-person perspective makes it difficult to get an overview of the entire situation, but also allows for the player to predict and approximate the viewpoints that the inspector might adopt—all that matters is what she happens to see. Visual mnemonics—through memorization and photography—are to feature in the gameplay, as will sensory distraction, both the inspector's and the player's. In this last regard I call to mind Wallace Stevens' "Metaphors of a Magnifico," wherein the speaker's philosophical calculations end up sabotaged by aesthetic seduction. To help achieve this and other effects, the visual style of the game is to be *photographic*, like a cross between *Half-Life 2* and the early color plates of Sergey Prokudin-Gorsky, employing prefabricated assets (props, textures, etc.) to reflect 3D games' composite, industrial provenance, as well as Unity's high-level 'assembly station' status (Yang 2015). Even with this outside diffusion of labor, the project will, come showtime, remain unfinished: a proof of concept, an alpha build, setting the stage for future development…

I find the Potemkin village useful not just as a metaphor for how video games say and do (or don't do), but also as a hub of historical and aesthetic connections. The term is frequently associated with the hypocrisies of Modernism, thus providing a bridge of sorts into the paranoia of, God help us, Postmodernism (for "in postmodernity ideology is a decoy") (Galloway 106)—and it is the Potemkin myth that, in High Modernist style (think *Ulysses*), will act as organizing scheme. Modern art, the cinema, the factory, the amusement park, the arms race—the venues generated under Modernism's hubris are here refracted through the prism of Postmodern digital media. Indeed, this project intends to wear Postmodernism on its sleeve, remixing the aesthetics of Modernism as such into a deliberately skeuomorphic pastiche. And at the heart of this metaphor is the tension between a building and its walls.

Our first order of business, then, is to briefly summarize the function of perspective and its relation to architecture. A sophisticated class of 2D projection developed in Quattrocento Italy, perspective was inspired by contemporary optics and neo-Pythagorean mathematics, and likely gained prominence as a method of pictorial organization during the Renaissance due to its humanistic centralizing of individual empirical vision, the "idea of reproducing an instantaneous [eye-witness] view." Another key feature of perspective is its persuasiveness in "the representation of objects delimited by lines and planes, such as architectural elements" (Andersen 3). The frescoes and murals in which perspective took root bore a significant relationship to the walls on which they were painted, and the buildings which those walls together constituted. The skeuomorphism of depicted architecture renders it ornamental (i.e. rhythmic), and also *projects* said depictions onto the future as situated "billboards" for speculative building ideas, ideas unhindered by present technical or budgetary constraints (Zimmerman 33). So here at the origins of perspective we find some very relevant themes: the dialectic between 3D building and 2D image, the preference for planes and lines, the notion of architectural advertisement, and the graphical formulation of naturalistic visual testimony.

Perspective would come to dominate Western pictures for another few hundred years, but its grasp began to loosen in the opening decades of the 20th century, a time when the rendering of a subject, and not just the subject itself, undertook to address the hectic mechanization and fragmentation of modernity. Cubism in many ways was the flagship of this modern art: a violent renewal of vision staged through primitivization both in the sense of an infusion of influence from "primitive" cultures, and through the reduction of objects into interchangeable geometric primitives (Rose 56). Though Cubism maintains or even amplifies the analytic tradition of planar construction, it swaps out the illusion of depth for the sensation (derived from Impressionism's unstable ocular indices) of simultaneous, overlapping points of view. Though it eventually made use of distinctly modern materials such as newspaper, and was applied to surfaces beyond the easel via, for example, dazzle camouflage, Cubism was mostly a reconfiguration of hierarchies within an established technological tradition. An entirely new form, however, was emerging alongside it: cinema.

Cinema (and especially montage), with its mobility, continuity, ellipsis, and splicing, bears a number of similarities to the methods which define Cubism, especially the thoroughly modern gesture of the cut (Rose 113). Besides simply sharing the notion of a liberated viewpoint, the two arts lift out from that mediated new vision a "[conception] of the apparatus and the body as one" (Rose 56). This is significant: it represents cinema's ultimate fusion of 19th century science and magic, and the kernel of its contribution to the spectacle tradition. The surprise of early cinema was not so much a confusion of the real with the represented (for example a train speeding toward the viewer) as a marvelling at the mystery of the extremely convincing filmic device—it has even been posited that the movies and other modern entertainments constitute an attempt to regulate/sublimate technological shock and awe (Darley 175). Still, the cinema delivered surrogate experiences of an unprecedented viscerality. Travelogues, chases, and the "Phantom Ride" were genres well-suited to demonstrating this transportive felicity—the vehicle merged with the body, the camera with the eye (Rose 27).

In his essay "Origins of the First-Person Shooter," Alexander Galloway traces the POV and subjective shot from filmic flirtation to digital paradigm. POV shots, Galloway explains, are more common than outright subjective shots; they maintain the aloofness of the disembodied camera while approximating the sort of eye-dentification needed for collecting visible evidence à la *Rear Window*—Hitchcock's propensity for voyeurism and vertigo made good use of the technique (Galloway 42). The rarer *subjective* shot on the other hand is characterized by difficult, robotic/prosthetic, and/or predatory vision. Whether it's the night vision goggles that Buffalo Bill dons in *The Silence of the Lambs* or the Terminator's cybernetic targeting reticles, "The first-person subjective perspective must be instigated by a character who is already mediated through some sort of informatic artifice" (Galloway 56). Thus, the experience of inhabiting the first-person viewpoint of an in-game avatar always carries with it a flavor of stalking, scanning, and tagging, of an uncanny, paranoic empathy—looking and targeting are one and the same (Işığan).

