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Hamburger Helper Recipes

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Hamburger Helper Recipes
by Alex Goss

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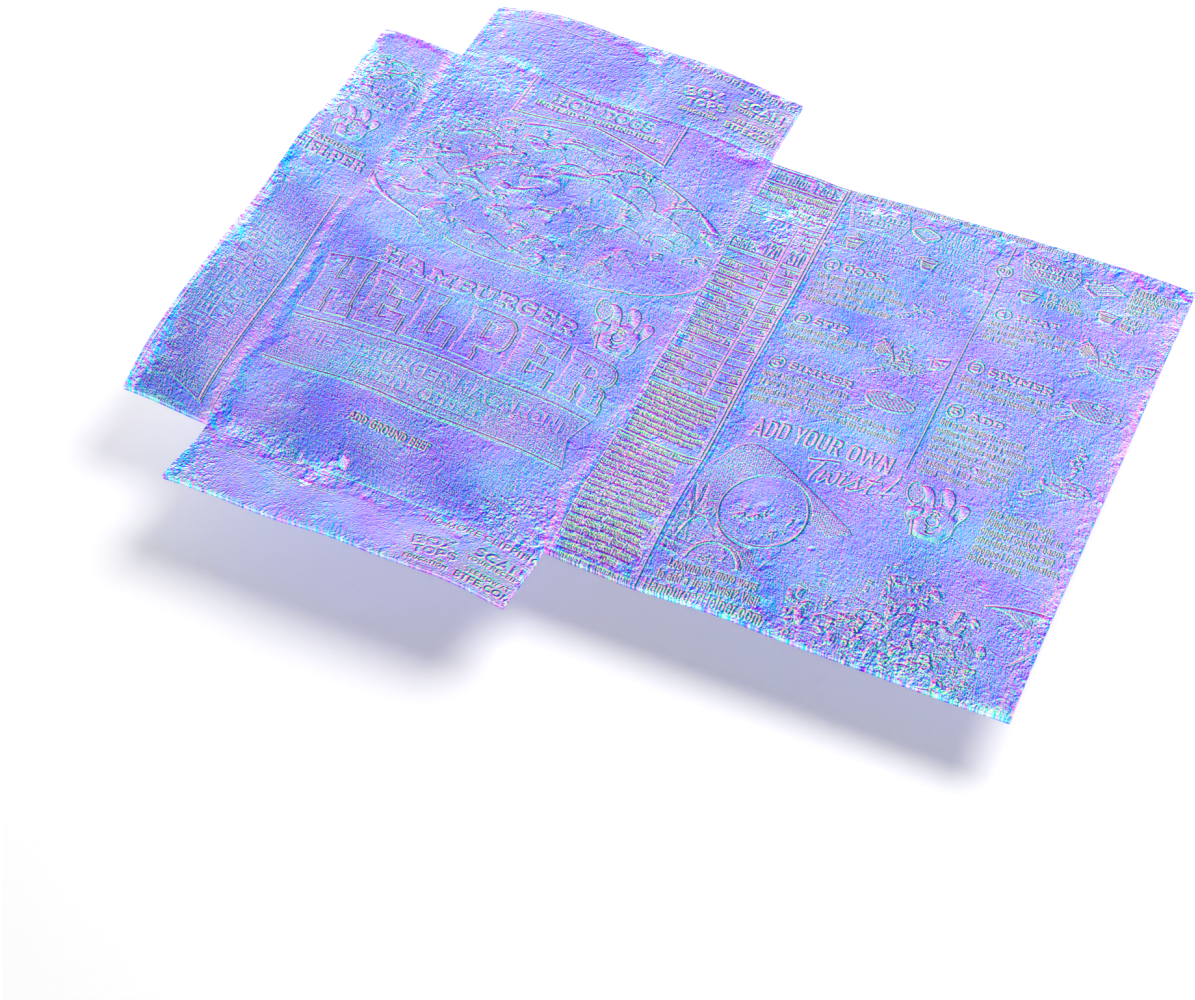Michael Jones McKean

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Figure 1: box of Hamburger Helper Cheesy Macaroni unfolded and rendered as a normal map

Abstract

Hamburger Helper Recipes is a collection of essays and public addresses that aim to recuperate castoff and misfit material surrounding industries and tools which produce science-fiction fantasies, specifically videogames and television shows. The following essays confront the normative violence of capitalism, whiteness, and hetero-patriarchy that socially and technologically haunt these imaginary worlds and build hegemonic idealogy into their audiences. This collection takes industrial materials and software from their intended commercial purposes of production and "success" into places of abjection and quiet breakdown. The author's own proximity to masculine and often toxic "work cultures" within industrial spaces of coding and manufacturing has informed a practice of humor and play based in a conflicted love for industrial material. As it looks critically inward and outward from its own positionality, *Hamburger Helper Recipes* oscillates in relation to the inside or outside of that which is "standard". The notion of a queer operative within these spaces is proposed as an undercover catalyst for the reimagination of these tools into tender co-conspirators or facilitators charged to break down taboo barriers imposed by normative, capitalist culture and model new relationships between individuals and collectives.

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Appendix Horizon (The Organist)

"Appendix Horizon," continues a trajectory of world-building around personal narrative and industrial material meant to penetrate both familiar and forbidden spaces. The film recognizes the very real space inside a body's digestive tract as a place for consumption, storage, and waste, but it also imagines these cavities in the body as places of production. The "product" in question is, however, never seen and only insinuated over. Through the appropriation of vintage food commercials, the industrial colonization of the mouth, stomach, intestines, and anus is conjured. However, by crossing the proscenium arch of the stage, through the orifice, the viewer is challenged to imagine spaces of the body often relegated to roles of excretion and abjection--specifically the anus and rectum--as bidirectional sites of pleasure.

The brand "Hamburger Helper" is invoked, or rather enlisted, from across such lines of normativity. An industrialized meal designed in part to protect the beef and dairy industries in the United States during the economic crisis of the early 1970s, Hamburger Helper, also managed to contribute to the reinforcement of gender roles and white supremacy through its recipes and marketing. Pulled from this brand's mascot, the animated, unnamed glove featured in the film appears outcast from his commercial origins. Rather than Dante's Virgil, rather than a tourguide to a vacationer, the glove appears dutifully bound to a place of exile, sharing his "hellish" surroundings with the viewer through a gruff sensibility of care and even pride.

Figures 2 and 3: the first 3d animated hand, rendered by Ed Catmull of Pixar in 1972

As in my previous bodies of work, I am interested in the translation of touch passed between a product's maker and user. The role of a glove is specifically chosen as a bridge between these modes of work and sex, to separate and protect, while enabling a closeness between material and between subjects. Perceptions of intimacy and control are flipped by this glove. While he holds agency within his universe, he also longs to once again be possessed by a hand inside him. There is history, an erotic erosion, a residue left on the character's skin; the displaced volume of a six-fingered hand is also perhaps permanently imbued upon his shape. The glove asks, who is wearing who?

This character takes on a role of a figure familiar yet fantastical to me. A person who I wished had surrounded me in my life and work experience. He is composited from the sensibilities of men I have worked under and alongside; the kind of straight-cis-straight men who often dominate the culture of industrial workplaces. I have felt completely alienated by such people. However, through a shared, deep love for material and a close care for the machines we rely on to interface with material, I have also felt extremely connected to some of these men, these technicians. In this capacity to care, I imagine the reversal in roles of dominance. I imagine an application of technical skill unbound by logic and taboo in support of uncertainty and pleasure toward a collective sense of production.

