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Mark-David Hosale

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# Homunculus Nimbus

*Abstract.* This paper discusses the concepts and process in the creation of *homunculus nimbus*, an installation made of several sculptural bodies (*homunculi*) that are used to cover shell-like pavilion that acts as a habitat for the *homunculi*. *Homunculus Nimbus* is a projection of a future where synthetic life-forms are commonplace. The exhibit simulates the life-like resting and wake cycles in nocturnal beings by providing quiet and shade in the day and by activating with light and sounds at night through a continuous flow of light patterns in response to each other. From a distance the work is sculptural, but it is a destination as well as an object. Visitors are invited to enter the work, benches provide a place to rest and contemplate, inhabit, and commune.

Mark-David HOSALE<sup>1</sup>

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## Introduction

*Homunculus.nimbus* (fig. 1) is the re-imagining of a previous work called, *homunculus. agora* (Hosale, 2015), which was exhibited for one year in the Markham Museum, Ontario, Canada from September 2013 to August 2014. *Homunculus.nimbus* and *homunculus.agora* are both installations made from the same sculptural bodies (*homunculi*) but with different treatments and contexts.

In *homunculus.agora* the *homunculi* were suspended in an eighteen by nine-meter double-height gallery and shown as part of a group exhibition in a museum context. As an *agora*, the work was imagined as a forum where people could come and reflect on the concepts of the work. The scale of this particular installation afforded the modality of assembling, as it was in a fairly large, reverberant space. Therefore, the use of the term *agora* was an invitation to gather there and exchange ideas.

For *homunculus.nimbus*, the *homunculi* are used to cover a seven-meter diameter, shell-like pavilion that was custom designed as part of the work and exhibited in an outdoor public space. The experience of *homunculus.nimbus* is intended to be both an alien and familiar, a projection of a future where synthetic life-forms may be commonplace. The exhibit simulates the life-like resting and wake cycles in nocturnal beings by quietly providing refuge and shelter in the day, while exhibiting dynamic patterns of light and sound that contribute to the activities of the festival at night. When awake, the sculptural pieces exhibit a continuous flow of light patterns in response to each other affecting visitors in the pavilion and the environment around them. Benches are placed on either side of the pavilion that are large enough for people to

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1. Computational Arts, School of the Arts, Media, Performance, and Design, York University - nD::Studio-Lab, Toronto, Ontario, Canada, [mdhosale@yorku.ca](mailto:mdhosale@yorku.ca)

gather and have closer, more private conversation.



Figure 1. *homunculus.nimbus* at Camp Wavelength (Fort York, Toronto), Photo: Mark-David Hosale, August 17, 2017

## Architectonic Media Interventions

*Homunculus.nimbus* is connected to an ongoing research project called, *Architectonic Media Interventions*. This research-creation project is articulated by a series of works, developed in the *n-D::StudioLab*, that explore the integration of computational art and architecture. Experimentation in this research area focuses on building media-centric architectural components in existing built environments. These components take on many forms, ranging from furniture scale objects, to integrated building components, to building scale, such as a pavilion or intervention.

Artworks are the primary driver for innovation in AMI research-creation. AMI outputs include the development of hardware, software, and design workflow strategies that help streamline the process of working across multiple platforms and domains in large teams of contributors. This project provides a unique vantage point for exploring questions of how the digital is influencing the built environment. Through this project technical methods are used to facilitate artistic expression and to explore the impact that ubiquitous digital technology has on the built environment and our everyday lives in a social and experiential manner. AMI research critically engages the role of rising technologies in order to gain a deeper understanding of how technology and the built environment have merged in the past, are continuing to merge in the present, and what impacts on society, industry, individuals and the environment this integration will have in the future.

## Concept

The inspiration for *homunculus.nimbus* was to explore the emotive connections we form with the technological objects we make. Both *homunculus.nimbus* and *homunculus*.

*agora* derive the name *homunculus* from an alchemically made creature that looks like a miniature of its creator. There are several recipes for making a homunculus, but they all commonly call for the use of the creator's ejaculate to grow a mandrake as part of a potion in which the homunculus is grown. After the creature is a fully formed homunculus, "[...] he comes out and puts himself at your service. And they never die. Imagine: they'll even put flowers on your grave after you're dead!" (Eco, 1989).

