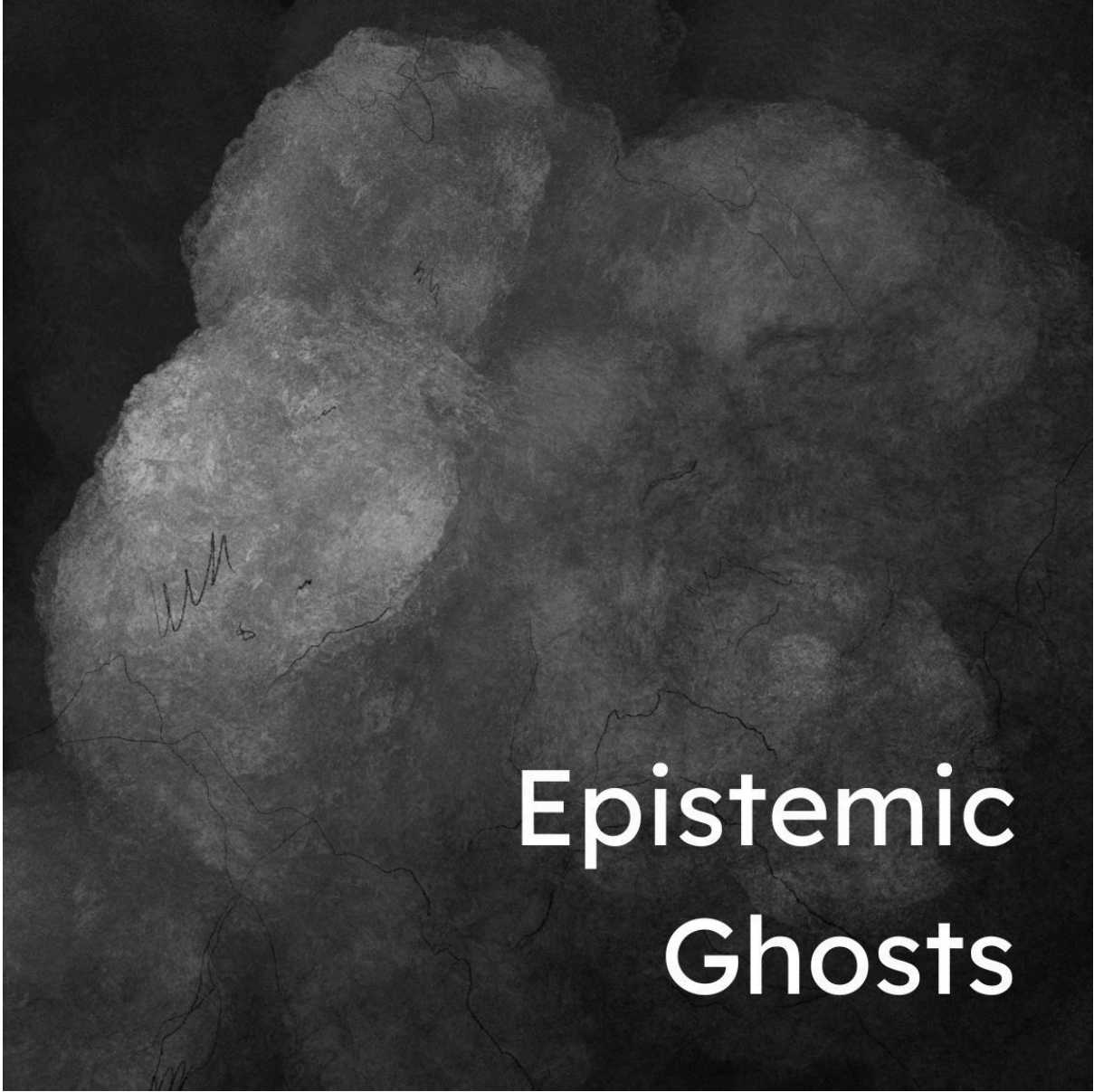




Epistemic Ghosts

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by

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Abstract

Where does knowledge come from? How do we know what we know? And how do we know what we don't know? Through a modern reinterpretation of a nineteenth-century illusion technique called a Pepper's Ghost, I attempt to create an experience that represents the process of coming to know. Importantly, in coming to know something, we must encounter a liminal space between knowing and not-knowing—a space inhabited by epistemic ghosts. What happens when we catch a glimpse of these ghosts? How do we behave, and what do we learn through this encounter?

Biography

Catalina Escalona (b. 1993) is a Chilean-American artist-researcher and computer scientist in training based in Vienna. Her interdisciplinary practice encompasses experimental animation, drawing, printmaking, photography, and creative coding. Informed by her previous studies in literature, philosophy, and cultural studies in New York City, Boulder (Colorado), Berlin, and Vienna, she investigates philosophical themes of perception, representation, and embodied cognition.

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Introduction

In the pursuit of knowledge, we often find ourselves at the boundary between the known and the unknown. The exploration of such frontiers lies at the heart of the philosophical branch of epistemology, which inquires into the nature of knowledge. As a lifelong learner, my own journey through various disciplines has been guided by ongoing epistemological research questions like: Where does knowledge come from? How do we know what we know? And how do we know what we don't know?

While there is not a specific kind of knowledge that I am searching for, per se, I am interested in the processes of coming to know something, interested in the continuous flow between states of knowing and not-knowing. I am curious about how we encounter things that we know, but above all, how we encounter things that we *don't* know.

