

Art²Make is an exhibition catalog that brings together a collection of 3-D artworks from fifteen media artists and an essay article that reviews the work inside. Unlike most catalogs, the pages contain the code for the object and the viewer can use the file on any 3-D printer and collect the pieces. It follows the experimental format of both the previous projects: Scan²Go and AR²View, which were distributed at CAA Conferences. Both publications include features designed to provide additional information to each page by using the text and image to function as interactive interfaces for mobile media hardware.

My thanks and much appreciation must go Meredith Hoy for her generous commitment to this project. Artists creating 3-D printed artworks are at the edge of emerging digital media and as such rely on the articles like Meredith's to help their work be seen and understood.

The Services to Artists Committee of the College Art Association sponsored the **Art²Make** exhibition catalog. Working together with Gail Rubini and Mat Rappaport, members of the media artist collective, *v/b3*, CAA has created a new space and method to exhibit and experience media based visual artworks. Special thanks to Chris Manzione for also helping with the project.

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Professor

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La Salle University



KEY WORDS

3-D PRINTING, NEW MEDIA, SCULPTURE, ARTWORKS, INTERACTIVE

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

Activating Space: Augmented Reality and Postmodernism

Meredith Hoy

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University of Massachusetts, Boston
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```
    ply_get_property (ply, elem_name, &face_props[0]);
    Face **face = (Face **) malloc (sizeof (Face *) * num_elems);
    for (i = 0; i < num_elems; i++)
        getting face elements */
    ply_get_property (ply, elem_name, &face_props[0]);
    /* print out face info, for debugging */
```

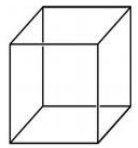
In 1984, Frederic Jameson famously wrote of postmodern architecture in his analysis of the Bonaventure Hotel. The postmodern hotel, he argues, “aspires to be a total space, a complete world, a kind of miniature city; to this new total space, meanwhile, corresponds a new collective practice, a new mode in which individuals move and congregate.”¹ Writing before the age of ubiquitous computing, Jameson imagined the social world of this new postmodern space as a kind of “hypercrowd,” in which people operate as if in an extension of the urban environment, a double of the surrounding city.² Likewise, the conception for the exhibition AR²View proposes the space of the Hilton Hotel in New York City as a place of congregation, of movement and encounters. The exhibition coheres around the idea of the hotel as “a system of generic meeting spaces and temporarily social and personal places,” and asks artists to respond, using Augmented Reality interfaces, to the particular site, both as an architectural and as a social construction.³

```
/* print out face info, for debugging */
    ply_get_property (ply, elem_name, &face_props[0]);
    Face **face = (Face **) malloc (sizeof (Face *) * num_elems);
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        getting face elements */
    ply_get_property (ply, elem_name, &face_props[0]);
    /* print out face info, for debugging */
```

Augmented Reality, briefly, can be defined as a technology that deploys electronic systems within the physical world in order to affect or mediate the experience of that world. The “augmentation” of reality is performed by overlaying computationally generated information, whether graphic, sonic, or textual, onto the physical world, often using the interface of a mobile personal computing device, such as a tablet or cellphone. Users survey a scene before them using the camera view of an enabled device, which responds to geolocate triggers, such as GPS coordinates, generating a virtually modeled “object” that hovers in the foreground of the screen. The theme of AR²View calls into question the paradigm, proposed by Jameson, of the postmodern architectural and social space configured by the Bonaventure Hotel. The projects in this exhibition prompt the question of how postmodern spaces can be renegotiated under contemporary technological conditions, specifically the imposition of virtual objects in real spaces, viewed through a screen of an enabled mobile device. The exhibition reveals the extent to which the intervention of a technology such as AR alters the way space is navigated, the way people in space interact with one another, and the way the virtual augmentations can work against disorientation and disengagement. The projects contained within the exhibition explore how AR technology amplifies or disrupts the postmodern situation described, but not endorsed, by Jameson. In what follows, Augmented Reality will be brought into dialog with the paradigm of the postmodern, and its social and political potential will be shown to contrast with the apolitical stance of the postmodern.

```
    obj_info = ply_get_obj_info (ply, &num_obj_info);
    for (i = 0; i < num_obj_info; i++)
        printf ("obj_info = '%s'\n", obj_info[i]);
```

The Bonaventure Hotel, according to Jameson, performs as an extension of urban space. In Jameson’s distinction between Modernist and Postmodernist architectural constructions, the Modernist building becomes a monument to utopia, a structure that sets apart the activities within the building from those taking place in the



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surrounding urban environment. The postmodern building, by contrast, refuses to demarcate itself from its surroundings, instead integrating itself into the rhythms and passages of the city that envelops it. For Jameson, LeCorbusier's modernist construction "radically separates the new Utopian space of the modern from the degraded and fallen city fabric which it thereby explicitly repudiates."⁴ "The [exemplarily postmodern] Bonaventure, however, is content to 'let the fallen city fabric continue to be in its being' (to parody Heidegger)."⁵ Whereas complete virtual environments set themselves apart from an existing environment, AR elements superimpose themselves on a real spatial fabric, bringing to light unthought or unspoken dimensions of that space. Augmented Reality projects, then, resist a Modernist utopia, a territory set apart from the social and political complexity of the world, instead integrating themselves within an existing environment in a way that forces the user to consider what a given space represents, how it is normatively used, and how it might be "detoured" or repurposed to pursue specific goals. AR projects do not support the disengagement of the postmodern, but they operate within an idiom of extension and amplification, as does postmodern architecture, rather than supporting the exclusion and separation of Modernist architecture or virtual reality.

Whereas the location of the annual CAA conference might provoke a sense of disorientation, the conference itself can be seen to mirror the paradigm of the polis passed down from Plato. In an age of digital communication, the conference sustains an older model of collaborative communication. Calls, proposals, organizations of panels, meetings, and exhibitions, are all conducted in electronic space, but toward an ultimate end of face-to-face meeting and dialog. The postmodern city, in contrast, is a politically disengaged space of accidental, fleeting encounters, run-ins with passers-by, shop windows, traffic; it is not a space of prolonged collaboration or dialog. The conference revives an ancient model of a political and social democratic utopia, and in this sense conflicts with the fragmented, decentralized experience of postmodern space. Modernist structures, in Jameson's account, attempt to build a coherent, rationalized spatial experience, an experience engineered and directed by, for example, the grand entrance. Modernist buildings encourage the formation of social groups through the creation of common spaces, even creating a sense of commonality in individual living spaces by reproducing architectural features uniformly between dwellings. Unlike the Modernist habitation, the Bonaventure has no clearly demarcated entryways or porticos, creating an unresolved, labyrinthine system that promotes disorientation, destabilization, and more aimless movement through the hotel's interior:

Rachel Clarke actuates this disoriented mode of perambulation and interaction in her project "Nowhere." Her vision of the hotel conference space reveals the disconnection and potential alienation of the site, showing how the architecture itself works contrary to the utopian mode of collaboration and face-to-face interaction ideally catalyzed within the social world of the conference. The postmodern space of the hotel creates friction in this ideal social model, confronting the viewer with a dazzling labyrinthine "hyper-space, where one is required to walk through seemingly endless long wide corridors, go up and down in brightly-lit glass elevators and escalators, and through tunnels and by-passes to yet more rooms and halls of connected activities and events."⁶ The conference space mimics the simultaneous sense of connection and fragmentation evoked by the network; its tunnels and by-passes leading to nodes of intersection and interaction, interspersed with stretches of anonymity and

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```

/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

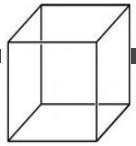
    // setup for getting face elements */

