Statement of Purpose:

Amphium: A contemplative grotto for self-reflection and strange-looping

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Introduction and artistic intent

The concepts I am interested in exploring for this project are healing, contemplation, and the relations between self, language, and reality. I am calling my approach subjectivitiotics, because I am centrally concerned with the cybernation of subjectivity into alternate worldviews. My purpose is to design and build new digital interfaces for the mapping, exploration, and resubjectivization of self.

I am deeply passionate and curious about contemplation and healing. Having become skeptical of knowledge accumulation as a model of learning and modern psychiatry as a model of healing, I have increasingly turned to contemplative practices and experimental spirituality as life-enhancing healing practices and fascinating modes of research. As I move away from the social sciences and towards a more contemplative and artistic life, I want to use my understanding of non/self, psychospiritual healing, and digital technology to explore new ways of experiencing self-discovery, introspection, and reality-navigation. By collating traditional approaches to self with contemporary neuropsychological sciences, I plan to create deeply transformative artistic experiences.

Awakening in our society can be extremely traumatic. Most sources of subjectivization in our society—educational institutions, mass media, marketing, religion, and government propaganda—seem intent on subjectivizing people into limited experiences of reality, self, and—well, everything. The boundaries of normal subjectivity are heavily policed by psychiatric institutions[1] and those who stray outside the bounds are drugged and reprogrammed back into compliance. From a critical perspective, the whole effect seems almost calculated to create a large population of worker-robots—a cynical perspective would hint at far darker speculations. Realizing the extent to which one has been programmed without consent or awareness can be—to put it mildly—chilling, and digging one's way out of a highly-socialized one-track-subjectivity is a monumental task. With healing art, this transition can be made less traumatic.

I want to create digital art that catalyzes initiation into a meta-subjectival worldview (enlightenment) and that acts as a prosthetic accelerator for self-creation and self-development. I am deeply engaged with the critical pedagogical ethics of such an undertaking, asking fundamental questions such as, "Is it possible to be enlightened, and if so, is it desirable?", "Is it ethical to talk about a category, 'enlightened'?", "Can it be ethical to enlighten someone?", "When is deprogramming not simply reprogramming?" and "How is it

[1] Foucault, *The Birth of the Prison* and *Madness and Civilization*; *The Politics of Experience* by R. D. Laing.

possible to re/meta-subjectivize someone with the minimum amount of harm?" I am also deeply curious about the philosophical implications of my research, asking such questions as "What is non/self?" and "How does reality emerge from self?", and the political implications of my project, such as the relation between mass education, mass media, zombification, and political power.

My research has led me, in particular, to the poverty of language—specifically, semantic, connotative, and mythopoetic poverty—as a form of self-perpetuating memetic limitation. When our use of language is automatic and unconsidered, or normed to others' meanings (for example, as is generally required in citation-heavy scientific writing or throughout institutionalized schooling), thought is produced semi-automatically and we can play host to detrimental social or commercial programming with little (self-)awareness or possibility for criticality. However, when we deepen our relationship with our first language, internal space develops, and thought becomes semantically enriched and self-reflexive.

Prior work

Despite a longstanding interest in computer-aided introspection, I have never found any digital interfaces which resemble what I am trying to do, save one: Blowing Blues by Xuan Li.

I met Xuan at the 2012 Meaningful Play conference at MSU, and I was enchanted by his project, which he refers to as an "aestheticized health game." Compared to the many "gamified" "educational" train-wrecks floating around at that conference, his was (literally) a breath of fresh air. Blowing Blues is a meditation interface that helps you to let go of negative emotions. The game is controlled by the breath, detected by an ordinary microphone. The "game" is simple: negative emotion words float into a circle in the middle of the screen, and you gently blow them away (blowing too fast or slow doesn't work). This simple mechanism and the beautiful, relaxing graphics of Blowing Blues are remarkably effective, and I found myself relaxing and strongly reflecting on my emotions, even in the loud conference showroom. The negative emotion words can be customized and tracked over time with a built-in journal and graphing function, which was also beautifully implemented. It also has optional 3D goggles, adding to the immersion.