Recently, I came across Jimena Canales' text *Bedeviled: A Shadow History of Demons in Science*, in which she notes the following:

Scientists often use the word “demon” during the most preliminary phases of their research. It designates something that is not yet fully known or understood. These demons are not religious, supernatural, monstrous, or merely evil. They refer to something that defies rational explanation and may stump or break a hypothesis or a law of nature.¹

In science, but generally in all fields, there is a compulsion to give a name to the phenomenon of encountering the not-yet-fully-known. While

¹ Jimena Canales, “Introduction,” in *Bedeviled: A Shadow History of Demons in Science* (Princeton: Princeton University Press, 2020), 2.

Canales uses the term “demon”, I prefer to use “ghost” as a metaphor in my own research.

A ghost is typically defined as the spirit of a dead person, as something supernatural and irrational that makes its appearance in the world of the living. I am not interested in using the traditional connotation of ghosts as apparitions of the dead. Rather, I focus on ghosts as metaphorical entities that bridge the gap between different realms, that occupy the liminal space between knowledge and lack thereof. Moreover, I am intrigued by the way encounters with ghosts leave behind feelings of fear or wonder for mysteries that lie beyond our comprehension.

Upon closer inspection of the word “ghost” in the *Oxford English Dictionary*, I am especially drawn to its earlier definitions regarding the spirit or mind of the living. A ghost can be defined as “that which gives life to the body, in contrast to its purely material being,” or even as “the spiritual or abstract part of a person, as distinct from the physical part.”²

The reason I am intrigued by this definition is because it alludes to the mind-body problem. This fundamental philosophical question asks: *What is the relationship between the mind and the body?*³ Famously, René Descartes posited a dualism, asserting that the mind and body are separate and distinct, that the mind can exist independently of the body and vice versa. Gilbert Ryle, in turn, critiqued Cartesian dualism as “the dogma of the Ghost in the Machine,” which he rejected and deemed a

² *Oxford English Dictionary*, s.v. “ghost (*n.* & *adj.*),” December 2023, <https://doi.org/10.1093/OED/8202990549>.

³ Howard, Robinson, “Dualism,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta and Uri Nodelman, Spring 2023, <https://plato.stanford.edu/entries/dualism/>.

“category-mistake.”⁴ Ryle argued that Cartesian dualism falsely implies there is a separate, immaterial, non-physical entity (the mind) housed within and controlling the machine (the body).

The experience I hope to create in the artistic work of my Master thesis is informed by the concept of embodied cognition—a response to (and rejection of) Cartesian dualism that emphasizes “the significance of an agent’s physical body in cognitive abilities.”⁵ Instead of viewing cognition—the mental process of acquiring knowledge—as something that uniquely occurs in the mind, embodied cognition proposes a holistic understanding of the mind-body relationship. It asserts that mind and body are not separate, but rather intimately intertwined and mutually dependent.

In this artistic work, I seek to manifest a philosophical reflection upon the knowledge process and play with Ryle’s phrase “ghost in the machine” by recreating a “Pepper’s Ghost” illusion—a nineteenth-century technique that produces the appearance of ghostly figures. In my reinterpretation of the Pepper’s Ghost, I combine new media with this nineteenth-century pre-cinematic technique to create an interactive illusion of an intangible entity trapped inside glass containers.

The movements of this “ghost” are linked to the viewer’s own bodily movements in time and space by means of sensors in the installation. My goal for the artistic work is that, through embodied interactions with the ghost, the viewer recognizes that they are simultaneously connected

⁴ Gilbert Ryle, *The Concept of Mind* (Chicago: University of Chicago Press, 1949), 15-16.

⁵ Lawrence Shapiro and Shannon Spaulding, “Embodied Cognition,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Winter 2021, <https://plato.stanford.edu/entries/embodied-cognition/>.

to and separate from this apparition. Ideally, the experience of the “ghost in the machine” serves as a starting point to ponder the intertwined relationship between our physical selves and our cognitive processes.

On a broader level, I aim to create a metaphorical and philosophical experience of encountering epistemic ghosts, which is to say, of coming to know by encountering the unknown. What happens when we catch a glimpse of this liminal space between knowing and not-knowing? How do we behave, and what do we learn when we reach this frontier? This work is an artistic search for embodied experiences that allow us to come into contact with the wonders and mysteries of knowledge processes.

Pepper's Ghost

An era fueled by curiosity and innovation, the nineteenth century was characterized especially by a union between art, science, and entertainment. At the turn of the nineteenth century, scientists began to focus their attention toward the study of perception, motion, and illusion.⁶ The inventions that emerged from “the epistemology of scientific experimentation”⁷ quickly left scientific laboratories, laying the groundwork for new forms of entertainment.



Figure 1. Zoetropes. “Zwei Zoetrope und das Tachyskop (Schnellseher),” in *Ich sehe was, was du nicht siehst! Sehmaschinen und Bilderwelten. Die Sammlung Werner Nekes*, ed. Bodo von Dewitz and Werner Nekes (Cologne: Museum Ludwig, 2002), 353.

⁶ Romana Karla Schuler, “Preface: On Theories and Art in Visualizing (Apparent)-Motion,” in *Seeing Motion: A History of Visual Perception in Art and Science* (Berlin: De Gruyter, 2016), 9.

⁷ Schuler, “Preface,” 9.