```

The question remains, then, how the imposition of AR artifacts within the space of the hotel will affect the social and architectural experience of that particular location. AR technology, first of all, will necessarily provoke alterations in the spatial experience of a particular location through its supplementary function. Whereas in Virtual Reality environments, “a virtual world replaces the real world, in Augmented Reality a virtual world supplements the real world with additional information.”²⁷ Virtual worlds, similarly to Modernist architecture as described by Jameson, repudiate real space, configuring a complete, computationally rendered environment that can supplant an existing location. Just as postmodern architecture provides an extension of urban space rather than a separate spatial and social zone, AR artifacts do not demarcate a virtual realm from a real-spatial realm. They do not insist upon transporting the user into another dimension of experience separate from the fabric of everyday life and everyday space. Instead, Augmented Reality overlays virtual objects on real ones, heightening the user’s awareness of particular aspects of that space.

For example, John Craig Freeman’s “Orators, Rostrums, and Propaganda Stands” “re-imagine[s] the museum plaza in the function of the public square” by making visible black and white animations of various contemporary public uprisings, from the Arab Spring to Occupy Wall Street.⁸ The anonymous social space of the hotel, transformed into a space of dialog during the conference, is further shifted into a space of active rebellion and resistance by the project. Smooth glass escalators and elegant foyers, locations of brief encounters and conversation, will be disrupted by political action. Like Freeman’s other projects, such as “Water Wars,” which superimposes makeshift shantytowns on elegant city streets, warning of the possibility of environmental refugee camps as water is increasingly privatized by major corporations, “Orators, Rostrums, and Propaganda Stands” works against complacency, mobilizing virtual objects towards an active and critical re-evaluation of spaces that might seem reassuringly stable or monolithic. Urban space, or the interior architecture of the hotel, is transformed in AR into a site of political upheaval, accentuating the user’s awareness that no space is neutral and that every space contains the possibility for confrontation and dialog.

As in the case of “Orators, Rostrums, and Propaganda Stands,” Augmented Reality not only operates through defamiliarization and a heightening of socio-political awareness, but through a strategy of narrativizing otherwise “mute” spaces. Whereas the postmodernist building as described by Jameson might be said to resist narrative through strategies of indirection and fragmentation, the augmented environment explicitly orients itself to the formation of narratives. This formation of narrative might be thought to be a modernist or utopian strategy, one that shores up the instabilities of postmodernist spatial wanderings. Narrative, in other words, might be thought to imply an arc, with exposition, climax, and denouement, a neat package that rejects loose ends, inscrutability, or absurdity. Often, however, augmented environments function more as provocations toward possible narratives, rather than as presentations of definitive storylines. They allow the user to generate the narrative, through the imposition of graphical or textual elements on an existing spatial configuration. Freeman’s projects create specifically political narratives, prompting users of equipped mobile devices to re-envision particular sites under



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apocalyptic conditions, while other projects, such as Pat Badani and Desiree Agngarayngay's "Power Potential," cause users to deliberate and narrativize spatial navigation.

```
/* set up for getting face elements */
```

AR elements complement and extend the space upon which they intervene, instead of replacing it, as in the case of the modernist structure or the virtual reality environment. In a 2011 manifesto for AR Art, the collective ManifestAR echoes this resistance to modernist utopian replacement or separation, proclaiming that "AR is not an Avant-Garde Martial Plan of Displacement, it is an Additive Access Movement the Layers and Relates and Merges. It embraces all Modalities. Against the Spectacle, the Realized Augmented Culture introduces Total Participation."⁹ Against the modernist avant-garde, which ultimately displaces art from everyday life, AR art layers virtual objects against the real to merge art and life at both a technological and theoretical level. Technologically, objects are superimposed upon the environment via the computing device. Theoretically, the elements provoke thought, action, or the formation of narratives in the interpretation of a given spatial configuration.

In "Psychasthenia Studio," for example, Joyce Rudinsky and Victoria Szabo create a piece combining text and AR elements that explores the process of testing for psychological disorders. They seek to show how "modern life contributes to the maladies it otherwise purports to cure."¹⁰ In one scenario, the user approaches an elevator. As the doors open, s/he confronts a man standing with his palms against the walls of the elevator, sweat beading his brow. A set of multiple-choice questions asks the user to respond in one of a variety of manners, ranging from empathy to disgust. The user's own "pathology" will be diagnosed from his or her response. This piece reveals a complex nexus of psychological states, from the anxieties of the man in the elevator to the user's own, potentially pathological, treatment of him. The particularities of the environment act as the trigger to this social situation, configuring the precise set of circumstances that lead to the man's own internal experience and the technologically mediated interaction between him and the user or "player" of the Augmented Reality game.

Augmented environments like this one work to illustrate the complexity of a given spatial texture. Projects like "Psychasthenia Studio" operate through the strategy of defamiliarizing places that have become unremarkable through repetition and habit. The elevator, for example, is a utilitarian space often hidden from view in a central shaft of a building. It is a vehicle for transition. But, this project also reveals it as a site of psychological pressure—not simply as an invisible or unremarkable aid to movement between floors but as a zone of unspeakable anxiety: of claustrophobia, fear of heights or of falling, of social discomfort. Space is not, here, merely a physical envelope, but a producer of psychological states and social interactions. As Lefebvre has claimed, space mutually shapes and is shaped by social practice; space must be understood in active, practical terms.