Figure 4: still from *Appendix Horizon (The Organist)*

Figure 5: *Appendix Horizon (The Organist)* screened at the Byrd Theatre, Richmond, VA

Elevator Speech (Normals)

Every flat pixel aspires to three dimensions in the direction of its normal. Routes and pathways are guided by normal maps—fantasies baked into the imagery of games, movies, and virtual space. In 3D graphics, normals help pixels escape the flatness of the screen, swelling along X, Y, and Z to grant their host model textural realness at no cost to the hardware supporting its render. But normal maps are also flat images, originating from pixels that store directions within each of their hues. They can be quite beautiful, though their true form remains hidden. RG&B mate polyamorously with XY&Z and color becomes the illusion of space. In this sense, normal maps are contradictions. Shadows are launched along vectors and flat surfaces embellished with the illusion of texture but without color. The model remains flat, but the viewer experiences the surface as if by hallucination. How do these colors expand, filling all retinal capacities while hands flatten out against a single plane of a keyboard? And here I go again, obsessing over the minutiae of computers.

Our global infrastructure supports the efficient transmission of viruses, ideologies, and video chats, while the flatness of a screen has never made distance feel so great. We can be transported, lifted in our seats, to another's room. Is this not intimacy? Is this not depth? I can look into the eyes of the *scheduless* left red from instability, but I can also see beyond the chair, to the passing roommate, to plants—some thriving, some suffering from their newly won attention. I have never dreamed so deeply about touching as I have these months. I have never before desired to feel another's textures so hungrily, if only through the fiber optics.

But there is a global shortage of texture, tenderness, and touch. Fantasy can be normalized too--easily manufactured and packaged. It can even taste sweet to some.

I've spent 1000 hours in front of the same LCD screen since March. I wonder if that time would have been spent differently outside of a pandemic. True, it's the only window in my six-sided room from where I can see past my neighborhood. Like many others, I eventually caught myself waiting for the pandemic to pass, living out fantasies through Netflix and videogames; hunkered down and holed up for what many imagined would just be a few weeks. The world comes through our screens, but I don't always feel connected to reality. Waiting out this storm for things to go back to "normal", is not a reality for neighbors getting sick, those suffering evictions and lynchings. This sudden emergency around normal is only specific to

white and able-bodied people. Violent injustice is the normal for many Black, trans, and disabled bodies. Only now, surrounded by a stream of videos depicting acts of oppression materialized onscreen do white people notice.

Let's wrestle with the word normal. Even when it's easy to say that Zoom meetings are becoming our "new normal", I want this word to be revoked of its grip on revolution. The perpetuation of fantastic complacency and complicity is the privilege of normalcy. I worry our screens further limit our access to nuance and empathy. A veil over our horizon, a thin cloud of these normal. It's hard to tell if we are going up or down. Forward, or backward. To generate a normal map, a high-resolution model, full of imperfections and undulations, must be baked on top of a smoothed, decimated, emaciated version of itself. Rather than birthing a progeny, this act of replication installs a usurper posing as the real. A normal map is a righteous, liberal, steamroller. Normals are the flaky crust baked around homogeneity. They are a wasteland of religiously mowed grass. Manifest destiny, capitalism, whiteness–it goes by different names but all share the same destination: a collapse. 2020 is not the beginning of an apocalypse because a flattening was brought to the world long ago by these forces. 2020 is not a year to remember or relish with hindsight, though as the seasons pass the memes will further vilify this number used to bracket time. Unless rejected and dismantled, capitalism, anti-blackness, ableism, heteronormative-patriarchy, racist health systems, prison industrial complexes, and police brutality will not disappear like magic with a calendar year.

So let's call normals the texture of liberalism. Twitter influencers gnash their teeth over anti-maskers in whole foods, but will hastily move into a newly discounted apartment still warm from its evicted tenants. Normals are neo-gentrification in the wake of violent negligence and pandemic. Instagrammers will repost week-old infographics denouncing anti-blackness, alongside beach selfies. Normals are well-intentioned but comfortable. University presidents will commission solidarity videos and photo-ops but will condemn the destruction of property over life and, while cashing tuition checks, will blame students for a spreading rate of COVID infection. And I find ways to support comrades until I get too busy with other projects. There are double standards. But as we know, "normals" aren't fixed. To hold myself accountable, I strive to work beneath the screen, to further dislodge myself from the flatness, to confront my own contradictions, comforts, and compromises. I want to amplify those pixels that jut out in opposition to the dominant structure, breaking laws of the Cartesian Coordinate system. And who wrote those laws? Who enforces these vectors? Surely flatness. If we are riding this mass

of smooth homogeneity, what else can we break from its surface, that papery normal layer, to find each other's true texture through our screens? Let us leak, spiral, flow, drift, escape along lines of flight rather than be vectors of normal.

Figure 6: still from *Elevator Speech (Normal Maps)*

Building The Sims

A conversation between Alex Goss and Charles London

AG

- ○ Learning in 3D software, for me, has always been about a kind of reverse engineering. I use this term liberally and I'm trained as an artist but worked in precision component manufacturing for a number of years. I wanted to get to know the objects and characters within The Sims more intimately and I've been superimposing some of the game's 2D assets, pulled from my snooping in the program files, into CAD software. In tracing over these images, I haven't been able to help myself from drawing furniture and appliances with tolerances and mechanical relationships as if they could be buildable and functional objects. I have been struck by an almost whimsical sensibility for the features of some objects as banal as a toilet's plumbing or medicine cabinet's hinge.

- ○ I've grown fascinated by the concept of two-dimensional sprites, infinitely-thin, flat pictures representing objects in the world of Sims. You and the team were very clever in embracing available hardware to generate a convincing three-dimensional representation of Sims' homes that players could render on almost any computer. I currently have a .BMP file of the cheaper Sims toilet open in Photoshop right now. On an HD monitor, the image takes up no more space than a thumbnail might. It is incredibly evocative of "toiletness" without feeling like a cartoon. What kind of life did these models have in 3D space before they were crystallized in the tiny sprite images?

CL

- ● We created the models in 3DStudio Max, using traditional texturemaps, and created a lighting rig that stayed stationary as the model was parented to an animated invisible turntable that rotated to let the camera snap the 4 views needed for the rotations of the world. That way, the lighting stayed consistent regardless of whether you were rotating only a single object or the whole world.

- ● To me, one of the most exciting parts of the sprite exporter was the Z-buffer information it created in grayscale in the alpha channel which allowed the 2D sprite pixels to properly sort themselves in front or behind the 3D pixels of the characters. Black represented the farthest point possible from the camera within the imaginary volume of the floor tile

projected to the ceiling, while white represented the nearest distance to the camera within that volume. This allowed the Sim to immerse itself in water in the bathtub, or sit in an armchair with part of its leg "behind" the arm of the chair. In reality, the 2D and 3D sprites lived in entirely different graphic spaces that overlaid each other. This combo method was unusual to this day.

AG

- I remember modding The Sims, when I was a kid, felt like a daunting and almost dangerous endeavor. Twenty years later I have spent a lot of time digging through--often archived--fan-made websites dedicated to modding the game. I am completely inspired by not only the lengths folks went to inject their own sensibilities into the game, but also the dedication these fans had in sharing their tools and methods with the community. How aware of modders were you and your team? How would you mod the game?

CL

- We were very aware of them after they became common after we released tools to help them. Will Wright was always hopeful this would happen, and it was part of why he architected the system in such a way that the overwhelming amount of behavioral code for The Sims lived within the objects they interacted with. We spent years working to support them and were very pleased with the huge outside-the-game community that evolved and still thrives. I suppose, had we decided to capture that market for ourselves by forcing modding to happen within a controlled ecosystem like Roblox does we would have made even more money, but I think the activity would have been less enthusiastic. We certainly made enough money without it, and perhaps more, given the cult-like status the game has had for 20 years.