Meanwhile, 3D video games' introduction of dynamic analog camera control divorced the representation of space from the corroboration of discrete, predetermined viewpoints. Unable for the most part to exploit montage's ellipsis, 3D game "sets" must be constructed to

accommodate many degrees of continuous sight and movement (Galloway 64). This is not to say, however, that video game environments are 'complete' somehow, or even particularly honest. Their walls, like Tinseltown's, are paper thin. Video games make use of all sorts of cinematic tricks, to work around labor and resolution limitations, to fluff up their evocativeness, and to shepherd players past friction or estrangement. There are in fact a number of interesting correspondences between the conventions and nomenclatures of cinema and video games, as well as more broadly between those of cinema, photography, architecture, computer graphics, and 3D game development engines.

Let's break down Unity. The center of Unity's default GUI layout is a Scene view that can be switched between orthographic and perspective viewing modes. The name is hardly arbitrary: the Scene represents the current game level, the stage, with all the lights, cameras, props, sets, characters, etc. that have been added to it. The adjacent Game view tab corresponds to the strict mise en scène of what appears before the in-scene camera. In a first-person game, then, this view is what the player-character sees; the camera is placed inside their head. Most Unity work involves dragging and dropping prefabs into the scene, then editing their properties, positions, or scripts. Properties include collision boundaries, materials, and physics enablers. Scripts are modules of code that allow for behaviors such as navigating and pathfinding, reacting to triggers, dynamically modifying object values, etc. Unity, as its name suggests, attempts to incorporate almost every aspect of a three-dimensional video game that a designer might wish to include. Besides lighting, physics, and level geometry, some other 3D game considerations include UI (such as menus and heads-up displays), sound effects, music, textures (often photographs mapped onto polygon meshes), animation (keyframe, motion capture, procedural/parametric), cutscenes, AI, networking, particles, skyboxes, etc. etc. Computer games are *works*, *gesamtkunstwerk* suites that incorporate and *do* many kinds of work (McAllister vii). According to designer and composer David Kanaga, they are operas, and according to Frank Lantz, director of the NYU Game Center, they are operas made of bridges (i.e. art suites underpinned by engineering). As daunting as such a composition sounds, Unity aspires to make the undertaking accessible to the hundred person studio and the enterprising soloist.

Robert Yang, a colleague of Frank Lantz at the Game Center and an independent Unity developer, is a major star in this project's constellation of influences. He started his career as a modder, working with *Counter-Strike* and then Source: his *Radiator* compilation was an arthouse *Half-Life 2* mod contemporary with early "walking simulators" like *Dear Esther* and *The Stanley Parable*. The majority of his work now co-opts the "realistic" look of double and triple-A products (at a fraction of the scale) in order to model male homosexual desire and the way that this *verboten* looking intersects with surveillance. I find this approach inspiring: where many games in the "independant style" depict lo-fi, hand-worked imagery to signal a certain kind of authenticity, this project is attempting to emulate a style that once represented peak industrial verisimilitude, but now feels a bit more like 3D game tech's 'vanilla' (Juul).

Indeed, *Half-Life 2* has been positively raided over the years: it was enormously impactful on shooter methodology, on gaming as white knuckle cinema, and on all sorts of technologies from facial animation to physics. Though the game itself is exceedingly linear, the package of assets, tools, and ideas it introduced—and demonstrated in a campaign that's as much tech demo as self-justified story—has become a veritable playground, a toy-text whose ideological agnosticism (its main theme seems to be the romanticization of rogue science) makes it all the more open to active reworking and interpretation. One of its most popular remixes is the sandbox prop chest *Garry*'s *Mod*, which uses the base game's sophisticated Havok physics for open-ended experimentation rather than puzzle solving or combat. As a primary source—almost an existential fact—for so many first-person games since, big and small, *Half-Life 2* makes an excellent case study for the constructive methods, heuristics, and "quotidian rhetorics" (McAllister 86) (not to mention aesthetic and narrative themes/continuities) I'd like to draw out.