AR technology encourages a praxis-based approach to spatial knowledge. Its incorporation of mobile computing means that the body is activated in a process of movement and spatial exploration. This can take place in an eminently literal sense, as users move through space, using their enabled mobile device to scan a given location for the presence of AR objects. Or, it can take place notionally, as in the case of Pat Badani and Desiree Agngarayngay's "Power Potential," in which the image of a chandelier in the New York Hilton triggers a 54-second video

```
printf (obj_info = '%s'\n", obj_info[i]);
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```

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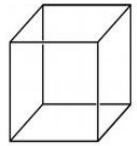
    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

```

taking the viewer on a voyage through 46 floors in the hotel. In this video, unlike in other AR works such as Freeman's, which require the user to navigate space, mobile device in hand, scanning his or her surroundings as AR objects loom into view on the screen, the experience of spatial travel is suggested rather than actuated through physical movement. Yet watching the video precipitates the sense of spatial and temporal rupture catalyzed by postmodern architecture. The video centers on the figure of the "luxury chandelier," both as a catalyst of "mood and atmosphere" and as an indicator of electrical consumption.¹¹ As each chandelier flashes into view, accompanied by the dinging of an elevator bell, the viewer is taken on a journey, but without being given a distinct sense of orientation. There is no kinesthetic or proprioceptive sensation of movement up or down, nor numeric indices of the levels through which the elevator passes. Only the bell and the flashing of chandelier lights reveal spatial and temporal passage. What might seem to be a disembodied visibility instead calls attention to the body; the physical memory of how it feels to travel vertically in an enclosed box and to emerge on a new level with new visual features.

The notion that AR technology activates an embodied, social, and practice-based spatiality is not immediately obvious. Given that a primary feature of AR-enabled devices is that they are often operated by an individual user, one might think that it is a technology that isolates and distances the user from social activity. The interaction with AR artifacts is frequently a personal experience, creating a particular locution of an AR "event" for a single user of a personal device. Moments of social interaction can unfold within this context, as artifacts come into view on the screens of computing device wielded by individual users. But this coming to light requires action on the part of only a single agent, enabling a spatial engagement and a development of a personal narrative about the site that can be experienced individually and then shared between users. Unlike spatial phenomena such as "Happenings" in the 1960s or "Flash Mobs" in the 2000s, which relied heavily on the formation of participatory groups, the mode of interactivity in AR supports an individuated experience of the physical world, augmented by the interposition of computationally modeled objects that appear when viewed through an enabled personal device. This does not mean that social practice is not invoked by AR environments, but that sociality must be investigated through the lens of the personal mobile computing device. The interaction between, in the terminology of ManifestAR, the "networked virtual" and the "physical real" is mobilized in order to "overlay, then overwhelm closed Social Systems lodged in Physical Hierarchies."¹² AR objects interrupt the visual landscape in order to provoke thought and action.

The phenomenon of "total participation," the mode of awareness and action brought into being through the intervention of AR elements on the existing landscape, requires an acknowledgment of contemporary spatial and social experience as ubiquitously mediated by mobile technologies.¹² Participation is, in these cases, manifested through the action of placing virtual elements within the field of real space, provoking thought, discourse, and potential social or political action. In a technologized world, social participation does not develop solely through immediate channels, such as pure face-to-face interaction, but is filtered and extended by the augmentations made possible by computing instruments. The augmentation of real space catalyzes social discourse; the partial imposition of the virtual carries significant effects in physical, social sites.



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```

A critical reflection on AR projects might suggest that the technology itself renders objects that sit awkwardly within their real spatial context. The virtualization, in AR, is incomplete, and the augmentation is clearly overlaying real space rather than blending with it. But in a sense, it is precisely this lack of integration that subtends the political possibilities of the work. In the words of ManifestAR, “Augmented Reality is a new Form of Art, but it is Anti-Art. It is Primitive, which amplifies its Viral Potency.”¹² Instead of lulling users into a seamless virtualization, numbing them to the mediated quality of technological intervention, AR elements reveal themselves as contingent and unstable. Without the mobile screen, they are invisible, their potentiality unrealized. When seen through a mobile device, they judder into existence, looming into view, rupturing the interior or exterior landscape. AR elements disrupt. This is their viral potency. They are potentially anywhere and everywhere, reminding the user that every space contains a subtext, for example the consumption of electrical energy underlying the dazzling display of chandeliers in “Power Potential,” or the notion that any space can become a platform for social uprising, in “Orators, Rostrums, and Propaganda Stands.” Even projects that do not speak a directly political language, such as “Nowhere,” which foregrounds alienation over social action, launch a critique of disengagement and aimlessness, advocating for an act of re-orientation on the part of the viewer.

The AR projects described here work against the disoriented, fragmented, and disengaged space of postmodern architecture. In certain cases, they amplify the dizzying overstimulation instigated by postmodern space, and in other cases, they use private experience—the view of objects on a mobile device—to foster social activism. In both cases, these projects critique postmodern space as a politically disengaged zone of frenzied, disoriented movement and vertiginous experience. Augmented Reality technology can be used to describe the alienation felt within the kaleidoscopic, stimuli-laden contemporary condition, or it can be alternatively mobilized to combat political and social disaggregation and non-participation. The personal computing device, which has been criticized as a tool that produces social alienation and distantiation from real social and spatial contact, becomes a catalyst for awareness or activism. Ultimately, AR enables political critique and action, mobilizing computing technology to move beyond the disengaged, fragmented and apolitical stance of the postmodern.