- I'm not sure how I would answer how I would mod the game... I had the privilege of being at the heart of how the game was going to behave for almost 15 years. Pretty much everything I wanted the game to do, it does.

AG

- What kind of considerations went into the game for the player's sake? What was taken out?

CL

- We worked very hard to preserve the freedom of players to express themselves regardless of the conventional expectations of games at the time. For instance, at one point, a bug was filed that although you needed underlying architectural support for an upper floor to be made, you could then remove that support under the floor and it would just stay there, hovering. We quashed that bug, saying that if that's what the player wanted, why shouldn't we allow it? It's a single player game, with no competition. We came quickly to believe that if the player didn't want things like that in their game, they wouldn't put them in. If you don't like it, Don't Do That. "Don't Do That" became abbreviated as "DDT", a common answer to bugs such as this. It saved us a ton of time, code, and trouble, and it made the game very appealing to all kinds of people.

- We also worked very hard to make sure everyone, regardless of race, religion, sexual identity, or age would be treated the same. Characters in The Sims are unaware of race and gender. They don't react to the way each other are dressed. Most importantly, they have no sexual orientation until you direct them to be romantic, at which point it is set. And can be unset if you repeatedly direct them to be romantic to the other sex. This was a very controversial thing in 1998-1999 when we were making that decision. We faced some light pressure from within EA and heavy pressure from without, such as the conservative culture-warfighters in the game market such as Jack Thompson, and ultimately even some of our foreign markets such as Thailand, to censor and remove homosexual and bisexual behavior. But… DDT remained our motto. No matter what we decided to do in this case, we would be making a statement. We knew who we were, what was right, and how history was going to judge us, even if we didn't know then how big the game was going to be. A friend of mine who at the time was just coming out as gay objected to our implementation, saying that if we allowed Sims to "become" gay or straight through gameplay, it sent the wrong message about homosexuality as a lifetsyle choice. Not at all, I replied… since the player is the creator of the Sim, it sends the right message… that it is not a choice to be made but something endowed to the Sim that they cannot control. My friend was very satisfied by this answer.

- What was taken out? Very, very little.
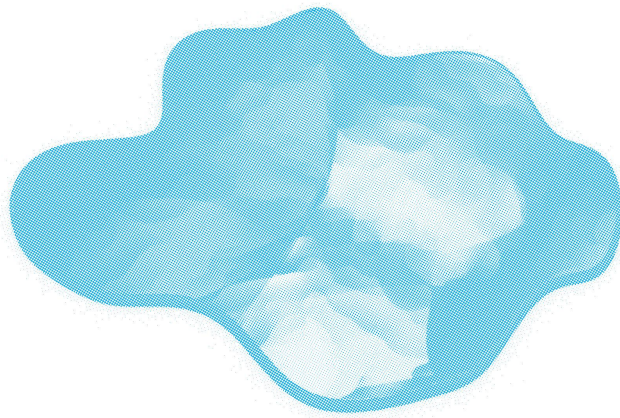
AG

○ The pee puddle is, to me at least, a sort of icon from the original Sims—it seems like a foil to the plumb bob. But, rather than the austere, almost holy gemstone floating above their head, it is something that falls down at the feet of the character. It seems to represent not only shame but disillusionment of the system surrounding the soiled Sim, that both character and player share an experience of. I understand bathroom functions were cut from the development of the game for a moment. Can you talk about the struggle to include such base elements?

CL

● This is a very funny memory for me. Early in development, and only about a week or so after I joined the development team in August of 1997, I was asked to create the first sprite to represent the failure of the bladder motive. We knew if there were toilets, we needed this. And if we didn't have toilets, The Sims would not seem human. This is what humans do. I, having only recently left a very small studio with no real corporate concerns, and like everyone else having never worked on a game like this (because there never was one before), I naively created a very realistic puddle of urine with actual blobs of feces in it. It was shocking. And no one checked my work because we were only

a team of 6. And the sprite was included in a build that was then demoed to the very senior Steering Committee at EA, who were already very iffy about whether this game was worth making. It caused a great deal of upset regarding the prospects of the game, as well as the judgement of the team, and we were forced, in order to simply get through the following days, to remove the toilets and the bladder motive from the game until the incident was more or less forgotten.

- When we felt enough time had gone by to inevitably reintroduce this, I found myself puzzled as to how to properly represent the bladder failure in a way that would not get us back into trouble. I thought about how this was done on TV, where the issue of bodily fluids in commercials for various personal hygiene products' absorptive powers needs to be demonstrated. In those commercials, the fluid used is almost always blue, so it can not in any way be confused for the real thing. I followed suit, and to this day, The Sims pee blue. In fact, at EA Redwood Shores, we once had a conference room that was named Bladder Failure due to the fact that its walls were painted blue.

- There was little struggle to include base elements beyond this… people are people, and much of life is base. We knew we needed to create the illusion of life, and that this illusion was fragile, and easily destroyed by pandering to squeamishness and prudish attitudes. What we did remove, however, was any autonomous violence, as well as any fatal violence, player-initiated or not. We wanted a broad audience, and felt that violence was a corrosive and facile avenue to go down. We knew we had to be different.

  AG
  ○ Do you think the characters are aware of or know they are being watched and evaluated by their plumb bob?

  CL
- Well, of course, we who created them know they are not. But the idea that sometimes they might become suspicious of the voyeuristic player was attractive. In Sims 2, we added a very subtle feature, which is that if you zoom the camera in on the Sim at high speed from a far enough distance, there is a random chance the Sim might look at the camera in alarm. It was not predictable, but it was frequent enough for people to

discover it. We loved putting easter eggs like that in the game, and there were lots of them.

AG

○ I see now that terrain in The Sims, its characters, and the things they carry are the only 3D objects in the game. How do you imagine a Sim, from their perspective, experiences the world built for them?

CL

● I may be the wrong person to ask; I am one of their creators and know how much automata they really are. But I have always wanted players to believe that The Sims believed in their world as much as we do ours, so I suppose that's what I would imagine they experience if I entertained that thought. Which I have never done until you asked me this question.

AG

○ The Sims has been criticized by some for its perceived shortcomings in challenging players to critique a capitalist system of consumption represented in the game. Others have defended it as a biting parody of North-American Suburban consumerism. How do you see the game played? What is success in The Sims? What is fun in The Sims?

CL

● Will Wright was quite clear that the game is a critique of materialism, not an advocate for it. The proof of this is that the tuning of Sims1 was such that as the objects increased in cost, the frequency of their needing repair increased as did the costs of repairs, making a large house with expensive items in it a treadmill of maintenance. Later versions eschewed this design strategy as it is not, in the end, fun. What has been the most fun for players? The ability to express themselves. To use the game as they wish, whether they be tinkerers who want to min/,max the systems, modders who want to be creators, or storytellers who used the game as a stage with props and actors to tell their own stories to themselves and the world. In The Sims, success is what the player decides it is.

AG

- ○ How important is it that a player understands the system that they are participating in? How does a designer map a system, an algorithm, into a player's head?

CL

- The answer to how important is this understanding depends on the kind of player we are considering. For modders, I imagine it is quite important if they want their work to function and be useful to others. For those trying to "beat" the game, it's critical that it's predictable enough to be contended with, yet surprising enough to be challenging, and for the belief in The Sims' inner life to be tangible. For those wanting to simply express themselves and tell a story, perhaps it's not important at all.