Conceptually, we form similar connections with our own technological creations as the alchemist did with the homunculus. I believe we form these connections because the technology we make is part of our ideas, our culture, and our bodies. And as we pass on the technology remains, it holds our thoughts, and the shape we give to it is deeply connected to the way we perceive the world. Technology is often seen as a disruption, or something alien when it is actually something that emerges from us and is more part of us than we are willing to accept. While we resist technology and the change it brings, we are actually resisting ourselves. Technology may be disrupting our lives, but we are the driving force behind that technology creating a paradoxical cycle between disruption, resistance, change, and becoming.

When we make built environments and objects and put them into the world we need to think critically about their impact on the environment and our culture. Objects that have permanence should be made with the intent of long-term impact and the affect of technology on ourselves. The project asks, can we form a symbiosis with the things we create so that they are a part of us and nurture our world and society for future generations to come? One approach to this question is to develop the environment as an immersive artificial ecological system with whom we can cohabitate. With this in mind *homunculus.nimbus* proposes what this connection could be like.

## Behaviour

The behaviour of *homunculus.nimbus*, expressed through patterns of light and sound, is conceived of as a continuous lifecycle that mimics the resting and wake rhythms in living beings. Light behaviours are expressed through LED modules that are attached to each of the four petals of the *homunculi* sculptures. The LEDs on the petals light in sequence, oscillating in clockwise and counter-clockwise patterns in a gradient from fast to slow over time. The LEDs oscillate fast at first, then slow to a stop before changing direction and speeding up again. Every parameter of the LED light (hue, saturation, and luminosity) changes according to independent oscillations. Parameters shift in and out of phase with the oscillations of other parameters. These patterns move through the flock of sculptures in the pavilion in phasic ripples from front to back, then back to front in an interconnected tidal pulse in nearly endless combinations.

The inspiration for this approach to the light behaviour comes from the music of Steve Reich, in works such as *Come Out* (Reich, 1966) and *Piano Phase* (Reich, 1967). Reich used shifting time (in tape speed and rhythm respectively) to create the phasic patterns and sonic tapestries characteristic of minimalist music. In this same manner light events are driven in *homunculus.nimbus* by phasic relations between parameters to create a visual tapestry of fluttering and flowing light.

Sound in *homunculus.nimbus* is embedded in the benches of the pavilion, creating a stereo field within the pavilion. Sonic events are mapped to the patterns in the light parameters with motion mapping to rhythm, hue to frequency, saturation to timbre, and luminosity to volume. In *Camp Wavelength*, synthesis was realized using additive synthesis techniques that layered sine wave oscillators to make various timbral shifts

with (perhaps too) subtle pulsating effects. In *Winterlights*, the sound used frequency modulation synthesis with vibrato effects and timbral shifts resulting in a better mapping to the movement and oscillation of light patterns described above. The result was also reminiscent of the ambient sounds of John Chowning's *Stria* (Chowning 1977). The unfolding of the sound was articulated by large dynamic shifts, creating waves of sound slowly followed by moments of silence. At times, the sound would almost unnoticeably disappear and then return again subliminally, then gradually becoming a feature that is consciously present and integrated with the light behaviour of the work.

## Exhibitions – Reflections

*Homunculus.nimbus* was exhibited twice, once for four days at *Camp Wavelength* 2018, Fort York, Toronto, August 18-19, 2018; and then for four months at the *Winter Lights Festival*, Ontario Place, Toronto from November 23, 2018 - March 17, 2019. The setting of summer versus winter, and the short and long duration between the two *homunculus.nimbus* exhibitions offered a very different experience of the work.

### *Camp Wavelength*

*Homunculus.nimbus* was originally commissioned for *Camp Wavelength*, an annual festival that is held by *Wavelength*, a non-profit arts organization dedicated to the curated promotion of independent music in Toronto. When working with the *Wavelength* team it was important to create a work that had added value to the venue, could provide a place for festival goers to rest and enjoy the artwork. To this end, the project has an architectural program while simultaneously being an artwork, not purely being either, but something in between.

The *Camp Wavelength* festival was a four-day event that lasted from noon until midnight on each day. During the day, it was not possible to see the lights working on the pavilion because they would be overpowered by the sun. The only downside of this being a summer event was that it was night for only the last three hours of the event. The pavilion remained in a dormant state until dusk, and the behaviour of light and sound events were not apparent until then. There was, however, an emergent beauty at sunset that allowed for a lengthy transition from a dormant state to awake, which became a feature of the work. As the sun set, the patterns of light became brighter and brighter until illuminating fully as night fell. This process took 90-minutes. During the day it was mainly a location to sit and commune with others (but also to appreciate and admire). At night it became much more of an object of curiosity, and much more attention seemed to be focused on it as an artwork than during the day. For the participants of the festival the pavilion would transform from a peculiar architectural object, to a spectacle, an emergent attraction.