¹Jameson, Frederic. *Postmodernism: Or, the Cultural Logic of Late Capitalism*. Durham: Duke University Press, 1991, 40

²Jameson 40

³“Call for Participation: AR* to View.” <http://blogs.colum.edu/interarts-cbpa/2012/10/09/call-for-participation-ar-to-view/>. Accessed January 13, 2013

⁴Jameson 41

⁵Jameson 41

⁶Clarke, Rachel. Project Proposal for “Nowhere”

⁷Feiner, Steven, MacIntyre, Blair, Höllerer, Tobias, Webster, Anthony. “A Touring Machine: Prototyping 3D Mobile Augmented Reality Systems for Exploring the Urban Environment.” *Personal Technologies*, Vol. 1, Issue 4, 1997, pp. 208-21, 208

⁸Freeman, John Craig. Project Proposal for “Orators, Rostrums, and Propaganda Stands.” <http://www.nikolajkunst.dk/en/kunst/john-craig-freeman-orators-rostrums-and-propadanga-stands>. Accessed January 13, 2013

⁹ManifestAR. “The AR Art Manifesto.” <http://www.manifestar.info/>. Accessed January 13, 2013

¹⁰Rudinsky, Joyce, Szabo, Victoria. Project Proposal for “Psychasthenia Studio”

¹¹Badani, Pat, Agngarayngay, Desiree. Project Proposal for “Power Potential”

¹²ManifestAR. “The AR Art Manifesto”

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```

```
/* for each element
```

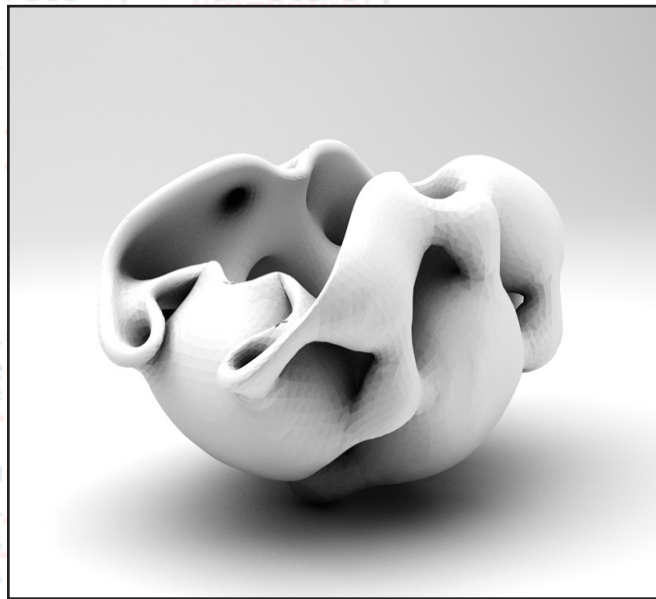
```
p_name,
p_name,
```

```
/* for each face element */
for (j = 0; j < flist[j]->nverts
```

```
the file
c (size
id *) f
```

```
for debu
printf ("face: %d, list = ", fli
for (k = 0; k < flist[j]->nverts
printf ("%d ", flist[j]->verts
printf ("\n");
```

qr to obj fille



STATEMENT

THIS PROJECT COMBINES THE NOTION OF "MATHEMATIC" WITH THE NOTION OF "MORPHOLOGY". FOR US COMPUTATIONAL SHELL REPRESENTS A PROCESS THAT IS EXPERIMENTAL IN NATURE AND EXPLORES VOLUMES, SURFACES, AND VERTICES THAT ARE FAR TO COMPLEX TO GENERATE USING TRADITIONAL METHODS. IN THIS PROJECT A SERIES OF COMPUTER MODELS WERE MANIPULATED AND DEFORMED BY A SERIES OF OPERATIONS AND BOOLEANS. THIS DIGITAL MODEL REPRESENTS THE BEAUTY IN RHYTHM, STRICT PROPORTIONS, MOVEMENT, AND REPETITION FOUND IN SEASHELLS.

```
for debugging */
```

```
(->name);
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```
in the file */
```

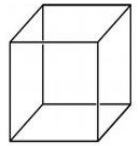
Jonathon Anderson + Ming Tang
Computational Shell

www.jonathonanderson.com

www.ming3d.com

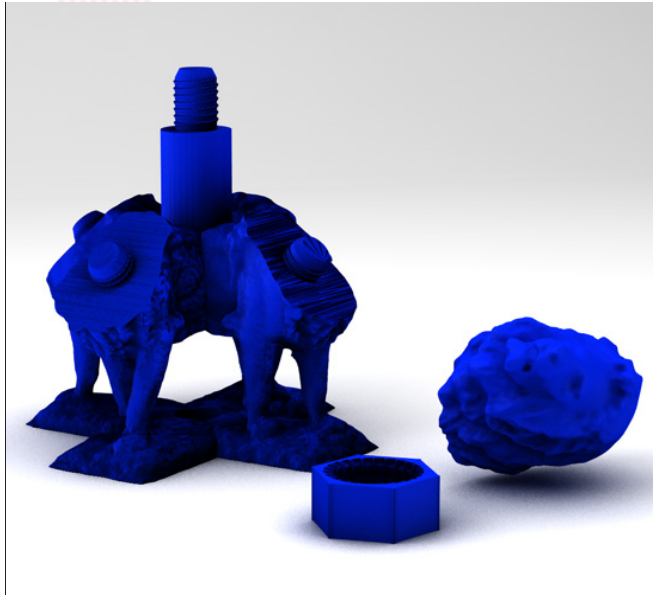
```
um_obj_info);
```

```
info[i]);
```



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if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);
```



qr to obj fille

```
    printf ("\n");
}
}

/* print out the properties we got,
for (j = 0; j < nprops; j++)
    printf ("property %s\n", plist[j]-
}

/* grab and print out the comments in
comments = ply_get_comments (ply, &num
for (i = 0; i < num_comments; i++)
    printf ("comment = '%s'\n", comments[i])

/* grab and print out the object info
obj_info = ply_get_obj_info (ply, &num
for (i = 0; i < num_obj_info; i++)
    printf ("obj_info = '%s'\n", obj_inf
```

Tom Burtonwood

a tower of ALC Lions

tburtonwood@gmail.com

STATEMENT

3D PRINTING IS AT IT'S BEST AS A CONNECTIVE TECHNOLOGY - AND THIS PIECE IS

INTENDED TO DEMONSTRATE THAT IN A VARIETY OF WAYS.

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```

```
/* element
```

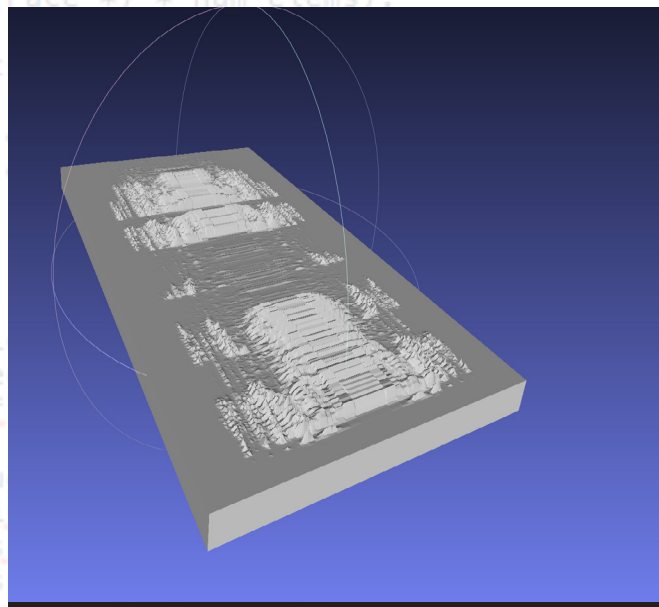
```
p name,
p name,
```