Yang has provided level design commentary in an insightful series called Level With Me, Half-Life 2. He uses developer debug cheats like noclip (letting one fly around freely and pass through walls) to better facilitate his deconstruction, pausing as NPCs goad him on to explain why this handle makes no sense on that door, or what such and such chair says about the tenement dweller sitting in it. While his explanations for Valve's every decision are fascinating—wayfinding cues, light temperatures, texture rhythms, semiotics, dramaturgies—it's the aforementioned heuristics, the tectonic conventions and hacks, that are most relevant to my

investigation. As soon as Yang steps off the train in the first level, Point Insertion, he's greeted by one such trick. A large video monitor (created out of a stack of slightly offset semi-transparent screens) displays a broadcast speech from the city's Administrator, Dr. Wallace Breen (AKA a "Breencast"). Yang pilots the camera up out of the train station and over to what he dubs a miniature "film studio" where Dr. Breen's upper half continues to welcome new arrivals to City 17. Actually rendering video in-game, Yang explains, would have been too performance-intensive, so Valve built a room the player normally never accesses in which Breen can be recorded and streamed elsewhere in real-time. A similar remote projection is seen when the player steps out from the train station into the plaza. Beyond the *Terminal Hotel*s and *Cafe Baltic*s immediately surrounding the pedestrian square are clusters of less detailed buildings making up a cityscape stretching out to the Citadel. Yang, again using noclip, reveals that this cityscape is a scaled-up projection of a miniature model in some obscure corner of the map. I feel the need to emphasize how affecting these extra-diegetic reveals are: when I say "map," picture a colorless void yawning below an aching, overcast, electrum autumn sky.

Concerning the plaza itself, Yang notes how today this area would have more NPCs, more litter, a stall here, more *clutter*. The sparseness of the square, though, is something he finds poetic: it shows using negative space the city's suffocation, its lack of life. Sleight of hand abounds: roofs of buildings will simply be left off, canal walls will receive the same concrete texture ad nauseum. It doesn't really matter though, because the player will be speeding briskly by those canal walls in their airboat. As Yang says, "You don't need to guitar solo every radioactive sewer you make." Here he draws a distinction between portfolio screenshot showmanship and actual player experience. Rather than pump every room full of gratuitous, disorienting detail, *Half-Life 2* uses effective level design to whisper of a wider world: an underground facility's numerous impassable locked doors, hints of high rise and smokestack over the walls of the canal, newspaper clippings mumbling fragments of an unsettling backstory (Yang 2017). The development of *Half-Life 2* is unusually well documented and oddly engrossing. There was a beta that leaked in 2003, a lot of content that was cut, and the look of the game brightened rather dramatically from Viktor Antonov's original gloomy concept art. It's surprising that *Half-Life 2* is as sound and complete-feeling as it is considering its protracted

gestation. Even so, it feels haunted by what's not there, by all those rejected or deferred possibilities. They make its world feel more real but also less natural, more *constructed*. A similar haunting takes place in *Shadow of the Colossus*, that land's sterile emptiness suggesting a gutted ghost town. I don't even think *Half-Life 2* is completely unaware that this negative space is where its soul resides. Viktor Antonov, art director and designer of City 17, explains his impulse thus:

> I grew up in a place, which is Sofia, Bulgaria, and this was in the 70s. In this place, time was frozen at 1945, when communism started. So the city was very empty. So kids could go in the street and play and explore abandoned construction sites, go on the roofs, go on the streets. So, you've heard that term urban-exploration? I've been doing that since I was very, very young… the architecture experience comes from my love for the infrastructure of the city, and also how things are constructed, what's inside buildings, and what's inside cities. Everything from the smokestacks, to courtyards, to sewers, and the dangerous places, like the sewers and rooftops. I was always fascinated by the infrastructure and the scale of what the city represents… I'm very, very interested in what a city is made of, and what's behind the facades and the surfaces.

This "urban-exploration" idea was taken to heart in the level design, the player always feeling like a fugitive scurrying through the city's infrastructure, improvising their own route. The speed and desperation necessary for this role-play comes from, essentially, chase sequence after chase sequence (much as the player in my project would be "chased" by the inspector). It's a very clever approach to the linear corridor shooter, and much of the poetry to be found in *Half-Life 2* is how it stretches, prods, and makes eerily affective the Source engine's inherent orthogonality, its inclination toward boxy concrete.

Antonov chose the right medium through which to sublimate his nostalgia for empty Eastern Bloc cities. Constructivism ties the two together in a curiously sympathetic way. Much of the aesthetic basis for Constructivism evolved from Suprematism, which itself could be seen as a return to the austere, abstract, doctrinal flatness of the Orthodox Russian icon. It was a

reaction to the bourgeois secularization of Russia under Catherine the Great, a purging of the West's sensual illusionism which corrupted the Eastern tradition's direct, hypnotic insight (Spira). A distinction has been drawn between these traditions positing that linear perspective opens the gaze out through its gridded Cartesian window into an observed and rationalised virtual world, while with reverse perspective (as featured in Orthodox art) "the goal of representation is not simply to give the spectator access to the virtual world, but also to give the virtual world access to the spectator" (Işığan). Reverse perspective "[does] not pretend to be coterminous with the space of this world" and thus "[does] not compete with life" (Spira 71). The artwork is its own subject, shooting a ray of vision back into the eyes of its beholder—an "inverse raytracing" if you will (Işığan). Rayism was a cousin of Suprematism which took as its whole MO the revelation of the world through such ray-castings and emanations (Spira 61). 3D games, operating in vector space, have a distinct opportunity to interrogate the meaning of the vector or ray in representation. The other notion that the Russian avant-garde took from icons is of a functional, objective art, an art that enhances life as it is lived rather than flattering the tastes of an elite clientele with pretentious fetishisms. Here, obviously, is an idea antithetical to most contemporary game design: first-person shooters especially are by and large consumable escapist power fantasies. But then again, much of de facto Soviet Constructivism was ultimately just for show: visitors of "modern" buildings in the Soviet Union complained that "only the superficials [were] modern, for the plumbing, heating, etc. [were] very crude and cheap" (*Building the Revolution* 17). This architectural superficiality calls to mind the *iconostasis*, the wall hung with icons in an Eastern Orthodox church separating the nave from the sanctuary. Such front-endedness is not limited to Modernist buildings, either. The preservation and replication of historical facades that became popular around the 1970s, after urban developers cooled on the wanton destruction of old buildings, has lead to a veritable Postmodern *facadism* arguably "creating townscapes which are little more than stage sets" (Richards 1).