This work was huge inspiration for me—it was a beautiful, simple, and effective aid to meditation—the first spiritual interface I had seen that actually did anything (despite my repeated web searching for such things over the years, virtually all wisdom-related software I have found is offensively bad). Whereas Xuan's was an interface that supported meditation, I am more interested in supporting contemplation.

The project

My proposed project is to design, build, and refine a self-contained reflecting chamber called (tentatively) the Amphium. The Amphium will be modeled on a grotto, a low-ceilinged, circular room roughly 11' in diameter **(see Figure 1)**. The central feature of

the room will be a circular table with an embedded circular touchscreen (screen about 28" across). The table will be modeled after a reflecting pool, raised to a comfortable height (about 15") when sitting on the pillow-laden floor. The shape of the screen will mirror the shape of the room, creating an analogical relation between center and radius. On the screen, a complex linguistic mandala will be displayed, and reflecting with this interface makes up the core part of the experience.

The room is entered by traveling, head bent, down a short, sloping stone tunnel that turns slightly to the right. A light breeze blows, water drips from overhead, and drips and footsteps are digitally echoed and reverberated into resonant glitched staccato, which combine with deep ambient resonances of cave stone. Reflecting down the walls from up ahead is electric blue light, rippling as if cast by water located around the corner, but tending subtly toward the sinusoidal in pattern (the light slightly too electric-blue to be natural). Footsteps and other sounds perturb the reflections slightly.

Upon rounding a corner and ducking through a narrowed portal, one enters the small, circular chamber. The sculpted stone walls dance with blue light of a slightly deeper hue, again evoking both water reflections and digital perturbations. A low, resonant hum is heard, and the sound of large water drips glitching into static ("bloop-kssshhh") coincides with localized devolutions of the deeper-blue wall-ripples into electric-blue static. Looking at the digital pool in the center of the room, the drops can be seen to be falling on the screen from an invisible source above, completing the virtualization of the water. The pool does not look like water, but a blackness in which the drops can be seen echoing out to the walls.

Approaching the pool and kneeling at it, one might touch the surface. Brief taps will produce drops, and drags will produce electric-blue lightning which scatters around the room and only gradually fades. Both effects appear in locations on the walls analogous to the location touched on the screen (until they reflect), and have appropriate sound effects that, like the ambient drops, reverberate into noise.

Generating a lightning storm proceeds to the next mode. This can be accomplished with one purposeful two-handed sweep (five fingers of each hand), or a few rapid sweeps of one hand. When the walls fill with blue lightning, a glowing, pulsing ring floats up to the surface of the pool, rotating slowly. As this happens, the walls "snap through" to a toroidal geometric pattern, with circulating manifolds, that matches the color of the ring. The ring revolves slowly on the pool, changing colors (along with the wall) as it turns. Rotating it with one or more fingers will "tune" the wall and ring's color manually. Pulling a point on the circumference in or out will deform part of the circle, producing a low humming sound proportional to the intensity of the deformation (and likewise varying in pitch), and deforming part of the wall's geometry to match (more fingers pulls harder, encouraging intensity). Pulling two points on the circle at once will produce a wobbling sound, especially as the deformations are pulled towards each other to overlap.

By pulling two points on the circle entirely across the circle, the circle deforms intensely **(see Figure 2)**, and an intense warbling sound is produced as the walls constrict and double-up (with manifolds of light) in sympathy. Since the circle is still anchored to its original circumference by two anchor-points, the visual tension is high. At this point, letting

go or retracing direct lines back across the circle will undeform the circle again. However, at this level of deformation, the background of the pool changes into clockwise, vortical swirling patterns, implying the continuation of the implexion movement.