- We worked hard to make a very intuitive UX for the time. Radial menus and point and click selection was fairly innovative for the time and told a story of real living people, not controls and levers. How does a designer map a system into a player's head? With that kind of intuitive UX, and with behavior that is repeatable and responsive to choices. In this game, we had an advantage that the world was filled with things that were familiar to the player from their own real life. Very little needed to be explained, something that likely would not have been true if the game was about magic or far-future sci-fi. We simply made a game that seemed alive. We gave little theoretical thought to it, I admit.

AG

- ○ In real-world units, how big is a square tile from The Sims?
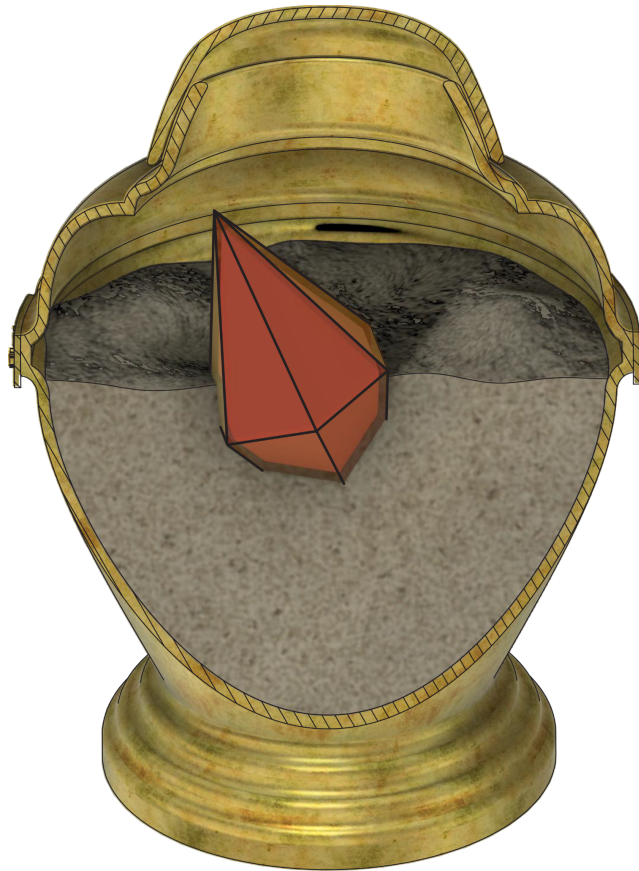
CL

- One meter by one meter.

Figure 8: urn with plumb bob from The Sims (2000), drawn by the author

Sweating Together

Back in the early 2000s, my sister and I often stayed up after lights out, meeting in the shared bathroom that joined our bedrooms together. Rachel brought the laptop our parents bought her for school. She's four years older and taught me, among other technical wizardry, how to change the family computer's cursor and startup music. But this was her own machine that had socialized with other "teens" and held secrets from beyond our home's 56K modem internet connection. It had the Electronic Arts game: The Sims installed on it. We were meeting up late to check in on our grandmother who we had built a home for in this gameworld.

Her name was Jenny Miller. We never met her, our grandmother. The concept of grandmothers was abstract to us, on both sides, they had died young. I remember a single photo of Jenny sitting on a shelf somewhere in our home's living room. Alongside childhood portraits of our parents, aunts, uncles, strangers in time, Jenny Miller's photo was not staged like the rest though. It looked blurry and grainy as if she had not been the original focus. It reminds me now of the way friends on Facebook "crop" group photos, excluding and selecting to focus on their own tagged portrait pulled from someone else's feed. But Jenny looked happy in the image. We were never really told how she died. I'm not even sure our mom knows. These images are portraits of her Sim: her body and face.

The Sims is now considered "Abandonware": a product, typically software, that has aged past the attention of its parent company, and for which no support is available. Software described by this informal definition is usually still under copyright. But with a quick search, much abandonware is available for "free" download. While the parent company has left it crystallized in a stasis of purgatory, a game like The Sims survives buried, cached in fading, sometimes lovingly hand-coded, fan-made websites. As a closed-source software, The Sims is not technically public domain. This ancient game has no mark left on it from its users. It remains a monolithic and autonomous time capsule, yet it continues on archived, no, cradled still by its community of players.

At the turn of the Millenium, The Sims declared itself to be the first "People Simulator". Even without having the concept explained to me, the consequences of artificial intelligence weighed heavily on my pre-adolescent mind. While the original Sims' mechanics utilized a simplistic program, its interface gave the player access to witness an ecosystem of material and

interpersonal needs, desires, and fears. This information unleashed by the graphics and audio of the game echoed beyond the numeric, punch card computer models of 20th-century ecosystems that came before. Here, the despair of a broken toilet flooding the bathroom floor mixing with freshly simulated urine, the joy in a friend bringing over a homemade fruitcake, and the loneliness in falling asleep on the kitchen linoleum made The Sims feel totally real. My sister and I worried for the well-being of our grandmother's character when we weren't there to help her take out the trash and get to work on time. If The Sims felt real, somehow it made our own obligations feel distant as we leaned in through the portal of the laptop screen.

Rachel and I, for sure, had our own friends, homework, and chores to worry about. There was a period of time before when we were inseparable--digging holes, conducting chemistry and culinary experiments, and trying on dresses and pumps together. But since our immersion in school, our worlds had become gendered and, on the surface, were very often at odds with one another. But this game brought us back together. The Sims suspended external pressures of growing into prescribed roles; it let us model "becoming" with other figures for a moment. We worried about Jenny Miller because her life that could have been, unfolding in the algorithms churning in the silicon inside of Rachel's laptop, was a reflection and exploration of our own desires and values for our lives. We played the game in secret from our parents, not only because we were exceeding our allotted "screen time" (though we were), but because we had to figure these truths for ourselves in that stifling, tiny tiled bathroom.

Upon moving into a neighborhood in The Sims Universe, a new household is promptly greeted by neighbors. Jenny immediately gravitated toward socializing within the impromptu housewarming. Rachel and I followed Jenny's lead, encouraging a friendship with another woman on her block. As a character's relationships grow, new actions in conversation become available. As a character becomes more familiar with another, they unlock new interactions for a player to suggest. Sims can complement each other, joke, flirt, hug, dance, and when the chemistry seems right, attempt a kiss. But not all conversations are amicable and some attempts at intimacy are met with rejection. Characters here experience what looks like jealousy and insecurity. But, after the flames of this party died down, simulated reality set in and Jenny's other needs surfaced. Hunger, hygiene, energy, and comfort boiled up, dimming the bright green prism, a sort of plumb bob, that floated above her head representing her mood.

Input in The Sims was required by the player to facilitate the well-being of the characters in a game world full of banality and random chance for disaster. Players were responsible for designing and selecting the home, furnishings, and career choices of the characters under their charge. Left alone, a character would do their best to navigate their chaotic, albeit constrained, world--attending to the needs of their body and mind. However, letting the game just run forward in time without intervention rarely resulted in a situation where the characters were happy, employed, or even alive. A player's real-world second was a character's minute in this universe. Life passed quickly and the system required constant attention to stay in balance.