Optical inventions (later deemed optical *toys*) created by scientists, such as Joseph Plateau's phenakistoscope or Simon Stampfer and William Horner's zoetrope (see Figure 1), became popular attractions that mesmerized audiences with their animated sequences. Meanwhile, technology like the magic lantern, which was initially developed in the seventeenth century and popularized in the nineteenth century, transitioned from a scientific tool to elaborate stage performances that combined colorful slides, music, and narration. Oftentimes, these visual technologies were used as a spectacle, but afterwards their mysteries would be revealed as a way to educate audiences on scientific principles. Such inventions blurred the boundaries between amusement and enlightenment.

The nineteenth century was also a period characterized by a fascination with the supernatural. During the Victorian era, spiritualism and séances pervaded, where individuals fervently believed in ghosts and sought to establish communication with the otherworldly. Moreover, it seems ghosts have long been intertwined with the history of media technology: from the early days of photography, where people believed they could capture images of the dead, to the era of the telephone, radio, and television, where the notion of communication with a ghost in the machine began to take root. Even today, ghosts haunt contemporary debates surrounding artificial intelligence and consciousness. It appears ghosts have always been at the forefront of technology, and this is especially true in a century marked by rapid technological innovation.

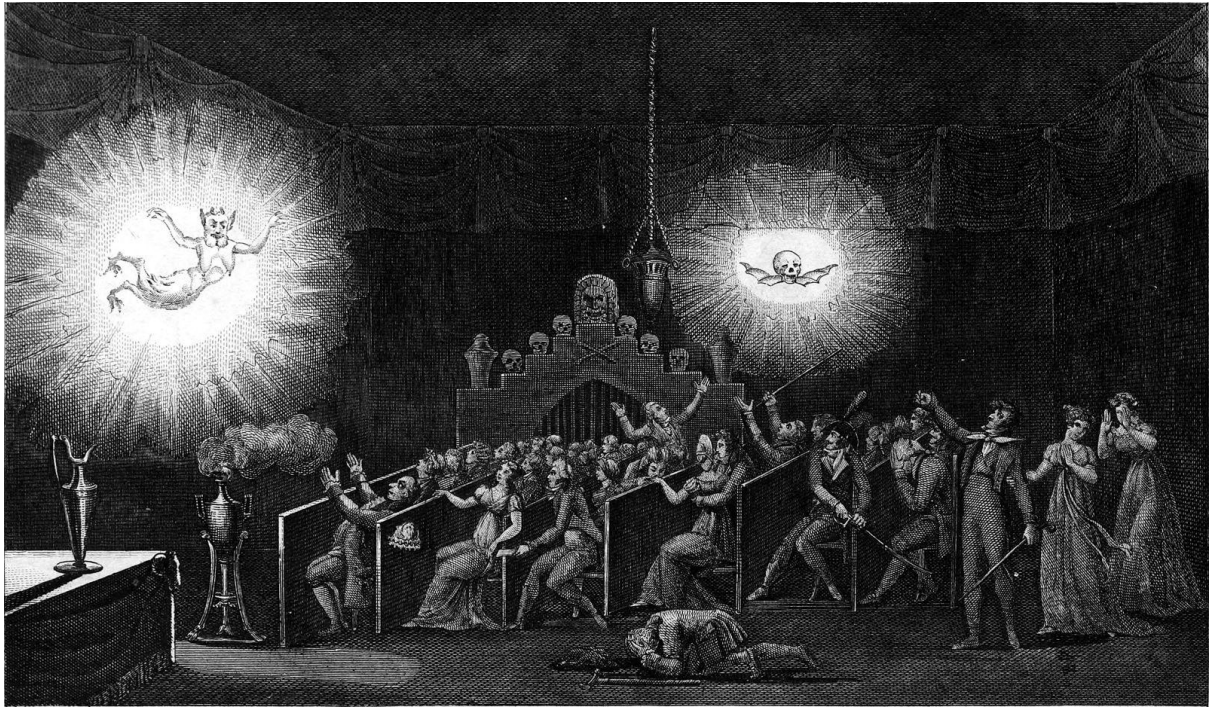


Figure 2. The Phantasmagoria Show. Étienne-Gaspard Robert, “Volume 1 Frontispiece,” in *Mémoires récréatifs, scientifiques et anecdotiques* (1831), Internet Archive, accessed 4 May 2024, <https://archive.org/details/mmoiresrcratifss01robe>.

Against such a backdrop, where ghosts became a source of both awe and fear, the theatrical form of the phantasmagoria emerged as a popular form of entertainment, made especially famous by physicist and showman Étienne-Gaspard Robert, known as Robertson. Phantasmagoria were immersive theatrical shows that combined live performances, projections, and special effects to evoke an eerie and supernatural atmosphere (see Figure 2). Shows typically took place in dimly-lit theaters or spaces where the walls could be draped in black. Using several magic lanterns hidden from the audience’s sight, images of ghosts, skeletons, and demons would be projected onto smoke or semi-transparent screens amongst the spectators. At first, the ghostly images would appear small in size, then rapidly become larger to create the illusion that the ghost was approaching the audience.⁸ As Noam M.

⁸ Laurent Mannoni, “The Phantasmagoria,” in *The Great Art of Light and Shadow: Archaeology of the Cinema*, ed. and trans. Richard Crangle (Exeter: University of Exeter, 2000), 136.