Modernism and especially Constructivism were very much inspired by the template of the factory (Zimmerman 8), leading to factory-like architecture and art that celebrated its own industrial manufacture (*Building the Revolution* 26). There was an early area in *Half-Life 2* called the Combine Factories which was later folded into the game's final level, the Citadel.

When the player enters the guts of this towering enemy stronghold, they're taken for an on-rails ride through what is essentially an enormous, spectacular depot. Shockingly redundant multiples of Gunship and Strider hang from the high metal walls or parade in grim single file through the cold, meager light below. The Citadel is loaded. It "foregrounds the underlying interface metaphors and logics of control that structure the game" and speaks to a history of sites which have demoed the incredible prowess of industrial technology while averting our eyes from the present toward a transcendent, mechanized future (Boluk and LeMieux 81).

The most relevant examples of such venues are those that fuse architecture, cutting-edge technology, and recreation. The Moore's Law-abiding dash to constantly improve and compete on graphical resolutions parallels the Cold War era arms race against which spaces like the 1964 World's Fair and Disney's theme parks force their smiles (McAllister 20). Here are to be found myriad familiar tricks, from just-so forced perspective to pretty, prim surfaces adorning ersatz materials (Dunlop 37). Indeed, Disneyland and Walt Disney World, by fusing nostalgic, narrative vernacular style with a Modernist faith in the future, can be said to represent some of the first and most influential forays into truly Postmodern architecture. And if Valve's Gravity Gun represents a way to turn laypeople on to science through entertainment, so do many of Walt Disney's ideas, none more so than Epcot, an unrealized city of the future and a more or less perpetually hypothetical urban laboratory (Dunlop 55). Roller coasters (on-rails vehicular vertigo), eclectic themed sub-locations (similar to the haunted house suburb of Ravenholm in *HL2*), the Reedy Creek Improvement District (Walt Disney World's corporate municipality), the raft on the mythical ur-river which flows through Disneyland, "the royal hunting parks of Europe, the first grand playgrounds, where space was lavishly squandered in sport and pleasure" (video games collapsing that real space into code and fictionalizing the violence)—the relevant notions worth acknowledging extend beyond the scope of this paper, but in any case I feel it relevant to establish this game/park correspondence (Dunlop 44).

I feel I must be vigilant of the Disneyesque, and the traps that engineered amusement can lay. In this regard there are a number of extant video games to draw influence from. Certain games from and about the East brandish sensibilities that could seem hostile to the flattering commercialism of much of the Western mainstream. Works like *S.T.A.L.K.E.R.*, *Vangers*, and

the nightmarish, resolutely Russian CRPG *Pathologic* have a peculiar earnestness and severity to them: their stakes feel frighteningly high, their worlds metaphysically resonant. *Pathologic*, for example, is a game about disease whose central steppe town is a map of the body, which is itself seen as a map of the universe. Limited time, limited resources, limited information, the health and fate of a town whose artificiality is acknowledged upfront and yet whose reality is staunchly defended… *Pathologic* provides a lot for me to draw from.

Obscurity and difficulty characterise these experiences, which may be contingent on their native platform, the PC. Unlike the toy and cartoon aspirations of Nintendo's portfolio, these softwares are decidedly adult. Many of them employ a horror aesthetic as a way to make acceptable their transgressions, which include—to varying degrees—methods of Brechtian estrangement. Even *Half-Life 2* partakes in this, if somewhat noncommittally. It features an enigmatic, uncannily robotic bureaucrat called the G-Man who seems to stalk your every move, insinuating as he plucks you out of the cathartic climax your ultimate bondage to the game master(s). Part human, part machine, he makes an inspiring example for my own official inspector.

The possibilities of being observed as a consequential game feature are mined profoundly in Chris Hecker's *SpyParty*, an asymmetrical two-player "reverse Turing test" in which the sniper player attempts to determine which member of a cocktail party is the human-controlled spy (the other partygoers being handled by AI). My concept and Hecker's are both based on human-computer empathy, but where *SpyParty*'s take on stealth gaming lies in managing subtle behavioral tells to trick a human into believing that you're a computer, my project uses the vocabularies of first-person shooting, sandbox/building (e.g. *Minecraft*, *Garry's Mod*) and perspective puzzle (or "anamorphic," e.g. *Perspective*, *The Witness*, *Portal*, *Museum of Simulation Technology*) games to challenge players to deceive the computer itself (Boluk and LeMieux 18). The core of the game is a microcosmic and partially anachronistic arrangement of attention economies and computer visions—facial recognition rendered as *facade* recognition.