Any introduction of rotation at this point (i.e., during intense cross-deformation) will produce a new, more distressed (lower-pitched) warping sound, and if the revolution is completed (about ½ turn) whilst held in double-deformed tension, the circle turns inside-out and flies off the screen by spinning and expanding. The projection on the walls, which had been constricting and doubling-up in sympathy with the overlapping deformation, constrict to the point of disappearing, and all the lights go out for a moment before the torus "reconstitutes" itself by fading in from a blurry, much-larger infinity. The circle zips back up from below, spinning, this time growing from a small point as it rises from "the deep" (when it first appeared, it floated up starting almost full-size).

In summary, the visitor enters into the grotto through a transition zone, sits down at the reflecting pool, plays with the drops and lightning until a storm is generated, and plays with the ring's color-tuning and deformation properties until its inversion sequence is discovered, turning the ring—and themselves—inside-out.

The reflecting pool

> *What he could do, however, was type out on the keyboard linked to the hologram a few crucial words of Scripture, whereupon the hologram would align itself from the vantage point of the citation, along all its spacial axes. Thus the entire text of the Bible would be focused in relationship to the typed-out information.*
>
> *"What if I fed something new into it?" he had asked Elias one day.*
> *Elias had said severely, "Never do that."*
> *"But it's technically possible."*
> *"It is not done."*
> *About that the boy wondered often.*
>
> —Philip K. Dick, *The Divine Invasion*

Now the main mode begins **(see Figure 3)**. Like constellations, small twinkling points of white and off-white light appear on the background, within and about the floating, still slowly-rotating ring (now also white). The walls, still dark, now blur into focus as a starfield as well. The table is illumined from below with soft white light. The stars in the pool and on the wall slowly precess in unison. Touching and dragging reveals that we are looking at a top-down view of a three-dimensional torus—the white circle (smaller than it was in the prelude) is the core of the torus, about six inches below the pool's "surface," and the torus rotates as we drag radially (as in the prelude), and rolls in on itself as we drag in and out. That is, as we drag towards the center, the torus (and its stars) roll inward, and as we drag from the center, the torus of stars rolls outward. New stars roll up from underneath, and stars blur as they roll under. These actions are also mirrored by the stars on the wall.

If a star is moved into the center of the torus—which is about 4" across and empty of stars—the white walls of the 3D torus become visible, and resistance is felt on the star's movements. Continuing to pull the star towards the hole will "pop" it out of the torus (off it's inner circumference, the hole's border), allowing it to enter the hole in the center. Double-tapping a star will also immediately center it and move it to the hole. This is called **focusing** a star. Only one star can be focused at a time. Stars can be unfocused by dragging them back out of the center/hole. Whenever a star is focused, a small tri-LED centered above the pool lights up and matches its color, emphasizing the relation between pool and chamber.

Now, an onscreen keyboard appears, and the star can be named. Tapping anywhere off the keyboard or dragging the star back out of the hole will cancel this action. The name appears in the hole, over the star. Once named, the keyboard disappears, but a star can be renamed at any time by focusing it and tapping its name. After naming, the small circle around the hole lights up and gets a **color**, and tuning this ring will set the star's color. At the same time, tuning this ring will rapidly color-bend the torus, navigating to different sets of stars (the stars on the lower half of the torus—since they are inaccessible to dragging—are blurred out and "not here"). Thus, the torus acts as a lensing mechanism into a much larger starfield in higher-dimensional star-space. These actions are mirrored by the walls, and careful observation will begin to reveal that the walls do not simply match what is on the screen, but show (a selection of) the blurred underside of the torus, the "not here" stars variously referred to as subterranean, "down below," or in "the deep."