Elcott remarks, “part enlightened entertainment, part haunted house, the Phantasmagoria [...] refused categorization as mere magic lantern spectacle.”⁹

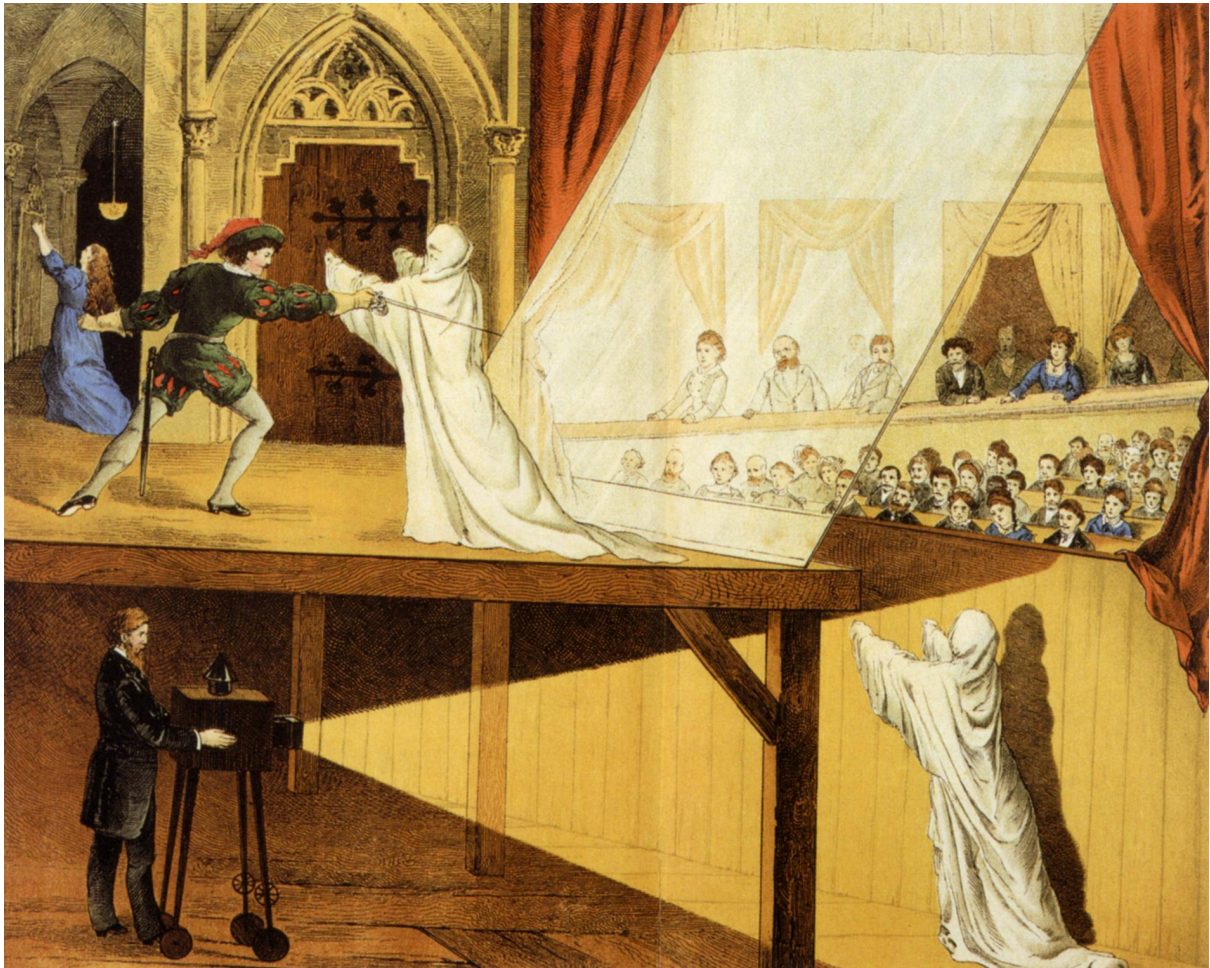


Figure 3. Stage setup for a Pepper's Ghost illusion. “Dr Pepper's Ghost,” engraving, 58 x 88 x 63.5 cm, in *Eyes, Lies and Illusions: The Art of Deception*, ed. Laurent Mannoni, Werner Nekes, and Marina Warner (Hayward Gallery Publishing: London, 2004), 22.

Such experiments with projection and the manipulation of light and shadow to produce spectral images paved the way for new stage techniques, namely the Pepper's Ghost (see Figure 3). The optical illusion was first developed by engineer Henry Dircks, but popularized by

⁹ Noam M. Elcott, “The Phantasmagoric *Dispositif*: An Assembly of Bodies and Images in Real Time and Space,” *Grey Room*, no. 62 (2016): 43.

scientist and lanternist John Henry Pepper. As projection enthusiast Abbé Moigno describes the technique in 1863:

Three enormous two-way mirrors, about 5 m square, costing almost 4,000 Francs, are arranged vertically below the traps, and may be raised at a given moment to divide the stage into two, parallel to the footlights. These mirrors are sufficiently transparent and colourless for the eye barely to notice their presence. The living person whose image cannot be projected behind the mirror is below the stage; he is given the required pose; he is illuminated by means of two Drummond lights or oxy-hydrogen lamps, and his image, produced by reflection of the rays which it emits at the suitably inclined mirror, will appear at an equal distance behind that mirror, next to the actors who are seen directly.¹⁰

Essentially, in the live stage illusion, there are two spaces, one hidden and one visible, and they are divided by an almost invisible glass. In the hidden space, an actor is brightly lit, meanwhile in the main, visible room, the lights are dimmed. As the light reflects off of the hidden actor through a glass angled at 45 degrees, a ghostly image appears in the visible room. However, when the main room is brightly lit and the hidden space darkened, the image is no longer visible.¹¹ In this illusion, the ghostly image is to scale, unlike in the phantasmagoria where the magic lantern projections would grow larger and smaller. Using this effect, Pepper staged countless short plays that featured spectral apparitions interacting with actors on stage in real time.