I find it important, for a work predicated on dynamics of information and exposition, to be thorough in compiling, connecting, and annotating these references. The project I intend to develop is a means of contextualizing my New Media education and working through the

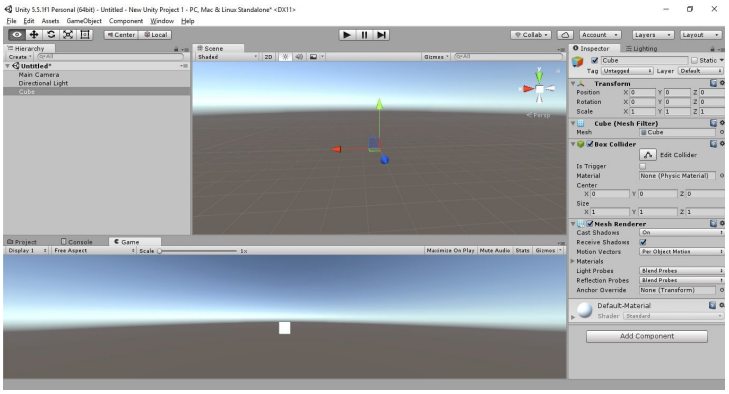
problematics of graphical representation, mediated vision, genre rhetorics, virtual tectonics, surfaces versus structures, entertainment as propaganda, telepresence as "conspiracy" (Boluk and LeMieux 130), and video game as existential crisis. I do hope the game itself will be fun to play, but to get to a realization of ludic pleasure that works for me, I feel I must reckon with and unload (or rather pick up) this baggage. This may all sound rather grandiose, but to me the Senior showcase is a challenge: get your shit together and prepare to be appraised. Hopefully those who play my game will be able to relish some of that experience along with me.

Fireworks on the Dnieper River

Sergey Prokudin-Gorsky documenting the Pre-Revolution empire

A fresco by Fra Angelico

Phantom Ride on the Furness Railway (1901)



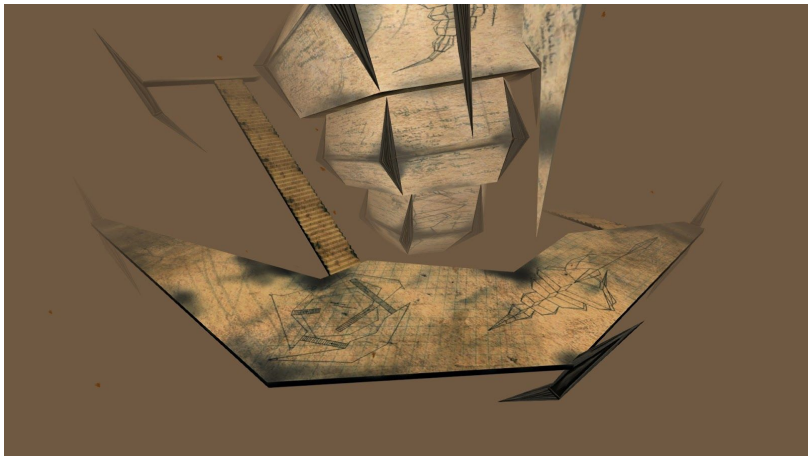
A basic look at Unity's GUI

Radiator (2009)

An early level cut from Half-Life 2

Unused Half-Life 2 canal

Garry's Mod (plus Minecraft blocks)



Pathologic's Polyhedron, an impossible structure made of its own blueprints

The enigmatic G-Man looks on

SpyParty

's-Gravenzande in the Netherlands shot by Bart van Damme

Sign texture from Half-Life 2

Water Front installed in the Passage Gallery at SUNY Purchase

II. Building the Proposal

The principal impulse on which I pursued this project was to take a stab at a first-person building game, seeing how that format could poetically reflect its own facture. I wasn't exactly cooking up gameplay ideas in this early gestation period, more just riding a vibe, so to speak. In fact one notion I entertained was to take a building/survival game and empty it out into essentially a "walking sim," a mechanically emaciated mood piece in which the player finds themself pondering a world of inert and alien signs: the signs left behind by infrastructure. Indeed, infrastructure was a topic with which I was particularly fixated, drawn in by its poignant suburban image, its unfathomable esotericism, its backgrounded and almost magical mingling of artifice with nature, vehicle with environment.

I read Auden's early poems about Easter, engines, wires, and water, looked at the World War I painter Paul Nash's ruined auroral dreamscapes, the factory yards and canals of Precisionists like Charles Sheeler, the industry-haunted landscape photographs of Bart van Damme. I started to curate a moodboard/repository of these references on Are.na, which I've continued to append since. Infographics for water treatment facilities, screenshots from *Garry's Mod*, Atlantic Wall casemates, Mod fashion, tarpaulin, Junya Watanabe's inside-out workwear… There was some sort of web there, some resonance, a correspondence, but it was vague. A number of items bore a World War I vintage or thereabouts, yet there was also a smattering of late Soviet sensibility, and even nods toward a sort of near-future, algae-eating "solarpunk." I recalled a dream I'd once had about puttering around a house doing chores at dawn, and then an idea more or less came together. It's set in an indeterminate age, after a devastating war. The land is healing. It's Spring. Your home base resides in some industrial-suburban limbo: empty lots, mortar ponds, smokestacks, hedges, culverts. At night, the dead emerge from the soil and undo every enterprise. But the game only lasts through the tranquility of morning, the aubade of upkeep, household maintenance, making breakfast—person-scaled daily tasks as synecdoches of corporate or national industry, the first-person body interfacing with infrastructure in miniature.