```
/* ts */
f j++) {
```

```
the fil
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id *) f
```

```
or debu
printf ("face: %d, list = ", fli
for (k = 0; k < flist[j]->nverts
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printf ("\n");
```

qr to obj fille



STATEMENT

“LES CARTES” IS A USER PRINTED SLEEVE FOR ARTIST BUSINESS CARDS. THE SURFACE MODELING CONTAINS THE DATA OF AN AUDIO SPECTRAL ANALYSIS OF THE PHRASES “I AM” AND “I MAKE”. THE REFERENCE OF COURSE IS TO DESCARTES “I THINK THEREFORE I AM” RECONTEXTUALIZED INTO THE AGE OF DISTRIBUTED ORIGINALITY AS “I AM (THEREFORE) I MAKE.”

STARTING FROM THE IDEA OF VISUALIZING THE INVISIBLE, ONE MAY IMAGINE ALSO THE INHERENT MODULATION OF THAT ORIGINAL BY ITS SUCCESSIVE REGENERATION, A PROCEDURE WHEREBY ‘SCANNING’ THE CARD (HOLDER) TO EXTRACT IT’S VOICE RESULTS ONLY IN DISTANT ECHOES OF THE PRESENCE OF ANY ‘ORIGINAL’. SCAN, CONVERT, PRINT, AND REPEAT, LEADING TO EMERGENT FORMS OF CONCRETE POETRY WHERE NEW SOUNDS, NEW OBJECTS, NEW MEANINGS, ARISE FROM THE REPRODUCTION OF THE GHOST IN THE MACHINE. YOU ARE THAT GHOST; HAVE CARD, WILL TRAVEL.

```
for debugging */
```

```
(->name);
```

```
n the file */
um cverts
```

Suk Young Choi

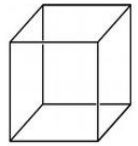
Les Cartes: (I make (therefore) I am), 2013

<http://skchoi.org>

choisukc@sfu.ca

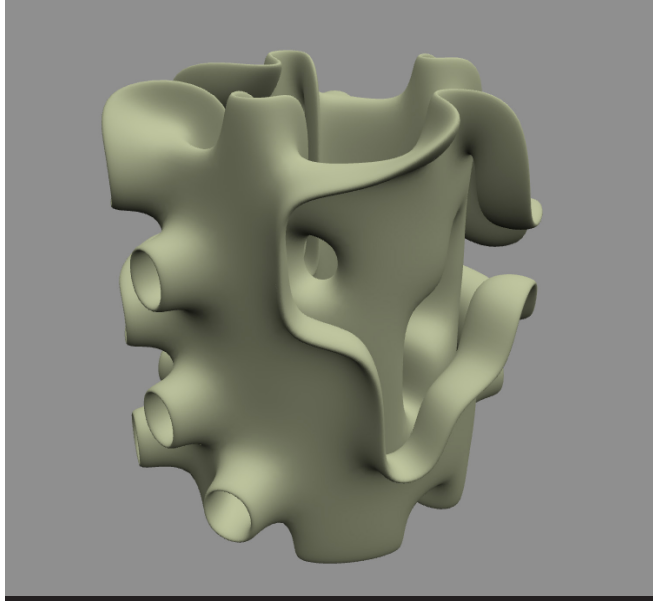
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um_obj_info);
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}

/* grab and print out the comments in
comments = ply_get_comments (ply, &num)
for (i = 0; i < num; i++)
    printf ("comment = '%s'\n", comments[i])

/* grab and print out the object info
obj_info = ply_get_obj_info (ply, &num)
for (i = 0; i < num_obj_info; i++)
    printf ("obj_info = '%s'\n", obj_info[i])
```

Chad Eby

Cylinder #5 from the containment studies series

chad@kth.se

STATEMENT

THESE FORM STUDIES EMBODY TENSIONS BETWEEN SEED GEOMETRY WITHIN A REGULAR GRID AND THE INFLUENCE OF THE “NATURAL FORCE” OF SUBDIVISION SURFACE SMOOTHING. AND YET, THE GHOST OF DESCARTES IS A PERSISTENT ONE...DESPITE THE UNCANNY MESENTERIC FOLDS, EVIDENCE OF THE GRID IS EVERYWHERE...

3D PRINTING PUSHES THESE DIGITAL FORMS INTO CORPOREAL REALITY, ACROSS THAT OTHER CARTESIAN BOUNDARY, IN A PROCESS THAT SEEMS HARD TO NAME: “REALIZATION,” “OBJECTIFICATION,” “REIFICATION” ARE ALL FREIGHTED AND CREAKY WITH OTHER CONCEPTS.