¹⁰ Mannoni, "Great Expectations," 248. This quote is attributed to Abbé Moigno, *Les Mondes* 1, no. 21 (July 2, 1863), 577-78.

¹¹ Jason England, "Science of Pepper's Ghost Illusion," *Cosmos Magazine*, August 13, 2018, <https://cosmosmagazine.com/science/physics/the-science-behind-the-peppers-ghost-illusion/>.

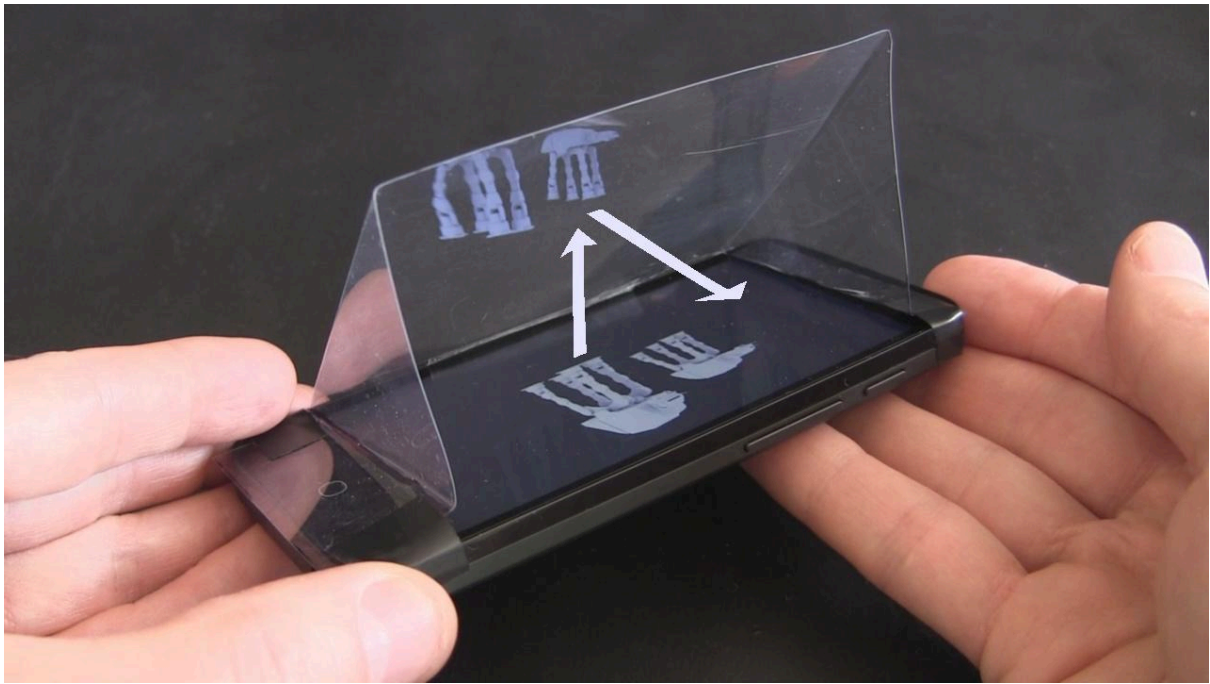


Figure 4. Pepper's Ghost technique using a smartphone screen. "Pepper's ghost on a smartphone," Rimstar, accessed 4 May 2024, https://rimstar.org/science_electronics_projects/peppers_ghost_on_a_phone.htm.

Today, the technique need not be fully live, but instead the ghostly image can originate from a video screen, where the recorded figure is set against a dark background. Typically, a monitor displaying the video is laid flat and a glass or transparent film is placed on it at a 45 degree angle (see Figure 4). Through the reflection of the bright monitor screen onto the glass, the two-dimensional image placed over a darker background appears to "float" in the air, transformed into a ghostly three-dimensional, hologram-like image.



Figure 5. A Pepper's Ghost illusion of Michael Jackson performing alongside real dancers at the 2014 Billboard Music Awards. "Why Billboard Music Awards' Michael Jackson Can't be Called a 'Hologram,'" Billboard, accessed 4 May 2024, <https://www.billboard.com/music/music-news/michael-jackson-hologram-not-a-hologram-billboard-music-awards-6099053/>.

In recent years, Pepper's Ghost has made a comeback in popular culture, notably in live performances featuring apparitions of deceased celebrities. For example, the 2012 Coachella music festival stunned audiences as deceased rapper Tupac Shakur performed alongside Dr. Dre and Snoop Dogg. At the 2014 Billboard Music Awards, Michael Jackson was "resurrected" on stage and accompanied by real backup dancers (see Figure 5). Beyond music, Pepper's Ghost has been used in museum exhibitions, amusement parks, fashion shows, and even teleprompters.¹² Pepper's Ghost remains a prominent technique in both historical and contemporary entertainment, captivating audiences with its simple yet clever manipulation of light and reflection.