As each minute passes in our time, an hour would continue in The Sims even with the laptop closed, or Rachel and I may have assumed. Our relationship with Jenny was like two lovers separated by faster-than-light interstellar travel, one life could be lived out in the time it took another to wait for the weekend. It was unclear to us if the system in The Sims required a spinning hard drive for life to continue.
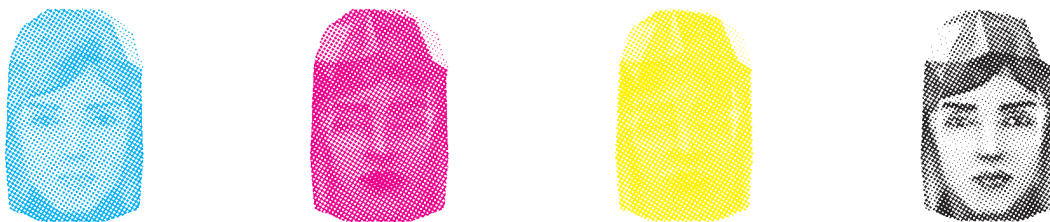
Figure 9: a color-separation of Jenny Miller, from The Sims (2000), drawn by the author

Without cheating or, at least, without the care of the player, a Sims character would let dishes pile in the sink, leave their bills unpaid, start fires, pee their pants, kill their houseplants, lose touch with friends, and get fired from their jobs. With each of our bedroom doors closed to the bathroom, like a kind of airlock, my sister and I continually met past our bedtimes, under the cover of darkness, with her laptop screen's brightness at its lowest setting, to make sure Jenny Miller was thriving and not eating another cold can of beans for dinner. We wanted our grandmother to find a life away from a husband and children where she could be anything she

wanted to be... as long as it fell within one of eleven possible career paths. Our naive attempt at fabulation felt like a real connection to the person we never knew. And our flip-flopping of time and roles as elder and offspring was charging us with a sense of responsibility, or better, empathy for another life we felt akin to ours beyond traditional family ties.

Rachel and I discovered that even between two female characters, the same intimate actions were possible. When the suggestion to kiss appeared, we leap at it. But it didn't go well. The other character rejected her advances. As we tried to patch the relationship up, we wondered scornfully if the game did not allow same-sex romance. Eventually, the characters' conversation seemed to warm back up and the option appeared again. In this second initiation, the other character leaned in and kissed Jenny back. Little hearts blossomed under their glowing plumb bobs. We may not have known how to express the implications of this then, but discovering the openness allowed by the mechanics of the game was simply satisfying. I had so many questions. But taking our hands off the controls at this point we wondered now what our role was supposed to be in love, or… the game.

In 2016, researchers encoded human knowledge and strategies to equip an artificial intelligence to play the strategy game Go. Once more computing power was available the following year, a new AI known as AlphaGo Zero was developed, becoming a Go master in just three days by playing 4.9 million games against itself in quick succession. Researchers argued that starting with a blank slate free of human input was optimal because human data sets can be "expensive, unreliable or simply unavailable." Data sets of human knowledge could also potentially "impose a ceiling on the performance of systems trained in this manner." As it trained, "AlphaGo Zero not only started to rediscover the common patterns and openings that humans tend to play, [but] also ultimately discarded them in preference for its own variants that humans don't even know about or play at the moment." The best performing machine-learning techniques are the ones that can leverage computation, taking advantage of the increasing computing power available in the latest graphics cards and cooling systems. This situation is known as The Bitter Principle. Building human knowledge into a system is helpful in the short term, and may contribute to the personal satisfaction of researchers. This knowledge ultimately plateaus, inhibiting the system's progress. Scaling computation with access to more powerful hardware opposes the human-centric approach and favors learning by terms devised by the system itself. This Bitter Lesson suggests building the human brain in software is an ultimately limited model of intelligence.

Despite their inability to speak a known language, Sims were capable of gesture and speech dripping with affect. This was their best line of communication to the player outside of the data and status panels. See, the only truly three-dimensional geometry in The Sims were its terrain, characters, and the things they carried in their hands. These objects are known as meshes and are made up of hundreds, sometimes thousands of triangles stitched together to form a three-dimensional watertight surface. While these meshes were crudely animated and rendered-- for their time, characters in The Sims were extremely lifelike.

The rough simplicity of rendered characters was alleviated through a process known as anti-aliasing. The eye perceives curves as smooth lines in our physical world. However, when a computer renders images for display on a physical monitor, those curves are broken down into a limited number of square elements we all know as pixels. We are sharing them on screen now. This pixel process results in lines and edges that appear jagged. Anti-aliasing reduces this problem by sampling pixels around high-contrast edges, adjusting the color and tone of surrounding pixels, smoothing away the jagged appearance while faithfully representing their intended form. To alter each rendered frame of a video game's display, this delicately balanced technique of softening while articulating demands additional processing power from a player's computer at least thirty times every second. In order to smooth out these distortions, like that hardware working to model ecosystems, a personal computer must have access to its own increased computing power, while transforming electrical energy into heat. Unlike their predecessors, video games divert their demands for hardware in service to graphical information for the player's eyes. But Games don't really need to display anything to run. Contemporary graphics cards are some of the most expensive and energy-consuming components within a PC but are theoretically unnecessary for a computer to run. I wonder if our little bathroom would have been so hot if rather than watching Jenny on screen, we could just talk to her.

The Sims could be compared to playing with dolls in a one-twelfth scale-house, but Sims and their universe are not truly in service to the player's will and imagination. They're not posable, instead responding to suggestions given through menu selections. Like the laptop struggling to render the game, often what made the player happy did not improve the health of the Sim. Sims can even reject player input. I guess the real puppetry is in the player's role in serving their characters. It is up to the player to enable their Sims to not only maintain a "life",

but to furnish them with material goods that keep that damn plumb bob glowing a healthy green. Based on the original Sims programming, a Sim with a multitude of friends, a home with all the essentials, and a meaningful vocation does not make a happy Sim. *Success* is instead distributed by the best kitchen appliances, furniture, and electronics that are literally instrumental to a Sim's happiness. Was this equation-of-consumerism-with-health meant to be a parody or a celebration of capitalism?
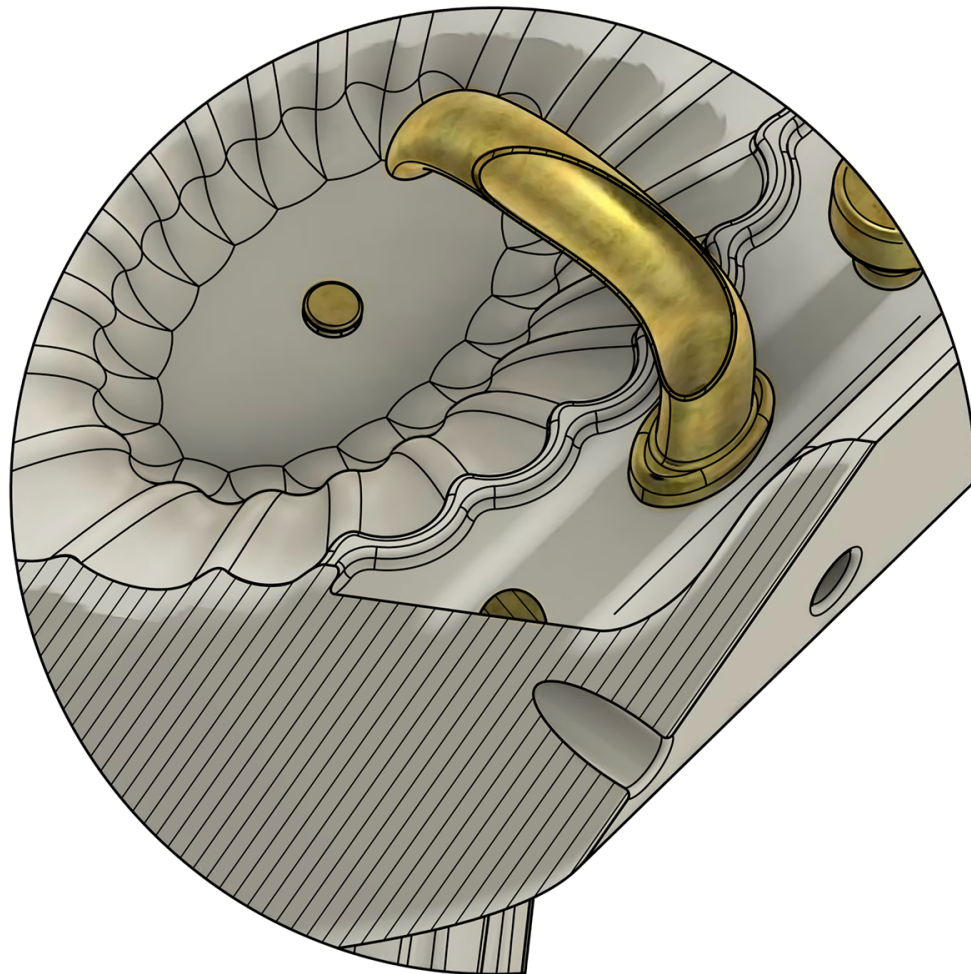