Though I would like to realize that delicate daydream of a base-building "survival" game, it is not the idea I ended up going with for my senior project. At a certain point while gathering

materials for the Are.na channel, I came across the Wikipedia page for "Potemkin village." Immediately I recognized the potential for a tense, interesting game scenario. I had already been intrigued by "stranger comes to town" stories, stories like Gogol's *Government Inspector*, where the stranger's arrival prompts a collective scramble to make the town presentable, to self-curate, embellish, brush under the rug, to enact imperfect and hysterically slapdash programs of civic hygiene. In my poem "Hmm," I mention the outskirts of Brain City, a "coral favela." The mind, in other words, as a slum, lush and labyrinthine, creaky and cumulative, littered with *projects* unfinished or abandoned… Before I was even thinking about building games or any sort of genre to tackle, the prospect of a capstone exhibition brought to mind these notions of debut, exposure, presentation, curation and self-consciousness, the painful turning out of private into public, or provincial into cosmopolitan, and what then secures investment, and what gets flushed away. Learning the term *Potemkin village* was the key to bridging these ideas. I didn't immediately switch tracks from the first base-at-dawn concept though. It was only after I really started digging in to the Potemkin village premise and uncovered its salient features that the one vibey impression of a game split into two distinct ideas.

From the original Potemkin story I took the river, the barge, the inspection tour, the chase (so to speak), the favored official, and the preponderance of trompe l'oeil. The river (and canals) suggested itself as a predetermined, predictable path for the inspector to follow, allowing the player to anticipate her position and manipulate the appearance of the town accordingly. I wasn't sure if the inspector was to be an NPC or another human player at this point, but I was toying with the idea of putting a camera in her head and outputting her view to a second display. For a minute there I even considered having that display be a VR headset!

I then had to think about how the inspector would participate in seeing and appraising, and likewise being deceived. Being controlled by a human would introduce all sorts of unwieldy psychological/behavioral variables but could also allow for a rich field of yomi. Would she be presented with a mix of real and fake buildings? What would her incentives be for looking here rather than there at a given moment? And wouldn't she be in on the ruse? Always suspicious? I realized I couldn't lift the observation/deception dynamic from *SpyParty*'s sniper mode wholesale, but I knew there were still useful aspects to study and adapt. For example, the spy, in

most games of *SpyParty*, must complete so many missions from a list *n*-long, say three of five. The sniper knows all of the missions on that list, but not which three the spy will attempt to satisfy. If the inspector in my game were controlled by an AI, she could start each level with a different loadout of criteria, a rubric against which to compare the scene(s) presented to her, which could be themed as, say, regime-based changes in state-sanctioned style, and of which the player-controlled urbanist might be partially in the dark. This would leave the player to do some on-the-spot guesswork, making trade-offs based on what they think the inspector is currently on the lookout for. Which would establish a sort of yomi not between two human minds but between a human mind and an artificial "intelligence." All sorts of wrinkles and layers of sophistication suggest themselves as elaboration upon this premise. Would there be some sort of attention coefficient determined by factors like how long an object has been in the inspector's field of view, how far away it is, its resolution? What if the player could somehow seed or calibrate the inspector's expectations? And what about pattern recognition, which has become such a crucial part of modern AI? Could the player encode information within the building-embellishments they sequence? "Melds" conveying sector-specificity? Love messages? Other images? Further distractions? Obviously computer vision is essentially bottomless, but there's probably some simulative sweet spot somewhere that would translate into a satisfying, just barely manageable ludic scheme.

More urgent (but at the same time more trivial) was figuring out with what verbs the player would be equipped. Photographing, painting, pasting, adhering, welding, measuring, erecting, extruding, occluding, demolishing, cleaning, projecting, lighting, chroma keying, stenciling, sourcing, duplicating, setting off fireworks… Many of the possibilities suggested by the theme seemed like they could be fun and tactile, especially recalling the precedent of first-person non-shooters like *Viscera Cleanup Detail*. I began to picture mines and forests and muddy riverbanks, dockyards and scrapyards, town maps scattered with material deposits—and of course, things to build using those materials. Perhaps the player could spit out a facade, costing little or no material, then extrude it using their gathered reserves of brick or wood or what have you. And perhaps these extrusions could be codified as replicable structure *types*,

speeding along future urban development and dotting the landscape with repetitive forms like Michel Gondry's video for "Star Guitar."

Things were starting to get a little complicated at this point. I needed to consolidate, pare this stuff down to an essential mechanic. I consulted a friend with whom I'd worked for about a year on a 2D horror shooter. He urged me to fold my verbs into one intuitive tool, and after my conversation with him I realized not only would that be basically feasible but that this tool could be so elegant and so obvious as to restructure my whole conception of the project around it. A "gun" of sorts which copies and pastes textures from and onto surfaces within the 3D environment—right click to copy, left click to paste. *Yep, that's it*, I thought. *No going back from here*. The latent, sizzling friction between photography and architecture, 2D and 3D, instantly, effortlessly brought to the fore.