WHATEVER WE CALL IT, I FEEL WHAT IS MOST SIGNIFICANT ABOUT DIGITAL FABRICATION TECHNOLOGIES, PARTICULARLY THESE EARLY ONES WITH THEIR CRUDE NATURE AND IDIOSYNCRATIC ARTIFACTS, IS THAT THEY ALLOW US TO SEE HOW THE DIGITAL IS FUNDAMENTALLY DIFFERENT THAN THE PHYSICAL, HOW THE MODEL (ALWAYS PREVIOUSLY A PURPOSEFUL ABSTRACTION) CAN SWELL TO BE RICHER AND DEEPER THAN THE THING IT PURPORTS TO REPRESENT—HOW THE MAP CAN COVER THE TERRITORY.

```

/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

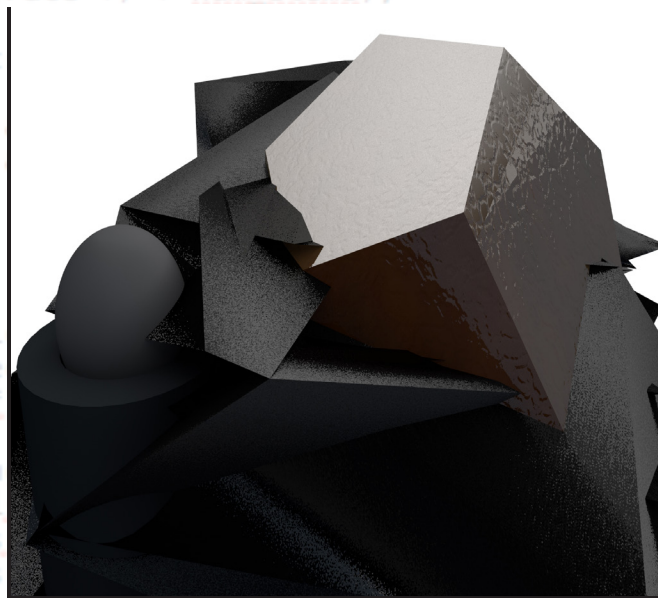
    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

    /* ... element ...
    p ... _name, ...
    p ... _name, ...
    /* ... ts */
    for (j++) {
        the fil
        c (size
        id *) f

    or debu
    printf ("face: %d, list = ", fli
    for (k = 0; k < flist[j]->nverts
    printf ("%d ", flist[j]->verts
    printf ("\n");

```

qr to obj file



STATEMENT

I WANTED TO FOCUS ON THE RELATIONSHIPS THAT COME WITH THE USE OF A 3D-PRINTER SO THIS WAS A MORE FOCUSED TECHNICAL CONCEPT AND A PLAY ON WHAT SOON MAY BE POSSIBLE THROUGH TECHNOLOGY (THE TITLE AFFIRMING THAT). I EXAMINED THIS LINEAR PROCESS AND MIRRORED IT IN THE SUBJECT: MAN'S DEATH AND HIS TRANSITION BACK INTO NATURE. CONSCIOUSLY FOCUSING ON THE MASS OF THE .OBJ FILES RATHER THAN THE SCENE, I WANTED TO MAINTAIN A STARK ENVIRONMENT IN THE ART; THIS IN TURN WILL KEEP FOCUS ON THE PHYSICAL REPRESENTATION.

```

for debugging */

```

```

->name);

```

```

the file */
um

```

Mattie Hillock;

Black Diamonds

```

ts[i]);

```

www.matthewhillock.com

mattie.d.hillock@gmail.com

```

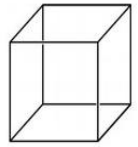
ormation
um_obj_info);

```

```

nfo[i]);

```



```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);
```



qr to obj fille

```
printf ("\n");
}
}

/* print out the properties we got,
for (j = 0; j < nprops; j++)
    printf ("property %s\n", plist[j])

}

/* grab and print out the comments in
comments = ply_get_comments (ply, &num
for (i = 0; i < num_comments; i++)
    printf ("comment = '%s'\n", comments[i])

/* grab and print out the object info
obj_info = ply_get_obj_info (ply, &num
for (i = 0; i < num_obj_info; i++)
    printf ("obj_info = '%s'\n", obj_info[i])
```

Krista Hoefle

Kryzzik

kristahoeffe.com

krista.hoeff@gmail.com

STATEMENT

I'M BUILDING OR USING 3D DIGITAL MODELS AND OUTPUTTING THEM FLUIDLY BETWEEN THE TWO METHODS. USUALLY THE ORIGAMI IS LARGER SCALE, PRINT SMALLER SCALE. I'M WORKING ON A PRINT OF A WoW CHARACTER (WHICH IS USUALLY ORIGAMI)

```

/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

    /* element
    p
    p
    /* ts */
    f
    (j++) {
        the fil
        c (size
        id *) f
        or debu
        printf ("face: %d, list = ", fli
        for (k = 0; k < flist[j]->nverts
        printf ("%d ", flist[j]->verts
        printf ("\n");
    }

```

qr to obj fille



STATEMENT

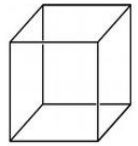
DIGITAL FABRICATION AND 3D PRINTING EXTENDS THE CAPABILITY OF TRADITIONAL ART MAKING. IT IS A FORCE MULTIPLIER COMBINING THE ABILITY TO MAKE IMPOSSIBLE FORMS VARIABLE AND IN SERIES AT THE TOUCH OF A BUTTON. LIKE CELLS WE CAN MAKE ONE OR MANY THOUSAND.

```

, for debugging */
(->name);

n the file */
um;
Holly Holmes;
Baubles
ts[i]);
hollyholmesb@gmail.com
ormation */
um_obj_info);
nfo[i]);

```

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);
```



qr to obj fille

```
printf ("\n");
}
}

/* print out the properties we got,
for (j = 0; j < nprops; j++)
    printf ("property %s\n", plist[j]-
}

/* grab and print out the comments in
comments = ply_get_comments (ply, &num
for (i = 0; i < num_comments; i++)
    printf ("comment = '%s'\n", comments

/* grab and print out the object info
obj_info = ply_get_obj_info (ply, &num
for (i = 0; i < num_obj_info; i++)
    printf ("obj_info = '%s'\n", obj_inf
```

Jim Jeffers

How To Fold A Bunny (two ways)

www.Fantabiography.com

Logein@gmail.com

STATEMENT

I KIND OF LIKE THE FAILURES INHERENT IN THE TECHNOLOGY.

```

/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

    /* read in the element
    p
    p
    name,
    name,
    /* read in the elements */
    for (j = 0; j < num_elems; j++) {
        /* read in the file
        c (size
        id *) f