Figure 10: a mid-tier sink, from The Sims (2000), drawn by the author

After Jenny fell in love with her friend, Rachel and I were no longer sure what the object of the game was. Jenny's avatar struggled to make the payments on her small home with her entry-level salary working at a job we found her in the back of the local newspaper. It was difficult to find time to keep the house clean, eat nutritious meals, and to make dates for her lovers and friends whose time off didn't always line up with her own. Jenny eventually got a promotion at her job, but I remember noticing in her plumb bob, no flash-of-that-green-joy from hearing the good news of her raise. I guess she must have been too tired from the workday. In trying to meet the demands of her new position, Jenny's social life deteriorated further. The precious time between chores and self-care was spent preparing for work. Later in my life, my mother often said to my perpetually-in-love-teenage-self, that "absence makes the heart grow fonder". But for Jenny, the once glowing faces of friends in her relationship statistics atrophied, and within a few days disappeared. Jenny's social bar in her matrix of needs soon flatlined toward the red. No matter how good of a night's sleep she got, or how clean the kitchen was, her overall disposition, plainly represented in that cruel plumb bob floating above her head never glowed brighter than a dull grey. Could Jenny feel this object quietly condemning her as it spun above? While all of her physical needs were met, a single data point kept her from succeeding. This was one of my earliest memories of empathizing with loneliness outside of myself.

When an object is purchased in The Sims, it turns out... the player is buying an infinitely thin image representing that merchandise. As the viewport is locked into one of four isometric views at a time, the player has no way of knowing that their Sim's hard-earned money has gone to a paper cut out of a new couch viewable from four angles only. Contemporary three-dimensional games utilize meshes to represent geometry, reflect textures, and demonstrate physics. A more complex mesh requires more power to generate its two-dimensional likeness for the player's screen.

At the beginning of the 21st century, most consumer grade computers had only a single-core-central-processing unit or CPU that was cooled passively or by a series of exhaust fans. With no graphics card, data and graphics had to be calculated together by this single processor leading to bottlenecks and overheating in heavily demanding applications. In our case, my sister's Dell laptop had an Intel Pentium 3rd generation-1.2-gigahertz-processor, no video card, and a single exhaust fan which generated so much noise, I remember worrying it would wake our parents. The processing power needed to calculate the dynamic, and

potentially endless permutations of proper three-dimensional perspective for the dozens of objects that could appear on screen when running The Sims, would have been unavailable at the game's launch. But The Sims offered a convincingly three-dimensional representation of a world that took relatively little processing power to generate.

If a player were to count the four possible rotations of view and three levels of zoom representing a single object, they could find a total of twelve images in all. The Sims needed each of those flat images for every single object in the game. These two-dimensional-sprites, flat pictures, represented almost everything in the game world. This added up to a rather massive amount of static data to consume the memory of a computer. While pulling these assets, "calculating genetic modifiers, reticulating splines, and interpreting family values"... my sister's laptop running The Sims in 2002 was still working as hard as it could and threatening to burst into flames. Its single, screaming fan sounded as if it could not push the heat away fast enough. We were sweating together with the laptop balanced on the edge of our toilet tank. I have to wonder now if Jenny felt a similar pressure in the walls of her roofless house. Her own toilet, and together with the rest of her furniture, was made out of infinitely thin images. It must have been difficult to live inside this pop-up book. I also imagine that if objects in Jenny's world matched her own dimensions, she might have felt actual relief resting upon the cushions of a properly three-dimensional couch. With my experience in manufacturing... bolstered by obsessive tendencies, for the past six months, I have been recreating many of these objects in modern CAD software. From pixelated sprites I extract from the game's hidden folders, I build the most detailed and function-oriented 3D models I can.

Unaware of the misleading and thin nature of sprites, Rachel and I bought our grandmother's character the best, two-dimensional, couch she could afford to help her rest after work. We later saved up to buy her a TV because she had no more fun without her friends around. But these were quick fixes. This neurotic practice had become familiar to us and we were beginning to find its limits. The capitalist mechanics of the game engine were truly cruel. Our shared bathroom was exceptionally hot one night as we played. While there was an exhaust fan in the ceiling, the house's air conditioning could only reach under the cracks in the closed doors which framed the little room. This airflow could not match our stressed-out body heat in addition to the laptop's own output. Rachel and I huddled around the screen hoping that night would be the night Jenny would have a spare hour to call up a friend after work. But the simulation was not open to settling down. Before her shift ended, a burglar appeared and stole

the new TV and couch somehow fitting both into a single bag! Jenny had only stepped through the front door as the burglar left through the back.

In scrambling to clean up the mess left by the burglar, Jenny only had time for dinner before bed. A fire started while she cooked her food on her bargain-brand stovetop. It quickly spread to the adjoining cabinets which lit up like so many falling dominoes. In the presence of fire, Sims characters become preoccupied with the terror induced by the blaze and often get caught in a sort of loop, pointing and screaming helplessly at the flames in front of them. Jenny was unable to reach the phone to call the fire department and soon the entire small kitchen was lit. It eventually caught the linoleum tile where she stood. At this point, unable to even pause the game, I remember beginning to cry, ashamed by my inability to help.

Permadeath or permanent death is a game mechanic event when a player's character loses all of their health, is then considered dead, and can no longer be accessed or… re-"spawned". Death is a high consequence event in The Sims: by the game's commitment to being a people simulator, it's quite... permanent. While players can save the state of a household and continue at a later time, the save file is generally erased or overwritten automatically, preventing players from later restarting at that previous moment. There *is* a workaround to avoid permadeath in The Sims, and that is to back up save files in a separate folder. This tactic, called... "save scumming" is considered cheating. But we didn't know how to cheat in The Sims.

The game had various mechanisms for death along a spectrum of horror that included fire, electrocution, drowning, starvation, and even depression. When a character in the game dies, they are visited by a non-playable character in the form of the Grim Reaper. Arriving complete with their iconic musical score, you cannot ask this guest to leave the house. Regardless of the cause though, after dying, a character's skeletal mesh (their body) is transformed into a static sprite, a two-dimensional urn of ashes. If taken outside of the home, the urn becomes a gravestone randomly assigned from three possible sprite assets. In either mode, this item can be sold for five Sim Dollars! After witnessing Jenny Miller's transformation from character to object of commodity, my own cries echoed loudly off our tiled bathroom and, probably, woke our parents up. Our late-night computer gaming was found out. While the laptop never caught fire, we lost; and we lost our grandmother again.