After at least one star becomes colored, the torus gains an outer edge with a color intelligently determined by the set of all colored stars that are currently visible. Thus, the torus now has three circular features: an outer colored ring, a core ring, and the inner ring surrounding the hole. As already described, radially dragging the core ring or the starfield rotates the torus (and walls). Tuning the outer ring **phase-shifts** the torus just as tuning the inner ring does, but at a much slower speed, and without affecting the color of the currently-focused star (if any). As the torus phase-shifts, its color changes, and named stars fade in and out of the starfield as they become in-tune or out-of-tune with the torus's changing phase (color). Color-bending is accompanied by a lateral torquing graphical effect in the current color. In this way, named stars can be organized by phase or color. The currently-displayed set of stars is not limited to those of the current phase; it includes stars in relation to stars of the current color. (There is a limit to the number of named stars which will display at once; stars are chosen semi-randomly as the torus rolls or the color bends.)

When a star is focused, touching other stars has different effects than when no stars are focused. Tapping a named star will form a threadlike link with the center star. Slashing the link will cut it. Links grow stronger over time, and this is reflected in their thickness and graphic intensity. Stars also grow in size and brightness over time, and gain twinkles in colors that match their most strongly-linked stars.

When no star is focused, touching a star shows its name. Tapping a star's name **highlights** or unhighlights it. When a star is highlighted, its name, links, and the names of its (visible) linked stars appear, and it begins drifting towards the core ring. As it drifts, the

starfield reorients to accommodate the multidimensional shift in perspective. When the highlighted star reaches the core ring, it sticks there, and rolling the torus will not move it anymore (because it is on the axis of rotation). Tapping a highlighted star will release it from the core ring, and it will begin to roll with the torus again. As the torus rolls ambiently, the highlighted stars drift towards equidistant positioning around the core ring.

The set of highlighted stars influences the stars that appear as the torus rolls, whether ambiently or via dragging. Stars with direct links to highlighted stars are more likely to appear, with a preference for stars with lower link strength, focusing contemplation on new or less-considered relations (other random stars will also still appear). When rolling the torus manually (via dragging), all stars will show their names, but after 5-20 seconds (modulated to recent user activity level), all names except the names of highlighted stars will disappear (tapping the background will also hide all star names, including highlighted stars, immediately). This allows quick revealing of all named visible stars, and search/exploration of related named stars, without distracting with too many words during periods of quiet reflection. For the same reason, the number of stars that can be highlighted at a time is limited to nine. Threads of highlighted stars always remain visible, creating ever-changing criss-crossing patterns reminiscent of constellations.

The effect of all this is to allow one to form and explore a network of named stars. After naming some stars and forming links, the network can be explored by unfocusing, then tapping one or more star names to focus them. Then, the torus can be rolled to show stars more likely to be related to the highlighted stars—or wait for ambient rolling, and tap stars with visible threads to reveal related stars.

Astral collapse

I have described what happens when the user taps a colored star (it shows its name), but what happens when one taps a white star? It **collapses** (like a quantum waveform) into a known (named) star. The star chosen is calculated—as much as possible—to generate *thought-provoking juxtapositions*. A white star becoming a colored star is accompanied by a water-drop animation and shimmering water-drop sound, with the pitch of the sound corresponding to the color of the named star. The named star is chosen semi-randomly, and depends upon whether any stars are highlighted:

- If no star is highlighted, a star will be chosen semi-randomly from non-visible stars, with a preference for stars that have not been viewed recently. This allows for recollection of old thoughts, and optionally (by focused or highlighting the star) exploration of its links.
- If one or more stars is highlighted (or a star is focused), a semi-random star will be chosen that is *intermediately-related* to (i.e., in *dynamic tension* with) the highlighted star(s). On the torus, these stars are located in the subterranean area of the torus—technically around the inner ring, if the highlighted stars were all to be focused simultaneously (and in fact this is what's happening, algorithmically—the 2D core ring is analogically co/nonlocal with the 0D origin point **(see Figure 4)**. The inner ring, being closest-to yet infinitely-far-from the nonlocal origin, is the location

in highest tension to the origin). This algorithm produces thought-provoking, even inspiring or epiphany-triggering combinations from the universe of stars.
- If no stars have been named yet, a single tap acts as a double-tap, focusing the first star tapped so that it can be named (usually, this will only happen once).
- Any tapped white star has a chance to collapse into a symbol from the symbol library. These are simply named stars which display a graphic instead of a name. See below under "Feasibility and variations" for more on this functionality.