        for debu
        printf ("face: %d, list = ", flist[j]);
        for (k = 0; k < flist[j]->nverts; k++) {
            printf ("%d ", flist[j]->verts[k]);
        }
        printf ("\n");
    }
}

```

qr to obj file



STATEMENT

SLOW BURN: MUD PIES INVESTIGATES THE ACT OF PLAY AND THE VALUE/DE-VALUE OF THE 'MADE' OBJECT. AS AN ABSTRACT FORM CREATED AS AN AVATAR FROM FOOD AND DELIGHT, THE MUD PIE IS DIGNIFIED AS AN OBJECT OF IMAGINATION, IMPORTANCE AND REVERENCE. PLACED ON DISPLAY AS A SCULPTURE, THE OBJECT EXCEEDS THE TRANSITORY NATURE OF MUD AND BECOMES A PERMANENT OBJECT.

for debugging */

(->name);

in the file */

um Michael Kozien

Slow Burn: Mud Pies

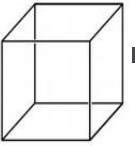
ts[i]);

www.michaelkozien.com

michaelkozien@gmail.com

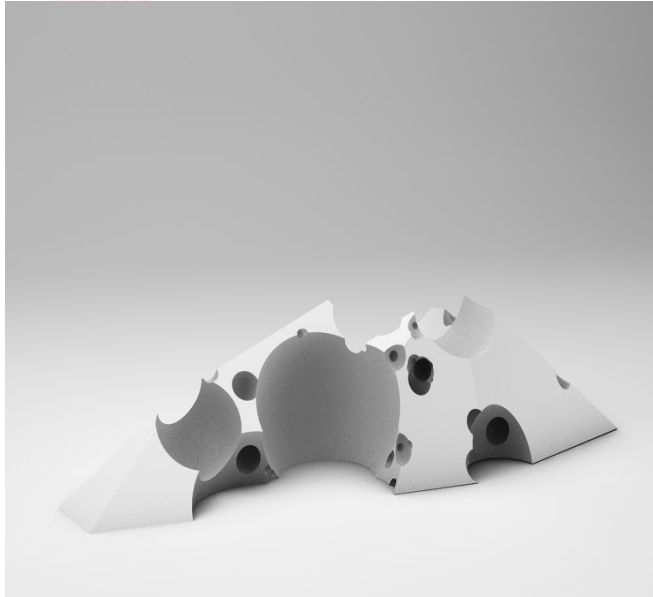
um_obj_info);

info[i]);



```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```



qr to obj fille

STATEMENT

THIS WORK IS AN INVESTIGATION INTO THE CARTOGRAPHY OF SYNTHETIC SPACE.

RATIONALLY BASED PRINCIPLES OF MAPPING ARE TYPICALLY APPLIED TO EXTANT FORMS TO PRODUCE REDUCTIVE REPRESENTATIONS. HERE, THESE SAME PRINCIPLES ARE USED GENERATIVELY TO CREATE AN EMERGENT FORM. THIS GENERATIVE SYSTEM IMPARTS THE WORK WITH A NEBULOUS SENSE OF A TYPE OF PLACE, WITHOUT REPRESENTING ANY REAL PLACE. IT IS THIS FECUND VAGUENESS THAT ATTRACTS ME TO THE MODELING OF A SIMULATION.

BY HIGHLIGHTING THE EMPTINESS AND THE ABSENCE OF INHABITATION IN INFORMATION STUDY #8, I ATTEMPT TO QUALIFY THE LIMITATIONS OF ABSTRACT COMPUTER SIMULATIONS. I BELIEVE THAT THIS KIND OF EMPTINESS CAN OCCUR WHENEVER ANY TYPE OF EXPERIENCE IS SIMULATED THROUGH GENERATIVE USE OF GENERALIZED ALGORITHMIC RULES. THIS DIGITAL PRACTICE DENIES THE COMPLEXITIES OF REAL-PLACES, INSTEAD SIMULATING AND EXHIBITING ONLY THOSE ASPECTS OF REALITY FOR WHICH RULES CAN BE NUMERICALLY DEDUCED.

Paul Lorenz
Information Study #8
paul.j.lorenz@gmail.com

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```

```
/* for each element
```

```
p = (Face *) malloc (sizeof (Face));
p->name = elem_name;
```

```
/* for each vertex */
for (j = 0; j < num_verts; j++) {
```

```
/* read the file
 * c (size
 * id *) f
```

```
/* for debug
printf ("face: %d, list = ", flist[j]);
for (k = 0; k < flist[j]->nverts; k++)
printf ("%d ", flist[j]->verts[k]);
printf ("\n");
```

qr to obj fille



STATEMENT

JAGUAR WARRIORS WERE ELITE MEMBERS OF THE PRE-COLOMBIAN AZTEC MILITARY.

ACCORDING TO WIKIPEDIA, AZTEC BELIEFS SUGGEST JAGUARS REPRESENTED THE GOD OF THE NIGHT SKY. WHEN WARRIORS FOUGHT IN THEIR SKINS, THEY WOULD BE GIVEN STRENGTH DURING BATTLE. JAGUAR WARRIORS PREFERRED CAPTURING ENEMIES, BELIEVING KILLING TO BE SLOPPY.

THIS CONTEMPORARY CHILD CLOTHED IN A JAGUAR COSTUME POINTS TO THE TRANSFORMATION OF THE WARRIOR MENTALITY. MEXICAN CRIMINAL ORGANIZATIONS RECRUIT VERY YOUNG WARRIORS TODAY, PROMISING FRATERNITY AND MYSTICAL FAVOR, FOR THE SAKE OF PROTECTING ILLICIT NARCOTIC MARKETS.

```
/* for debugging */
```

```
flist[j]->name);
```

```
/* in the file */
```

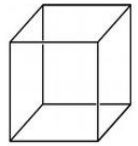
Ana Marva Fernández
Az(tech)Warrior

<http://anamarva.com>

info@anamarva.com

```
um_obj_info);
```

```
info[i]);
```

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```

image

qr to obj fille

```
nts */
, &face
, &face

[
ile */
zeof (F
flist[
ugging
list[j]->intensity);
ts; k++)
ts[k]);

printf ("\n");
}
}

/* print out the properties we got,
for (j = 0; j < nprops; j++)
printf ("property %s\n", plist[j]-
}

/* grab and print out the comments in
comments = ply_get_comments (ply, &num
for (i = 0; i < num_comments; i++)
printf ("comment = '%s'\n", comments

/* grab and print out the object info
obj_info = ply_get_obj_info (ply, &num
for (i = 0; i < num_obj_info; i++)
printf ("obj_info = '%s'\n", obj_inf
```

Alex Myers

RAWERTUNES10.EXE (3DUDE REMIX)

[http://](http://alex.myers@bellevue.edu)

alex.myers@bellevue.edu

STATEMENT

```

/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {

    /* create a list to hold all the face elements */
    flist = (Face **) malloc (sizeof (Face *) * num_elems);

    /* ... element ...
    p ... name, ...
    p ... name, ...
    /* ... ts */
    f ... j++) {

        the fil
        c (size
        id *) f

        or debu
        printf ("face: %d, list = ", flist
        for (k = 0; k < flist[i]->nverts
        ts