The Sims has shaped us as individuals and as a family. Jenny Miller has become an idiomatic expression of caring for lost causes and of a quixotic potential for becoming. Reckoning from within a system built to collapse, Jenny's character somehow modeled love and desire to me. The mixup of our relationship: of player and character, of generations, of caring for one another has saved us from the normativity that would bind us to the fuel of capital. The attempt to restore a memory with the help of this relatively ancient computer game has been at once naive and restorative. I recognize there is something impossible in my attempts to rebuild the furniture and fixtures in the dimension and detail that I feel Jenny deserved. In trying to further articulate something that is already so limited, I see how I have internalized the game's algorithm of consumption, not as parody, but as a thin and violent mode of survival.

The limitations, biases, hegemonies, and cruelty built into game simulations install physical and spiritual consequences in the real world. But, for such themes of obsolescence, entropy, and death, I think it's critical to witness how simulations can also serve to build models of empathy. These fragmented objects and fragmented voices crystallized in The Sims, continue to exchange energy and mutate with me. Even something considered abandoned can continue becoming, so we keep sweating together, me and that searing hot laptop in some tiny tiled room.
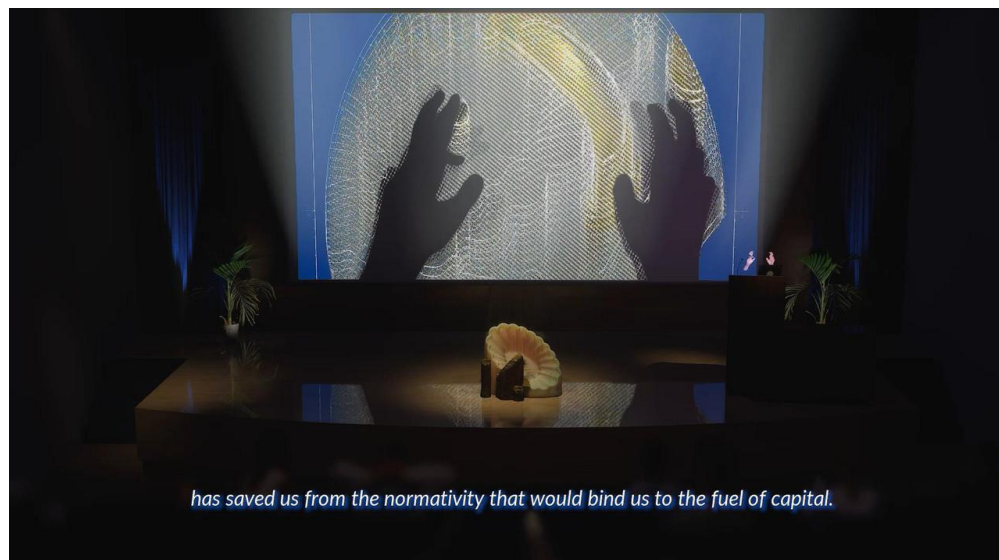

Figure 11: still from documentation of the virtual lecture *Sweating Together*

Kudzu and Greebles

A sprue is the waste piece left from the casting process made by the hole through which the mold was filled. In the injection molding process, plastic flows from an extruder nozzle into a port feeding the sprues which feed to runners which feed the desired parts in production. A sprue is the critical source of material designed to be discarded after its production. From the German word spruwe meaning tumor. We call something unwanted, extra, that grows uncontrollably, a tumor. We call an obnoxious growth, thing, or person a weed.

20th-century special effect artists struggled to design spaceships with a sense of realism. To imagine navigating the universe through space is to depend on more technology than an individual can cope with. While working on the 1977 film *Star Wars: A New Hope*, special effects artists began cannibalizing the discarded or forgotten pieces of plastic scale model war machines to cover their vessels in a blanket of noise. The vacuum of space causes no friction to drag on a spacecraft's hull. This lack of aerodynamics freed the designers to glue nodules on every surface, jutting out from all angles. On camera, this manic application of irregular surface treatment gave viewers a sense of expansive structures and advanced technology beyond comprehension. These tiny bits called greebles represented valves, hoses, radar dishes, and signaled to viewers a sort of excessive austerity, these devices were meant to protect, equip, and arm vessels for proper galactic conquest. It was purely practical.

For its quality of casting, rich details, and versatility of parts, the 1/72 scale Hasegawa K5(E) "Anzio Annie" World War Two era railway tank miniature, in particular, became the most sought-after kits among artists from the industrial light and magic studio. It is said that every Star Wars vehicle from every film, even the new ones, sources pieces from this model's kit. It was common for studios to make silicone molds of the original castings in order to reproduce the parts to be harvested for use as greebles. Some pieces such as the aptly named "universal greeble" are used so commonly they have been reproduced past model scale into lifesize replicas for human actors to interact with and inhabit. Greebles cover miniature models to transform them with the suggestion of mass and increased scale.
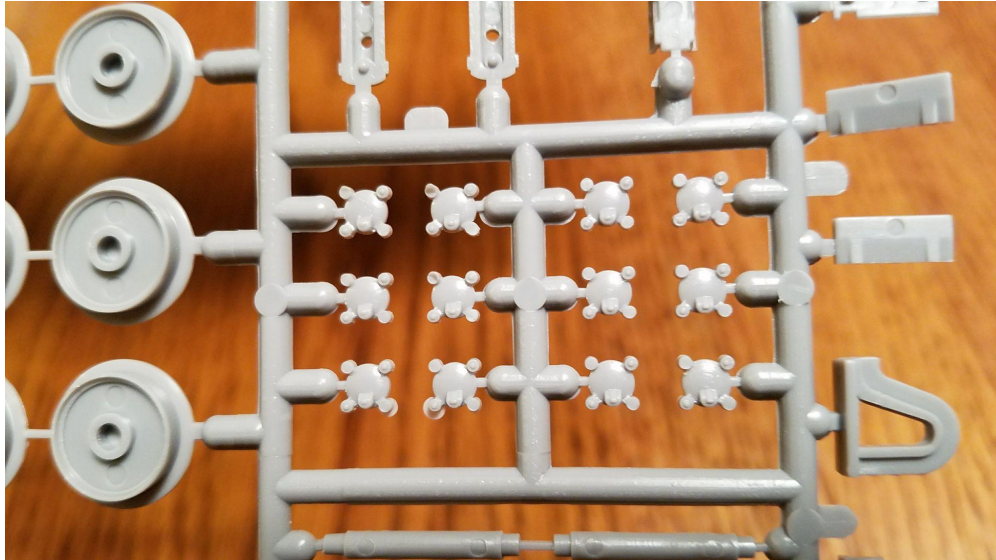
Figure 12: the "universal greeble" from a 1/72 scale Hasegawa K5(E) plastic model kit

Similarly, the weed, kudzu covers the landscape with its heavy blanket in order to photosynthesize in competitive ecosystems. Much like a casting from a sprue, a well-established kudzu grows from a stem node. Also known as a crown, this concentrated mass offers potential energy for growth. Kudzu propagates most successfully through asexual reproduction. In the southern United States, we compare unwanted things that grow uncontrollably to kudzu. Kudzu has been measured to grow up to twelve inches in a single day during the spring and summer.

Kudzu is estimated to cover 7,400,000 acres in the USA. That's almost enough kudzu to cover all of the New York Metro areas. Or enough to cover ten of the disc-shaped vessels invading earth from the 1996 movie Independence Day, starring Will Smith and Jeff Goldblum. A 20th-century virus stopped the invasion. But it didn't reach the mothership. The invaders could easily return next July.

I find these scales difficult to grasp. An estimated 1,235,526,907 acres of earth are covered in kudzu. That's enough to cover all but one face of a Borg assimilation cube from *Star Trek: The Next Generation* and *Star Trek: Voyager*. The Borg are a fictional alien group linked in

a hive mind called "the Collective". They float around the galaxy taking over and co-opting other species' technology and knowledge for the advancement of their collective mind.