Summary of toroidal starfield organization

To reiterate and summarize, named stars are toroidally organized like this:

- The set of visible (interactable) stars is made up of named stars and unnamed stars. When the torus rolls in or out, this field of stars changes. The stars chosen to appear are those compatible with the current phase of the torus (as shown by the color of its outer ring, and of the walls. Stars related to phase-compatible stars are also phase-compatible, with compatibility decreasing with link strength and decreasing sharply with each additional interlink), slanted towards the inclusion of stars related to highlighted stars. The stars shown also change when the torus is phase-shifted, as described previously. Unnamed stars are distributed randomly, and will collapse into named stars when tapped, as described previously. The torus rolls ambiently, so the set of visible stars is always slowly changing.
- Stars that are unrelated to the current starfield are hidden on the blurred bottom half of the torus.
- On the walls, a selection of stars from the blurred underneath of the torus are shown. On the midline circle (just above eye level), a selection of *intermediately-related* stars are shown—these or other intermediately-related stars will appear in the pool when an unnamed star is tapped (disappearing from the wall if applicable). If no star is currently focused, the intermediacy is calculated in relation to highlighted star(s). If no stars are highlighted, intermediacy is calculated in relation to all visible stars. In fact, the midline on the wall is the inner ring of the torus, seen from inside the hole.
- On the walls off the midline, a small selection of random named stars are shown. All stars on the walls show their names at all times.

Warpdrive

When a star is focused, the white core ring of the torus begins to vibrate with electric blue energy. Touching the blue ring produces a humming sound, and dragging on it produces crackling blue lightning (this is not mirrored on the wall, since the core ring has no analogical counterpart on the wall). The ring cannot be spun or deformed (it just crackles and warps slightly), but if two fingers are used in different places, it seems the ring can be shrunk or expanded. However, it will take at least four fingers to shrink or grow it significantly, and so that it doesn't bounce back to its default size. Shrinking or growing the

core produces a humming sound: lower-pitched if the ring is shrunk (towards the center) and higher-pitched as the ring is expanded (towards the outer circle of the torus). Using four or more fingers in this zoom in/out action will cause the core to stick in its new size/location. This humming persists as long as the core remains a non-default size (a sticky point around the default size makes it easy to exit this mode). Shrinking or growing the core engages the warpdrive (this hides highlighted stars).

When the warpdrive engages, the starfield polarizes visually towards or away from the center. The inner ring and the focused star remain the same color, but the outer ring begins to change color as the torus warps through the spectrum. The warpdrive implexes the torus along the *ana-kata* dimension[2]: when the core has been shrunk (zoom-out gesture), the warpdrive travels *ana* (out/up/meta); when the core has been expanded (zoom-in gesture), the warpdrive travels *kata* (in/down/meso). This implexing motion is the torus folding-in on itself, just as the visitor folded the first circle back on itself to invert the Amphium. However, the toroidal implexing is continuous and has no clearly-defined start or end point—except when the outer ring color momentarily synchronizes with the inner ring's color, signaling a *strange loop* (this is accompanied by a warble in the pitch of the warpdrive's hum).

In Douglas Hofstadter's *Gödel, Escher, Bach*, the author lays out an intricate geometry of consciousness which depends upon the book's three eponymous ideas: the ever-incompleteness (or inconsistency) of formal systems proved (through meta-analogic self-contradiction) by Gödel, the self-containing and self-reflexive recursivity of Escher's art, and the superlatively complex retrograde (and often recursive) fugues of Bach. At the heart of Hofstadter's model is the "strange loop," a pattern of traversal down (or up) through frames in which we suddenly find ourselves back where we started, by looping back around through the self-containing hierarchy of frames. Often, this movement back to origin coincides with a feeling of not-having-moved-at-all, or a feeling that everything-is-the-same-but-different. When a strange loop of consciousness is experienced, there may also be a swooshing feeling as reality reorients around the "middle zone" of imminent spatiality/chronicity.