Beyond the diurnal patterns above, the ebb and flow of visitors to the pavilion was largely influenced by the scheduling of performers on the stage, with participants spending more time in the pavilion between sets and moving towards the stage when the music was playing. The biggest impact of the schedule on the pavilion behaviour was to the sound, which had to be redesigned so as not to compete with the music being performed during the festival. The sound levels of the work were kept low so that they were mostly heard when someone was sitting on one of the benches inside the pavilion. There were also moments throughout the day and night that sound could be heard between sets, and for an hour after the music stopped each day.

## Winterlights

*Winterlights* is an annual festival that is truly Canadian in its conception. It takes place at night in winter at *Ontario Place*, a public park on the shore of Lake Ontario. In addition to the light works that are part of the festival, there is an ice-skating rink and concessions are available to visitors of the event.

Exhibiting at *Camp Wavelength* was rewarding, but it felt rushed as it was a short event in the hustle of an ambitious music festival that left only a short amount of time to appreciate and experience the work in its most expressive state (at night). By contrast, *Winterlights* had a slower feeling about it, nights were longer, and there was more time to appreciate it in its setting. The pavilion was located on a hill and was oriented to have views of trees in one direction and the lake itself in another. It was situated in a serene setting that invited calmness and contemplation.

A major difference was that participants were coming specifically to *Winterlights* to see the works of the festival and have some leisure time by the lake. While the main activity of the event happened at night, the park was open throughout the day. The lack of schedule meant that there was a pretty consistent flow of people throughout the event, with more people on the weekends and during the evening, and less people in the late hours. It was clear that many people were coming to the festival for a second, and even a third look.

While the light behaviour was primarily the same for *Winterlights* as it was in *Camp Wavelength*, the sound, as described above, changed dramatically and was more present during the event, allowing it to complement the light behaviour of the work more completely and without compromise as before.

## Experiences – Reception

*Homunculus.nimbus* is not purely an artwork or an architectural object, it is situated between the two domains. It is designed to be inhabited, it has purpose and function, but its drive is aesthetic and experiential. *Homunculus.nimbus* intentionally avoids the modality and affordances of common place technological objects (such as a computer or phone), instead suggesting a different approach to technology that allows for time that is not dependent on immediacy. The work asks you to rest, slow down, and contemplate. It is a subtle work that prioritizes the atmospheric over technophilia by suggesting a way that we can take comfort in world we are making and understand it as part of ourselves and no longer alien.

While no scientific level study of *homunculus.nimbus* was conducted, several observations can be made:

- As with any work of art, most walk by, some linger, some longer;
- While the technology (wires, junctions, LEDs) that made the work were exposed and purposefully not hidden, visitors were not focused so much on the how of the work, but the why;
- For those keen to observe, they would wait and see how it would change over time, waiting patiently, curiously;
- Others would leave quickly, but if they returned, would notice something different and frequently stay longer the second time to see what might happen next;
- During the *Winterlights festival* I was visiting the exhibition regularly to check on its health and conduct any needed repairs. From time to time there was damage from the winter storms that were passing through. On one occasion

when I came to check on the work I discovered a stranger tending to it, adjusting wires that were hanging down too far, reattaching LEDs that had fallen off, etc. I watched him quietly from a distance until he was done. He stayed a while longer, contemplated the work, and then left. I said nothing.

## Credits

### Camp Wavelength installation team:

David Han, Filiz Eryilmaz, Rohan Likhite, Christina Paik, and Michael Palumbo

### Winter Lights Exhibiton installation team:

Hrysovalanti Maheras, Michael Palumbo, and Jamie Twine

### Project preparation and assistance:

Filiz Eryilmaz, Hrysovalanti Maheras, and Amirbahador Rostami

### The homunculi were created in 2013 for *homunculus.agora*:

Homunculi Fabrication Consultants: Marco Verde (ALO [ architecture | research and fabrication lab | education ]) and Brandon Vickerd

### homunculi Fabrication Production Team:

Nicole Clouston, Brandon Davis, Qendrim Hoti, Rhianna Paul, Karen Pham, and Erika Roshan

Realized in the nD::StudioLab, Transmedia Lab, and Digital Sculpture Lab at York University, Toronto, Canada

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