In the 1991 film *Star Trek: First Contact*, an attempt is made to assimilate the character Data into the Borg. Their Queen grafted human skin onto the android, giving him the sensation of touch he craved. In a 1990 episode of *Star Trek: The Next Generation*, Data produced an offspring outside of heterosexual procreation. Assigned no gender, Lal chooses their projected form, their covering. Lal was the first non-binary individual depicted in the series.

When Lal's character sought out Guinan (played by Whoopi Goldberg), to explain human sexuality to them. According to the script, Guinan was supposed to tell Lal, "When a man and a woman are in love… " But Whoopi refused to say that. She said, "This show is beyond that. It should be 'When two people are in love.

Figure 13: Lal (Hallie Todd) and Guinan (Whoopi Goldberg), *Star Trek: The Next Generation*: "Season 3, Episode 16"

Despite its many cast members' identification as queer, since its first episode in 1966, the producers of the *Star Trek* franchise denied, evaded, and resisted any overt inclusion of gay, lesbian or trans characters until 2017.

If memories continue to exist in the collective consciousness, the borg are, to use a human word, immortal. Within the canonical universe of *Star Trek*, the borg are estimated to have assimilated 10,000 different species. These people absorbed into the borg's mind become like new neurons for a brain.

A 2016 article from BatteryCenter.com reports a lab in Berkeley's concern for the possibility of the Samsung Galaxy Note 7's lithium-ion batteries' short-circuiting when cycled too quickly. They used a non-destructive viewing method called 'hard x-rays' to observe the batteries up close. The microscopic fibers spreading from the lithium electrode across the electrolyte reminded them of the kudzu. They believed a battery could overheat and catch fire once the vines reached the other electrode. Later, they called the tendrils dendrites, after the branched connections of neurons.

To their merit, the iconic borg phrase "resistance is futile" has become one of the most popular linguistic exports of the *Star Trek* franchise. Throughout all the series of *Star Trek:* with the exception of *Deep Space Nine* and the *Original Series*, crews of the Enterprise and Voyager are unable to destroy the Borg and its threat against Star Fleet's colonialist agenda of "exploration".

In a 2001 episode of *Star Trek: Voyager*, Admiral Kathyrn Janeway offers herself to the queen for assimilation, sacrificing herself in order to release a neurolytic pathogen from her bloodstream, freezing and killing the queen and destroying the mothership, but not the Borg Collective.

Kudzu falls back from season to season, freezing in colder regions, only to be supported by its stem node, a source of nutrients and genetic material, restarting growth in warmer months. Eradication of kudzu has been attempted through the use of herbicides known as picloram and tebuthiuron. This chemical treatment requires 40-80 gallons of the herbicide per acre with significant and sustained decreases of growth reported after ten years. These herbicides are absorbed by the roots of plants, spreading to their leaves to inhibit photosynthesis, starving the plant of energy. Tebuthiuron, produced by Dow Chemical, has a soil half-life of 360 days and was banned throughout Europe in 2004.

The most effective method reported to reduce kudzu growth is to mechanically separate this node from the earth. It has also been suggested that humans can help control the vine by eating it.

Kudzu did not invade North America. It was introduced by Pennsylvanian farmers in 1876 to reduce soil erosion. It was actively cultivated and harvested for feed through the early 20th century. It was also found to provide shade to homes. Kudzu takes on the form of what it covers.

Figure 14: kudzu in the form of a figure

Appendix:

Extraction Graphics

The construction and operation of crypto-currency-mining computers runs in opposition to graphics cards being used to make images for a viewer's eyes. These computers are built mostly out of the aforementioned graphics hardware, stacked in series, but never meant to produce a single image during their hours of energy consumption calculation. They pull electricity and data from the wall to crunch on the encrypted packets of information that support extra-national economies such as bitcoin and etherium. In returning these calculations back to the larger system, these computers release heat in addition to capital for their at-home users. These users might aspirationally call themselves miners. With this practice, I can't help but think of the labor of the actual miners who extract the rare earth elements from the land to help build these components and those who dig for the coal that generates much of our planet's electricity. I can't help but think of the block-chain and "cloud" as stifling and toxic. In its inescapable inefficiency, in its release of heat, a mining computer's profitability is completely dependent on the value of its assigned currency. If this consumption of energy does not match up with a rate of capital exchange, a mining "rig" is retired and stripped for parts, often resold to video gamers at a discount. But, perhaps such graphics cards, once nestled together, could join each other again, but this time as image-makers, as their new users reunite them within online game matches.

Anti-Aliasing

(an excerpt from *Sweating Together*)

The rough simplicity of computer-generated images is alleviated through a process known as anti-aliasing.[1] The eye perceives curves as smooth lines in our physical world. However, when a computer renders images for display on a physical monitor, those curves are broken down into a limited number of square elements we all know as pixels. This pixel process results in lines and edges that appear jagged. Anti-aliasing reduces this problem by sampling pixels around high-contrast edges, adjusting the color and tone of surrounding pixels, smoothing away the

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[1] Games, Epic. "Designing Visuals, Rendering, and Graphics." *Textures*

jagged appearance while faithfully representing their intended form. To alter each rendered frame of a video game's display in service to the player's eye, this delicately balanced technique of softening while articulating demands additional processing power from a player's computer at least thirty times every second.

Ambient Occlusion

In order to provide a better sense of realism to a rendered scene, ambient occlusion approximates the shadows made cracks, crevices, creases, holes, and intersections of 3D surfaces.[2] This technique is used to calculate how exposed each point in a scene is to ambient lighting in relation to its neighboring points. For example, a corner of an empty room is occluded and is therefore darker than its center. A table placed in the middle of that room, now crowded with other furniture would be rendered even darker, as if the software holds a limited economy of attention for that which surrounds objects of orientation. Such objects are then made available to us only as background features of this domestic landscape.[3] Ambient occlusion is the advance of the "background" onto a subject, to become a part of the background, perhaps its own background.

Screen Space Reflection

Screen space reflection is a technique for creating the illusion of reflections on surfaces generated from reusing already rendered images from within a scene.[4] It is commonly used to create less demanding and more subtle reflections such as on wet floor surfaces or in puddles. Screen space reflections cannot visualize objects in a scene that are not otherwise visible from the current point of view. Imagine after a haircut, as the stylist holds an opposing mirror framing the back of your head, you find nothing new. The system did not "conjure its missing sides".[5] The moment of recognizing our-*self* in the mirror is and will always be filtered through that mirror. That mirror, marks the construction of the self and the ego through the systems that we grow inside of.

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[2] Ibid
[3] Ahmed, Sara, *Queer Phenomenology: Orientations, Objects, Others*. Duke University Press, 2006, 546
[4] Games, Epic
[5] Ahmed, Sara, 548

Normal Maps

(an excerpt from *Elevator Speech*)

A normal map is a color image texture mapped to the surface of a 3D model. Each pixel in the texture of a normal map represents a deviation in surface normal direction away from the "true" surface normal of the flat polygon that hosts it.[6] R, G, and B mate polyamorously with X, Y, and Z and color becomes the illusion of space. In this sense, normal maps are contradictions. Shadows are launched along vectors and flat surfaces embellished with the illusion of texture but without color. The model remains flat, but the viewer experiences the surface as if by hallucination.

Figure 15: Rachel's Dell Inspiron 4000, drawn by the author

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[6] Technologies, Unity. "Graphics HowTo's" *How Do I Use Normal Maps?*

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