When the warpdrive is engaged and the starfield polarizes, the torus also begins to roll—if one were to simultaneously tune the outer ring and roll the torus (by dragging the starfield towards or away from the center)—one could (given the correct color/roll ratio) manually simulate the warpdrive without a focus and travel (approximately) in strange loops. However, with a focus, the words that the warpdrive rolls up from below are intelligently selected to be "above" (when traveling *ana*) or "below" (when traveling *kata*) the focused word. Stars that appear while using the warpdrive display their names at all times, so reading them leads one through a "hallway of words" that loops back on itself through the abstract-concrete dimension (technically, "abstract-concrete" is too concrete to describe the ana-kata dimension). Engaging with this hallway will produce unusual

[2] According to mathematician Rudy Rucker, this is the 4th spatial dimension (first coined by Charles Hinson).

experiences of drilling-down or rising-up through layers (warped phases), only to arrive back where one started.

Summary of experiential impact

To recap, here is a summary of the ways in which the Amphium organizes and challenges the self:

- Sitting in the quiet room encourages self-reflection. The named stars serve as touchstones during contemplation so the mind can be left free to wander (contemplation is a paradox: directed mind-wandering).
- By creating an analogical relation between the circular chamber and the pool, and between the chamber-and-pool and the outer-and-inner rings of the torus on the screen, the visitor is simultaneously implicated as being located within the body of the torus (pool = torus hole), the hole of the torus (pool = torus origin), and outside the torus looking down from above (pool = viewing window and—to some extent—the circumference of the torus). This collapse of self-referential scale generates a transliminal space in which inner and outer become confused. (This scale confusion is also enhanced by the reflecting pool resembling the night sky.)
- By beginning the main part of the experience with turning a circle inside-out (combined with self-referential scale confusion), the self is led to feel turned inside-out. This is further enhanced by displaying named stars from "below" (unconscious self content) on the walls.
- Naming stars, organizing them into phases (by color), and forming links between stars is a contemplation of self-organization and self-coherence.
- I hypothesize that the juxtaposition of intermediately-related named stars (i.e., words likely to be attached to concepts in dynamic tension with each other) will challenge the self by provoking thought, inspiring ideation, and even triggering epiphanies. This will disorganize the self, challenging the visitor to see bigger pictures and form more complex theories of relation.
- The warpdrive will lead consciousness in strange loops, drawing attention to the ana-kata dimension of consciousness and prompting self-reflection on self-reflexivity. **Supporting and triggering these experiences of contemplative self-reflexivity is the ultimate purpose of this installation (and author).**
- Based on my research[3], I theorize that the toroidal geometry presented in the Amphium—with its empty center, analogical self-similarity, and kaleidoscopic perspective-changing—is a good model of the actual geometry of the (un)real self. Being able to play with these dynamics and feel their effects visually, aurally, and cognitively, at multiple levels, is likely to be highly educational.

[3] My torus geometry is not original: it is isomorphic with other geometric descriptions of consciousness, self, and time, such as those explored by Douglas Hofstadter, Franklin Merrell-Wolff, Arthur Young, Buckminster Fuller, Rudy Rucker, and Nick Land. It is also—remarkably—isomorphic with various symbolic and shamanic maps of consciousness, such as the idea of *axis mundi* and the three worlds, or the qabalistic tree of life.