Well, it wasn't completely effortless. Before I even got around to banging my head against the wall trying to code the game's central mechanic, I spent a week or two banging my head against the hardest, most unyielding wall of all: postmodern nihilism. After finishing the research section of this paper, I fell into a mild despair. If the player is supposed to be pulling the wool over the inspector's eyes as to the health and robustness of a town, what is their ultimate goal? Merely to proceed to the next checkpoint? To secure, by so doing, resources which could actually improve conditions further down the line? And what would that even mean within this virtual diorama? Purely aesthetic signifiers? NPCs with different lines of dialogue? Fully modeled ecosystems expressing the processes of business, gentrification, etc. etc.? I worried that the project was heading into a cynical, depressing cul de sac of snide, self-loathing pessimism. And to be honest, I'm still not entirely sure how to genuinely work through the problems presented by this premise. Rather than despairing though, I can take it as an illuminating challenge—a real chance to test video games' ability to grapple with the big questions. One idea that helped me pull through the gloom was to amplify the romantic element in the story of the inspector and her favored official. After all, it's there in the original history, and wouldn't it be interesting to conduct a love affair with an AI? *Pathologic* is able to operate in good faith because the player is motivated by the acquisition of knowledge more than anything. It's a mystery, and a deep one: what is the cause of the horrible Sand Plague? Is science or magic more

capable of addressing it? Can death even be properly fought? Can it be understood? If my game is fundamentally grounded in a sort of human-machine empathy, getting to know the primary NPC antagonist could be a powerful motivator. I felt my spirits lifting imagining putting the inspector up in a hotel at the end of every level, having those intimate nighttime sequences be the only ones that take place indoors.

Still, that kind of thing—a romance subplot/minigame—is a stretch goal. It was time to actually start getting my hands dirty. I watched some Unity tutorials covering the basics of the editor, things like the Inspector(!) tab, public variables, physics enabling object components, etc. Once I felt comfortable navigating the GUI, I staged a very basic scene within which to test the gameplay fundamentals: just a skybox, a directional light, a floor plane, a few tall boxes, a wall plane, and a first-person controller. I slapped a few random materials—plaster, checkerboard, digital camo—on the primitive "buildings," then tried to figure out how to retrieve each material by aiming and shooting. Though it took a while to get the reference paths right, I was eventually able to use a raycast to hit an object, get that object's renderer, and from there identify the "main" texture and store it as a variable. The paste function followed pretty easily, once again raycasting an object and then assigning the texture variable as its "main" texture. Getting this bit to work was thrilling and affirming, but I realized it only allowed for one material per object, whereas I wanted each face to be able to wear a different image. I didn't get to solving that problem until maybe a month and a half, two months later, but in the meantime I attempted to address some other features.

For the inspector, I looked at stealth game tutorials, specifically lifting code for field of view and line of sight. I imported a stock T-posed character model, outfitted her with that script, then went about creating a path for her to follow and another script to allow her to follow it. Unfortunately, that's about as far as I got with her. I was planning on giving her some sort of rudimentary attention, head turn, and appraisal behavior, but that could have taken as long if not longer than everything else combined.

I moved onto something that ended up becoming more important to the show build than I had anticipated: the flat panels. For them, I created a quad (basically a small one-sided plane), backed it with a duplicate, made that a prefab, then added a function to the FPS controller that

allows the player to instantiate one of them at a raycast-determined distance on the ground. At first I had their instantiation triggered by clicking the mouse wheel, but I thought there should be a simple way to vary their size, so the first order of business there was creating a "quad mode" boolean, toggled with the spacebar, that could provide alternate functionality for the left and right mouse buttons. I considered having the right mouse button vary the dimensions of the panel in an analogue way, either through some sort of click and drag method or in conjunction with the wheel, but after glimpsing again at my to-do list I figured cycling between a few discrete sizes would be significantly easier.

Of course, alternate "fire" modes and multiple-item inventories necessitate some sort of UI indication. I wrote a flat count and a fireworks count in the lower left corner of the screen and in the right hand corner I put a thumbnail preview that shows either the currently stored texture or the currently selected flat size, the array of which is moved through by clicking the right mouse button after hitting spacebar. Along with a formatted pause menu and crosshairs that change opacity to indicate whether a surface is valid for either copy/pasting a texture or placing a vertical flat, these UI overlays contributed significantly to the feeling of quality in the game, and I had a surprising amount of fun implementing them.

Though the crosshair opacity essentially provided the same utility, I was hoping to introduce a "face highlight" that would, as one might guess, highlight individual faces of an object with some sort of light low-opacity overlay, but the method that I tested changed the value of the indicated texture's albedo, which is default white. I didn't want to change the hue, and couldn't think quickly enough of a way to actually overlay, say, a duplicate of the face, so I dropped it for the moment. I'd still like to see if I could get some sort of highlight working properly though, since I imagine it would help players really internalize the sense of a 3D world fragmented into discrete planar surfaces.