¹² England, "Science of Pepper's Ghost Illusion."



Figure 6. A Pepper's Ghost prototype using a chemistry beaker and transparent film. Photograph by the author, 2024.



Figure 7. Experimenting with different scientific glassware shapes and sizes. Photograph by the author, 2024.



Figure 8. Testing various glassware on top of a flat monitor to recreate the Pepper's Ghost illusion. Photograph by the author, 2024.

In my own work, I aim to create the illusion of a Pepper's Ghost by using a variety of glassware (especially scientific beakers) that contain angled, transparent pieces of film inside (see Figures 6-8). The use of such glassware is inspired by an image from Segundo de Chomón's 1907 silent film *The Red Spectre* (see Figure 9).



Figure 9. Segundo de Chomón, *The Red Spectre* (1907), film still.

In a darkened room where only one visitor is allowed at a time, the beakers are placed on top of a flat monitor. The monitor is positioned slightly above eye level on top of a shelf-like construction, connected to a computer, speakers, and a Kinect sensor. The sensor reads information about the viewer's position in the room, and this data is then sent into TouchDesigner, manipulating a ghostly image in the beakers rendered in real time.

The abstract ghostly apparition appears three-dimensional inside beakers, and its form changes as the viewer moves through the room. Unlike typical Pepper's Ghost setups in which audiences watch actors interact with the spectral image from afar, here, the viewer transforms from spectator into actor. The interaction with the ghost becomes intimate and immediate, as only the ghost and one viewer are permitted in the exhibition space at a time. Moreover, the visuals are accompanied by a sound design created by my collaborator, Robin Andrej, to establish an atmosphere of ghostly whispers. The ghosts speak in a language we do not understand, but the aim is that it sparks curiosity and draws the viewers in, to come to know these epistemic ghosts.

Methodologies

In my pursuit of epistemic ghosts by means of the Pepper's Ghost illusion, I have been drawn to methodologies such as close reading, media archaeology, embodied cognition, and the deliberate embrace of not-knowing.

Trained originally as a literary scholar, I approach texts with a meticulous eye. After experiencing a text in full, I begin to narrow down passages that strike me, paying close attention to their sentences, phrases, and words. I analyze not only the content presented in such passages, but also how that content is constructed through form, syntax, and etymology. Importantly, when I use the term "text", I refer not only to a written or printed work, but also to the expanded sense of the word to encompass all cultural artifacts. For me, to closely read a passage of a book, painting, film, or piece of music means to intimately observe the way form influences meaning. Not only do I make use of this approach in the creation of my artistic work, but I also utilize it as a lens to discuss and interpret my artistic practice in this text.

Meanwhile, media archaeology is a critical approach that rejects a linear, teleological understanding of media history and technology. Instead, it embodies a "spirit of thinking the new and the old in parallel lines."¹³ While the new media landscape is ever-changing, Jussi Parikka asserts that "old media never left us. They are continuously remediated, resurfacing, finding new uses, contexts, adaptations."¹⁴ Thus, to work in a media archaeological way means to fuse together the old and the new,

¹³ Jussi Parikka, "Introduction: Cartographies of the Old and the New," in *What is Media Archaeology?* (Cambridge: Polity, 2012), 2.

¹⁴ Parikka, "Introduction," 3.

the past and the present, the analog and the digital. Moreover, media archaeology is a field that has never been purely theoretical. In fact, since the 1980s and 1990s, it has been used as an artistic methodology, “in which media artists have been able to use themes, ideas and inspiration from past media too in order to investigate what the newness in ‘new media’ means.”¹⁵ My own artistic practice is founded upon this approach, as I build and tinker with pre-cinematic devices that blend together new media techniques.

Another way I’ve found to frame this media archaeological approach is through the word “synthesis”, as I combine elements of the old and the new together. Yet this word holds a deeper meaning for me, considering my background in German Studies and strong foundation in the philosophical tradition of German Idealism. Synthesis plays a pivotal role in dialectics, a concept made famous by G.W.F. Hegel.¹⁶ Dialectics is a philosophical method based upon the idea that everything is in a constant state of flux, and that opposing forces that shape our reality are constantly interacting. Hegelian dialectics relies upon the idea that there are contradictory processes, which he calls the thesis, or the particular idea in question, and the antithesis, the opposite or the negation of that idea. When thesis and antithesis confront each other, the new concept of synthesis emerges, giving rise to new, creative insights. It is important to note, however, that for Hegel, dialectics is teleological and leads to linear evolution. When I consider dialectics in my own work, I do not see it as such. For me, synthesis is a Sisyphean task, in which clashing ideas across varying times and spaces must repeatedly come together to create artistic work. There is no specific goal or outcome that I am

¹⁵ Parikka, “Introduction,” 2.

¹⁶ For an overview of Hegel’s dialectics, see: Julie E. Maybee, “Hegel’s Dialectics,” in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Winter 2020, <https://plato.stanford.edu/entries/hegel-dialectics/>.

working towards, but rather it is the continuous process, above all, that is most important in my practice.

Embodied cognition also plays a central role in my working process in theory and in praxis. As mentioned in the Introduction, embodiment posits a holistic and intertwined relationship between body and mind. Unlike traditional views of cognition that focus on the brain as the center of cognition, embodied cognition emphasizes sensory-motor experiences, bodily movements, and environmental interactions as crucial in shaping perception.