Feasibility and variations

1. It is important to note that all aspects of this design need **extensive user experience testing** and refinement, including possible redesign.
2. It may not be feasible to find or build a "**stone hallway**" and "stone chamber" as described above. However, a concrete basement, particularly one with a spiral staircase, would work nearly as well—in some ways better, since the modern construction of an industrial basement might strain belief less than a cave-style transition zone. In the budget, I have assumed that such a suitable space has been found at no cost, obviating the need to budget for cement or elaborate stone constructions.
3. I do not think high-resolution circular touchscreens exist yet. A second choice would be a high-resolution **octogonal touchscreen**. A third choice would be a square touchscreen. In the case of a square screen, the table and room should also be square to maintain the analogical relationship between them.
4. I designed Amphium as a **permanent installation**, or at least long-term, allowing repeated visits in which a large personal starfield (or connectome) of named stars can be built up and interlinked. If the starfield is to be a personal construction (which would be ideal), it would require some form of user account interface (a wireless tablet interface might work well for this). Alternatives to this include:
    a. The installation is pre-seeded with named stars, and resets for each visitor (symbols might be the best way to do this, see next bullet).
    b. The starfield persists across visits, introducing a social aspect to the experience.
5. The introduction of **symbols** would enhance the experience by contrasting the signatory specificity of words with the symbolism of image. Symbols are simply named stars that have a graphic assigned to them from a database of symbolic graphics (for example, a slowly-burning flame or a small growing leaf). Instead of the star displaying, the symbol displays. Additionally, collapsing white stars have a chance of becoming a symbol from the database instead of a user-entered star, introducing unexpected meanings to the experience that can be controlled by the artist. (This might be the best way to pre-seed the installation for each visitor; see #4.)
6. Before entering the transition zone, a **locker** might invite the user to leave their valuables. This would enhance the crossing-over ritual, but the appearance of the locker would have to be carefully designed to prevent triggering theft anxiety (ruining the effect).
7. Introducing **social features** could prove fruitful. Words from other visitors or from other Amphium installations could be introduced in the same way symbols are (see #4 above). Sharing words amongst visitors introduces subtle ulteriorization (brain synchronization or intention harmonization) to the concept.

8. The ability to save **named constellations** would be beautiful and possibly very helpful in creating conceptual relations that are memorable. However, it might also be superfluous.
9. Introducing **unique words from imported texts** (the same way symbols are introduced, see #4 above) would be an interesting way to reflect on books, journal entries, email archives, or any other text that the visitor would like to comb through.

Timeline

Here is a projected timeline for the project. I put the raindrop, lightning, and circle intros as early programming milestones because they will serve as ramp-up challenges as I learn graphics programming and familiarize myself with the hardware/software platforms and APIs.

Month	Programming track	Hardware track	Research track	Installation track
1			Platform/API research	Location scouting
2	Initial API setup and touchscreen “Hello world”	Screen acquisition	Hardware research, screen research	“
3	Raindrop graphics and sound demo	Screen setup, projector acquisition	Projector research	“
4	Projector “Hello world” and calibration	Projector acquisition	Hardware research	“
5	Projector raindrop graphics	Pool computer acquisition and setup	Research and development of toroidal algorithms	“
6	Blue lightning demo with sound	Pool podium materials acquisition	“	“
7	Projector lightning graphics and transition	Pool podium building	“	“
8	Color ring demo with sound	“	“	“
9	Starfield torus with rotation and rolling graphics	“	“	“

10	Star naming and linking interface	Pool podium lighting and wiring	“	“
11	Star coloring inner-ring interface	“	“	“
12	Star-choosing logic for torus rolling and white star collapse	Pool podium finishing	“	“
13	Torus phase-shift logic and outer ring interface		“	Location acquisition & measurements
14	Torus phase-shift graphics and sound		“	Location scheduling
15	Graphical polish and interface refinement		“	
16	Projector torus graphics and star choosing logic		“	
17	Warpdrive core ring interface		“	
18	Warpdrive graphics and sound		“	
19	Warpdrive star-choosing logic			
20	Projector warpdrive graphics			
21	Transition zone projector graphics and sound	Other materials acquisition		Begin advertising
22	Bugfixing and refining			Chamber installation
23	Testing, bugfixing, polishing			Transition zone installation
24	“			Plan opening

Budget

Here is a proposed budget for the project. At this early stage in research into specific technologies and equipment, many costs must be estimated.