As for the actual imagery displayed on those surfaces, I'd been expecting to use *Half-Life 2*'s art assets for at least this early show build basically since coming up with the Potemkin village idea. And so I did. Extracting and converting Valve's proprietary files seemed like it was going to be a bigger pain than it was. Maybe it would have been had I tried to grab 3D models too, but using Steam, GCFScape, and VTFEdit, opening and importing *Half-Life 2*'s

still-dazzling muted pastel photo-paintings was relatively trivial. Even easier was extracting the game's sound files, which, similar to the UI, added a surprisingly impactful extra dimension to my composition. I used a camera shutter for the copy action, gunfire for the paste, the click of a light switch when spacebar is pressed, some cardboard effects for handling the flats, and even a few sounds for invalid mouse actions such as trying to paste without having copied a texture or placing a flat somewhere besides the ground. Finally, I stitched together a little ambient backdrop of distant street warfare and a recording of Handel's *Water Music*, which I initially placed on the inspector NPC as a way to help the player gauge their distance from her.

Now that I had the textures, sounds, controls, and UI, it was time to go back and actually figure out how to retrieve individual textures from individual faces. One thing that had given me difficulty was trying to figure out specific classes and functions within the sparsely-documented ProBuilder API. ProBuilder is a level prototyping plugin for Unity which allows for the construction of geometries within the editor (as opposed to, say, Maya) that can easily receive individual materials per face. Because of this, the ProBuilder API has some dedicated face stuff that vanilla Unity doesn't, which I eventually wrangled into giving me the correct material from a raycast via the mesh's triangle index. I had a suspicion, though, that this method might run into trouble once the game was built, since I'd read that ProBuilder objects turn back into regular Unity objects at build time. For some reason I put off confirming that suspicion, but lo, maybe one week before the opening, my suspicion was confirmed. The method didn't work. I tried scripting the mechanic without having to import the ProBuilder library, and was able to match up a triangle index array with a material index array, so long as the material array was less than or exactly to six elements long (i.e. as long as the object in question had no more than six sides). Though I knew I could probably figure out some math stuff to allow for more than six materials—maybe some modulo, a for loop, whatever—I figured what I had was good enough for now, since my game was supposed to feel pretty "cubist" anyway. So I moved on to playing with ProBuilder and constructing some building/level prefabs, when right there in the editor, staring me in the face, was the solution to my problem. ProBuilder allows you to select and detach a face from its parent object, making it an object unto itself. Voilà! Just corral the detached faces into one empty game object and you're good to go. I could basically just use the

same copy/paste code I had written originally. I wished I'd made this discovery earlier and saved myself some frustration, but I guess that's just how these things go sometimes in the wacky world of programming.

With the face detacher, the UV editor, and my palette of *HL2* textures, I whipped up a little scene with some apartment buildings, warehouses, sheds, garages, banks(?), freight containers, and signs. I put the build on the computer loaned to me for the show, set up the desk in the gallery with a traffic cone and a stained glass Arts and Crafts lamp, and let the public in on the little work in progress I'm calling *Water Front*. The version I had at the show didn't include the inspector or the river or any kind of linear level progression, but that may have actually been for the best. Gallery visitors had a hard enough time acclimating to the (admittedly unusual) fundamentals, so half-baked time-sensitive goal-oriented gameplay might have just muddied the waters further. Regardless, people seemed to have a good time playing around in the sandbox I provided. Looking over folks' shoulders, I noticed a couple bugs and opportunities for quick improvements: for example somehow I didn't notice that pressing escape again while in the pause menu didn't do the same thing as clicking the resume button. So the night of the opening reception I fixed that, increased the number of flats and fireworks available, and added a start menu that users could quit to (instead of to the desktop), then snuck back into the gallery the next day and updated the build. One improvement I'd have liked to make, though, would be a feature allowing nearby flats to snap together orthogonally (as well as "hologram" preview projections), since, given the limited set of verbs and the lack of direction, most players I observed spent a good amount of their time awkwardly attempting to build structures of some sort.

Though it would have been nice to impart a fuller sense of the project's aspirations, I think the demo I put together introduced a novel, intriguing mechanic that players from many different backgrounds and ludic literacies responded to with wonder and bemusement. A day or two after the show, my friend and I were tooling around in *Grand Theft Auto V* , remarking on its overwhelmingly superfluous, crass, and yet oddly numbing carnage. My friend told me I'd never understand how much he'd rather have my little texture-swap game existing in the world than *GTA V*. Which I don't share to put down *GTA* as much as to report that the feedback I've gotten so far indicates that people appreciate the approach I'm taking: making something that retains the

pleasure of aiming and shooting while centering it on the environment and removing the grizzly violence. It gives me the motivation to stare down the years and years it'll probably take me to realize my vision, but I had a blast and learned a lot cobbling together the current work in progress, and have more ideas right now for a single project than I've ever had before. I'm very excited to keep working on *Water Front*, to put it out into the world so more people can engage in an immediate, synaesthetic way with the critical ideas it contains, and I'm grateful to the New Media program at Purchase for allowing me the opportunity to develop and propose a video game as summation of my interests, insights, and research.

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