I'm especially inspired by philosopher Alva Noë's enactive approach to embodiment outlined in his book *Action in Perception*, in which he argues that perception is not a passive reception of sensory input, but rather an active exploration and engagement with our surroundings. Noë writes, "Perceiving is a way of acting. Perception is not something that happens to us, or in us. It is something we do. [...] The world makes itself available to the perceiver through physical movement and interaction."¹⁷ According to this enactive approach, the body is the fundamental mediator between the mind and the external environment.

In my practice, I try to apply an enactive approach to embodied cognition by letting my body and my actions lead the way, shaping and influencing my mental processes and allowing me to discover the world that is my art. Meanwhile, in the artistic work of my Master thesis, my intention is for the viewer to become an actor through this interactive installation. On the one hand, I refer to historical Pepper's Ghost stage performances; my aim is for the viewer to no longer be a passive spectator, but an actor

¹⁷ Alva Noë, "The Enactive Approach to Perception: An Introduction," in *Action in Perception* (Cambridge: MIT Press, 2006), 1.

who engages directly with the ghostly image. Yet in another, more philosophical sense, my hope is that the viewer reflects upon embodied cognition and the ways in which knowledge becomes acquired through action.

Not-Knowing

Perhaps my most important, or at least my favorite, methodology is the deliberate embrace of not-knowing. My use of the term not-knowing stems from writer Donald Barthelme's essay of the same name. The playful postmodernist text is part-story, part-criticism, and begins with the author's attempt to write a story, not knowing where it will lead. "This is not to say that I don't know anything about [the characters]," Barthelme writes, "but what I do know comes into being at the instant it's inscribed."¹⁸ The same can be said of my work.

Before beginning, I have hunches of the directions I might like to take in my work, some intuitive glimpses of what the artwork could be. Yet there are still many unknowns, and it is not until I begin to tinker and act that I set in motion a flow state between knowing and not-knowing. Even this very text was unknown until I started writing it. "The not-knowing is crucial to art, is what permits art to be made. [...] Without the possibility of having the mind move in unanticipated directions, there would be no invention."¹⁹ Others might call this methodology artistic research or practice-led research, but for me, it is important to frame it within the context of knowledge processes; I believe that we need encounters with epistemic ghosts, encounters with the unknown, to create and to know.

A passage from Barthelme's text especially strikes me, as it speaks to the importance of an embodied, enactive approach to the creative process:

¹⁸ Donald Barthelme, "Not-Knowing," in *Not-Knowing: The Essays and Interviews*, ed. Kim Herzinger (Berkeley: Counterpoint, 1997), 12.

¹⁹ Barthelme, "Not-Knowing," 12.

Once when I was in Elaine de Kooning's studio on Broadway, at a time when the metal sculptor Herbert Ferber occupied the studio immediately above, there came through the floor a most horrible crashing and banging. "What in the world is that?" I asked, and Elaine said, "Oh, that's Herbert thinking." Art is a true account of the activity of mind."²⁰

Why do I want to recreate a Pepper's Ghost illusion? One response is that I don't know why; I simply feel that I need to build it in order to think through things.

At the same time, to talk about Pepper's Ghost is to talk about my own artistic encounters with the history of moving images. Starting already in my first semester at the Angewandte, I began to take courses in animation with Nikolaus Jantsch. I had never animated before, but since then, it has become predominant in my practice. While learning about stop motion animation, we were introduced first-hand to historical optical toys. There was something magical about using a thaumatrope and a zoetrope for the first time, moving them with my own hands and watching their images come to life, even if their illusion techniques were known. This love of animation and optical toys was only encouraged by Martin Reinhart, who would bring me films to study and draw out technical sketches to teach me how these optical illusions worked. Since then, such objects and techniques have become sacred to me.

²⁰ Bartheleme, "Not-Knowing," 23.



Figure 10. *Beamlines* (2021). Photograph by the author, 2021.

Inspired by these optical toys, in the first-year exhibition of the Art & Science program, I decided to build my own phenakistoscope (see Figure 10). Up until that point, I had never physically built an artwork before; my practice at the time revolved around digital photography and video. I went into the process rather naively, as I gathered materials and went to the university's wood and metal workshops, not knowing how to build it. In each step of the process, I encountered gaps in my knowledge, but these gaps taught me where to look and what to learn.

I find it beautiful and poetic that gaps are also essential for creating the illusion of a moving image. For instance, with optical toys like the

phenakistoscope or the zoetrope, moments of darkness or flickering in front of the viewer's eyes are necessary; it is this "alteration between shutter and images through a system of regular slits" that produces "the illusion of movement."²¹ Just as these moving images appear at the oscillation between static images and shutters, I believe encounters with epistemic ghosts are only possible at the point between knowing and not-knowing.

Artist William Kentridge discusses the role of gaps and shadows in art as the following:

It is in the very limitations and leanness of shadows that we learn, in the gaps, in the leaps to complete an image, that we perform a generative act of constructing the shape—recognizing a horse, a box, a bed roll, a crutch, a typewriter. The very leanness of the illusion pushes us to complete the recognition—and this prompts an awareness of the activity, recognizing in this activity our agency in seeing, and our agency in apprehending the world.²²

Kentridge suggests that it is within the gaps and limitations of what we see, particularly in shadows and incomplete images, that we actively engage in the process of recognition and interpretation. Our minds naturally work to fill in the gaps and construct a coherent whole. We exert agency, we act in the world, by constructing meaning from what we perceive. My hope is that the viewer of my work becomes such an agent, such an actor, by making meaning from their encounter with epistemic ghosts.