Item	Price
Custom multitouch display	est. $2,000-$3,000.00

4 projectors for room + 1 hallway (e.g., Epson PowerLite 3020e)	$1899 * 1.1 tax * 5 units = $10,444.50
Computer with multicore processor and high-end graphics card	est. $1,500-2,500.00
Four speakers for chamber + two hallway (e.g., Yamaha BR15 w/ sub)	$289 * 1.1 tax * 6 = $1907.40
3 microphones for hallway	$80 * 1.1 tax * 3 units = $264.00
Audio cables and adaptors	est. $150.00
Materials for table	est. $200.00
Lighting and wiring for table	est. $100.00
Pillows	est. $150.00
Paint, hose for water drip, misc supplies	est. $200.00
Total	est. $16,915.90-$18,915.90

Collaborators

One type of collaborator that would be appreciated is simply someone to help with the large amount of programming this project requires. I will also be consulting mathematicians to help actualize the torus geometry and its embedded graph logic in software.

With some background in music (eight years of piano, one of flute, two of saxophone), and a lifelong interest in electronic music and composition, I took two (and sat in on two more) DXARTS digital sound classes while completing my undergraduate degree at University of Washington. I was enchanted by the highly-experimental electronic music (including visual music) I was exposed to, and I am extremely interested in pursuing other modalities for my work and in developing my artistic eye and ear to the utmost. The design proposed in this essay, since it is an abstract model in my head, could be plugged into other modalities as I develop my sensibilities in the DXARTS program. Although I think a word-based app could be quite sublime and enlightening (even poetic), a musical or visual-music translation of the logic behind the app might prove to be a quantum leap forward in beauty and sublimity.

Having taken several classes and having met many of the DXARTS graduate students in classes, at concerts, and in the lab, I can say unreservedly that I would enjoy and benefit from collaborating with any of them. Never have I seen such a high concentration of brilliance, creativity, and genius in one place as in the DXARTS program—the combination of neuroacoustic and technical wizardry and highly-refined aesthetic sense that every digital sound student (including many of the undergraduates) seemed to possess stunned

and humbled me. I am particularly interested in bringing my work into a more musical paradigm (both audio and visual), so I would be particularly excited to collaborate and create with the digital sound- and music-oriented students. I also have an intense interest in cybernetics and the artistic applications of neuroscience, neuroacoustics, and brain-machine interfaces that I would like to develop further (I am comfortable already with dense neuroscience papers, and have some familiarity with cybernetic thinking). I have a vivid musical imagination, so an opportunity to refine my ear, communicate my ideas, and expand my musical imagination and aesthetic sensibility by working with the other DXARTS students would be a treasured experience.

Future directions and conclusion

The design described in this proposal is only the first in a lifelong series of experiments in creating advanced digital interfaces for the investigation and prosthetic support of reality-navigation (ontocyberics), subjectivity-warping and (re)subjectivization (subjectivitiotics), temporal disturbance and chronodiversity, and digitally-mediated subterranean or subconscious communication and harmonization (ulteriorization). As a pre-actual mental and imaginal design-space, the Amphium design and its geometry have potential for translation into many media. I am particularly interested in coming up with aesthetic alternatives to the logocentric nature of the current design (especially multimodal music); in adding unusual and abstract social features to the app; and in refining and enhancing its ability to trigger cognitive reorganizations, synchronicities, and strange loops in consciousness. This first experimental design, if constructed, promises to create an interface platform for future development, to generate an enormous amount of information by which to elaborate theory, and to act as a beautiful and life-enhancing art interface.

It is my deep desire to have the time, space, and community necessary to complete this and other works. From my experience with the DXARTS program, I can think of no community of artists that would inspire me more. I feel that my artistic approach and aspirations align well with the highly technical and experimental approach and uncompromising artistic philosophy I have seen expressed by current faculty and students, and I can only hope to join your community to contribute my own inspiration and cultivate my technical proficiency and artistic sensibilities.