```

qr to obj fille

STATEMENT

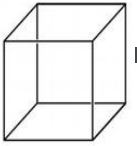
OUR TAKE AWAY EXHIBITION WILL CONSIST OF AN EDITION OF 10 IDENTICAL 3.5" 3D PRINTS. THE EDITIONS ARE A SMALL COLLABORATIVE TOY CREATED BY CHRISTIAN OITICICA AND NINA PALOMBA, INSPIRED BY THE ART GAME EXQUISITE CORPSE. EACH OF US ALTERNATED TAKING TURNS TO ADD SHAPES TO A FORM IN A 3D MODELING PROGRAM UNTIL WE CREATED A FINAL PRODUCT, WHICH IN THIS CASE TURNED OUT TO BE A SMALL CAT EARED TOY. THE EDITION WILL BE DISPLAYED LINED UP NEXT TO EACH OTHER IN A SMALL ARMY. THE AUDIENCE SHOULD BE ENCOURAGED TO PICK UP AND HOLD THE EDITIONS PLACED ON DISPLAY; AFTER ALL THEY ARE TOYS. THE QUALITY OF EACH EDITION DOES NOT NEED TO BE EXACTLY THE SAME. THE FILES ARE MEANT TO FAIL TO SOME EXTENT. WHEN THE PLASTIC SAGS AND WARPS IN AREAS, IT CREATES A UNIQUE AESTHETIC TO EACH EDITION MAKING THEM INDIVIDUAL OBJECTS. THEREFORE SUPPORT IS NOT NEEDED. THE REQUIRED MATERIALS TO MAKE THIS SHOW POSSIBLE WILL BE LESS THAN ONE SPOOL OF WHITE OR BLUE PLASTIC (CAN BE CLEAR IF OTHER IS NOT AVAILABLE).

Christian Oiticica and Nina Palomba
PoiLomba Tica

<http://www.behance.net/Christianoiticica>

<http://ninapalomba.com/>

Christianoiticica@yahoo.com



```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```

```
/* create a list to hold all the face elements */
flist = (Face **) malloc (sizeof (Face *) * num_elems);
```

image

qr to obj fille

STATEMENT

URME POLYGONS EXPLORES MY INTEREST WITH IDENTITY, DATA, AND THE OPEN SOURCE MOVEMENT. AS A 3D MODEL, MY FACE REPRESENTS A MATHEMATICAL ALGORITHM, A SERIES OF POLYGONS ARRANGED IN A CERTAIN FASHION. HOWEVER IT IS ALSO A KEY PORTION OF MY IDENTITY. IN MY PREVIOUS WORK, YOUAREME.NET, I HAVE SUPPLIED OTHER PORTIONS OF MY IDENTITY FOR THE PUBLIC TO USE AS MATERIAL AS THEY SEE FIT- SUCH AS MY BIOGRAPHY, LOGINS AND PASSWORDS TO SOCIAL MEDIA ACCOUNTS, ETC. MY INTERESTS LIE IN EXPERIMENTING WITH AND EXPLORING HOW IDENTITY IS FORMED BY ASKING WHO EXACTLY COULD I BE IF MY IDENTITY WE OPEN TO PUBLIC DISCOURSE? URME POLYGONS EXTENDS THIS DIALOGUE BY PROVIDING A NEW CONTEXT THROUGH THE PROLIFERATION OF MY FACIAL IDENTITY VIA EMERGING DIGITAL TECHNOLOGIES. MY FACE IS FOR YOU TO USE AS YOU SEE FIT. USE IT IN YOUR VIDEO GAME DESIGNS, AVATARS, SCULPTURES, OR ANY OTHER CONTEXT YOU COME UP WITH.

Leo Selvaggio
URME Polygons

www.LeoSelvaggio.com
Leo.Selvaggio@gmail.com

```
/* if we're on face elements, read them in */
if (equal_strings ("face", elem_name)) {
```



```
l the face elements */
f sizeof (Face *) * num_elems);
/ element
p name,
p name,
/ ts */
f j++) {
the fil
c (size
id *) f
```



STATEMENT

THE REVERSE ABSTRACTION SERIES BEGINS WITH A SIMPLE PREMISE: THAT HUMANS AND COMPUTERS PERCEIVE THE WORLD THROUGH DIFFERENT LANGUAGES, AND WHAT IS CONCRETE FOR ONE IS ABSTRACT FOR THE OTHER. THE OBJECTS AND SHAPES SO FAMILIAR IN HUMAN ART CAN BE NEITHER PERCEIVED NOR CONCEIVED BY COMPUTERS IN THEIR ORIGINAL FORM. LIKEWISE, THE CODES THAT ARE SO FAMILIAR TO A COMPUTER ARE MERELY SCATTERED SYMBOLS TO HUMAN SENSIBILITY. THE REVERSE ABSTRACTION SERIES ATTEMPTS TO BRIDGE THE GAP BY CONSTRUCTING TRADITIONAL OBJECTS IN DUAL FORMS: AS THE CLASSICAL OBJECT AND AS THE HEXADECIMAL AND BINARY CODES THAT REPRESENT THEM. THUS, ABSTRACTION BECOMES MATERIAL, THE MEANINGS FOR HUMANS AND COMPUTERS ARE UNITED, AND THE DUALITY IS RESOLVED.

ABSTRACTION IS A TERM BOTH USED IN ART AND TECHNOLOGY. ABSTRACTION IN ART STRAYS AWAY FROM THE RECOGNIZABLE WHEREAS ABSTRACTION IN COMPUTER SCIENCE MEANS THE OPPOSITE FOR HUMANS BUT THE REMAINS THE SAME IDEA FOR COMPUTERS. AS SOMETHING BECOMES MORE ABSTRACT IN COMPUTER SCIENCE IT BECOMES MORE RECOGNIZABLE TO HUMANS AND MORE COMPLICATED FOR THE COMPUTER. BINARY CODE IS THE FURTHEST FROM ABSTRACTION A COMPUTER CAN BE. TO A COMPUTER THIS IS RECOGNIZABLE BUT A USER INTERFACE, FOR EXAMPLE, WOULD BE CONSIDERED ABSTRACT TO A COMPUTER.

Ashley Zelinskie
Reverse Abstraction - Mobius

<http://www.ashleyzelinskie.com/>
ashley@ashleyzelinskie.com

```
, for debugging */
l->name);
n the file */
um
ts[i]);
ormation;
um_obj_info);
nfo[i]);
```