²¹ Benoît Turquety, "Forms of Machines, Forms of Movement," in *Cine-Dispositives: Essays in Epistemology Across Media*, ed. François Albera and Maria Tortajada (Amsterdam: Amsterdam University Press, 2015), 283.

²² William Kentridge, "In Praise of Shadows," in *Six Drawing Lessons* (Cambridge: Harvard University Press, 2014), 29.

Why do I want to recreate a Pepper's Ghost illusion? Another response is that I don't fully know how it works and I want to know how.

I was introduced to the technique last year, in a seminar called "Art and the Moving Image" taught by Gabriele Jutz. In the course, we examined the history of pre-cinematic apparatuses through a media archaeological lens. When I first heard of Pepper's Ghost, my desire to build one myself turned into an obsession. I spoke to Virgil Widrich about the idea, who told me of his own experiences in building Pepper's Ghosts. After seeing his reinterpretations first-hand on display at the Mozarthaus Vienna, it only confirmed that I must attempt to build a Pepper's Ghost myself. My experience in creating the artistic work of this thesis resembled that of the phenakistoscope—it was something I knew I needed to make, in order to think through and understand by doing, even if I did not know how to build it. Along this journey in recreating a Pepper's Ghost, I soon recognized a splitting of selves emerging.

Splitting Selves

Why do I want to recreate a Pepper's Ghost illusion? My playful response is that I just think it would be fun.



Figure 11. Georges Méliès, *The Man with the Rubber Head* (1901), film still.

I see myself as a kind of artist-critic or artist-philosopher. There is the me who makes art simply because it brings me joy, and there is the me who works conceptually by interpreting various layers of meaning behind the work. Both of these selves are necessary; they are split yet intertwined. When I am creating, I try to channel the playful spirit of film director Georges Méliès, with his childlike wonder and fascination for the then-new technology of film (see Figure 11). Like Méliès, when we allow ourselves to be open to and play with the magic of the unknown, unexpected and surprising discoveries are made. As for this more conceptual self, you've had the opportunity to read her first-hand throughout this theoretical text.

I recognize this splitting happening likewise in the artistic work of my Master thesis. As the viewer comes into the room and encounters the ghost, they are confronted with an image that is simultaneously separated from and connected to them by means of sensors. The viewer is faced with a doppelgänger of sorts, left to interact with their ghostly double. William Kentridge describes a similar experience of encountering one's own shadow:

And I think of an eight-year-old on the beach, and the long shadows cast by the sun close to the horizon. The shadows are a version of you. Lift your arm and the shadow lifts its arm. Step forward and the shadow advances. But the elongation, the anamorphic projection, changes things too. There is a speed, a skill. [...] I both control it and delight at a speed and dexterity I did not know that I had. It is an extension and more than an extension of me.²³

My aim is that the piece prompts self-reflection, and that the viewer recognizes this splitting of selves. Although there is a viewer and a ghost in the room, the ghostly image is an extension of them, and at the same time, it is more than an extension of them.

This splitting also extends to the overall reception of the Master work. On the one hand, one may think of the Pepper's Ghost illusion as just that—an illusion, a gimmick without much meaning behind it, an installation that is amusing for a few moments, but forgotten soon after. If this is the case, then I hope you were at least entertained, as this would embody the spirit of the technique that has been used since the nineteenth century for entertainment. I enjoyed bringing the piece to life,

²³ William Kentridge, "In Praise of Shadows," in *Six Drawing Lessons* (Cambridge: Harvard University Press, 2014), 15.

and I can only hope you find pleasure in it as well. On the other hand, to quote Étienne-Gaspard Robertson in reference to the phantasmagoria, “It is not a frivolous spectacle; it is made for the man who thinks, for the philosopher.”²⁴ What I offer in this text is just one interpretation of the artistic work, and I invite you to reflect upon and generate many more.

In his essay “Not-Knowing,” Donald Barthelme contemplates Robert Rauschenberg’s famous *Monogram*, a sculptural work of a stuffed goat encircled by a car tire, and wonders why the piece is considered a magical object rather than a rubbish idea. He comes to the conclusion: “What is magical about the object is that it at once invites and resists interpretation.”²⁵ I aspire for my work to do the same.

²⁴ Elcott, “The Phantasmagoric *Dispositif*,” 43. This quote is attributed to Étienne-Gaspard Robertson, *Mémoires récréatifs, scientifiques et anecdotiques*, 2 vols. (Paris: Chez l’auteur et à la Librairie de Wurtz, 1831-33), 1:278.

²⁵ Barthelme, “Not-Knowing,” 20.

Conclusion

Where does knowledge come from? How do we know what we know?
And how do we know what we don't know?

Through the recreation of a Pepper's Ghost, I attempt to create an experience that represents the process of coming to know. Importantly, in coming to know something, we must be faced with what we don't know. We must encounter a liminal space between knowing and not-knowing—a space inhabited by epistemic ghosts. Moreover, the process of knowing is not static, but rather dynamic and embodied. We must act and interact with these ghosts so that we may know more about the world and ourselves.

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