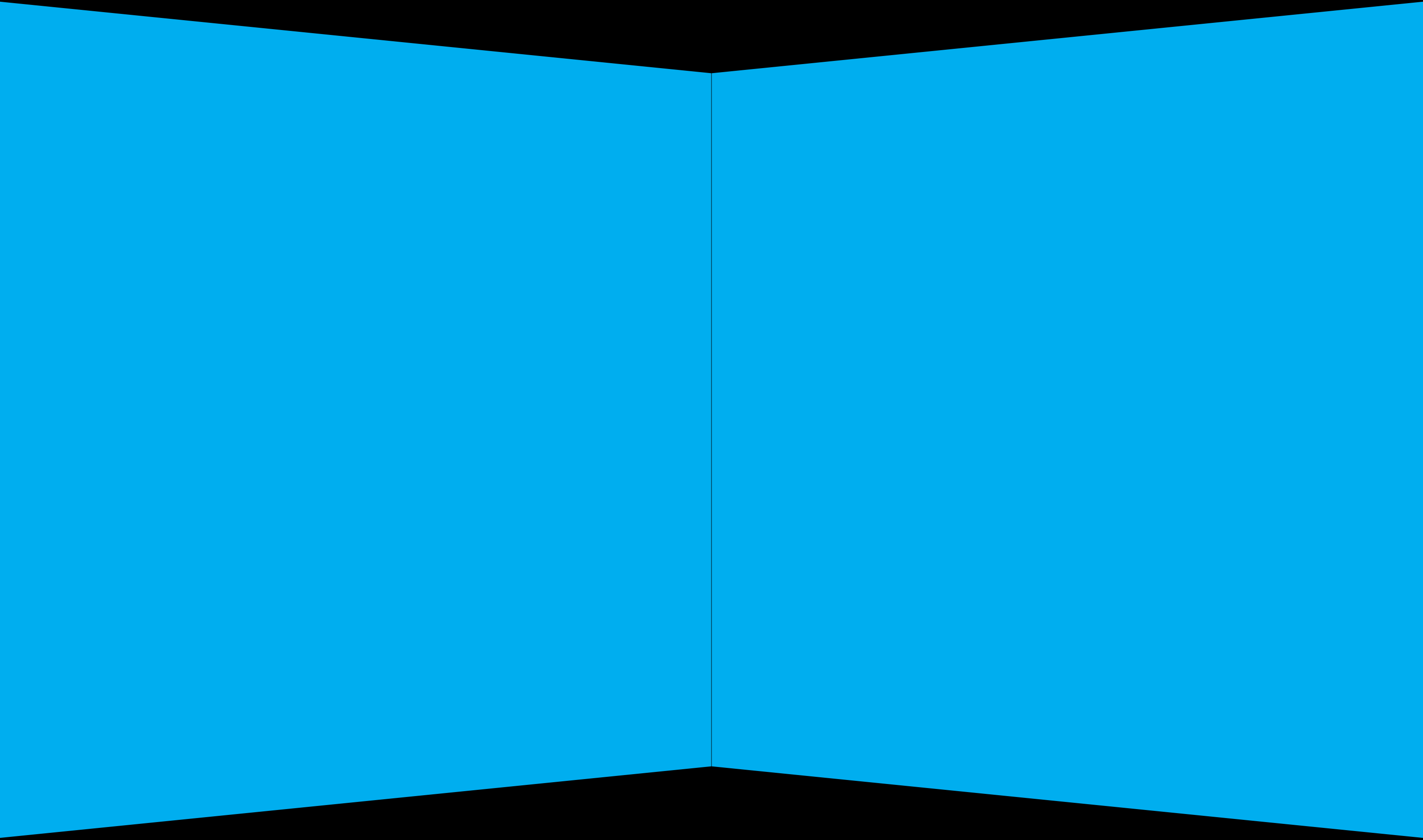




ILLUSION

NOTHING IS AS IT SEEMS



PUBLISHED BY SCIENCE GALLERY

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ILLUSION

ISBN: 978-0-9926110-0-2

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NOTHING IS AS IT SEEMS

ILLUSION

“Illusions distort the senses and mystify our logical thinking. The human mind can be easily fooled. This exhibition joins magic with psychology, optical illusions with scientific reasoning and confusion with clarity.”

Should we always believe what we see right in front of us? Can you trust your senses? Has technology made things clearer or muddied the waters between reality and fiction? And is anything really as it seems? Illusions distort the senses and mystify our logical thinking. The human mind can be easily fooled.

ILLUSION: NOTHING IS AS IT SEEMS offers an insight into the human mind through an exploration of the motivations and mechanisms of sensory deception. This exhibition joins magic with psychology, optical illusions with scientific reasoning, and confusion with clarity. It investigates how perception underpins the way we see, feel, think and understand the world. It shows how what we perceive is often radically different from the reality of what our eyes observe. For example, consider the classic vanishing coin trick which exploits this effect through a phenomenon known as ‘retention vanish’. A lag in the brain’s perception of motion causes the viewer to see a coin in the left hand for a few seconds after it is no longer there. This after image is created because the visual neurons are still firing and our perception of reality lags about one hundredth of a second behind actual reality.

Magicians are experts at using cognitive biases to their advantage and more recently scientists are borrowing such techniques and combining them with advances in technology to gain a greater understanding of how the brain works. Magic may seem an unlikely tool, but it has yielded several widely-cited research papers on a wide variety of topics. We find it particularly interesting how the sensorial and cognitive phenomena behind perception can be manipulated and how for centuries artists, scientists and magicians have exploited this to create illusions that boggle the mind and the senses.

ILLUSION offers a diverse range of artworks that deal with different types of illusions, from *Significant Birds* by Nye Parry, an auditory illusion that explores how a single sine wave can be picked out from recorded speech to sound like chirping birds, to *Cubes* by Jennifer Townley, an aluminium sculpture that is based on a geometric

pattern of diamonds that gives the optical illusion of six cubes, when in fact the cube you see only consists of three diamond shapes grouped together. Another work, *The Hurwitz Singularity* by Jonty Hurwitz, makes the viewer actively engage with the piece’s structural composition before the illusion can be revealed.

Similar to contemporary illusionists, cutting-edge research is also concerned with why our brains make us see things that aren’t really there—why nothing is as it seems. Our visual interpretation of movement is one topic being examined by Trinity College Dublin Professors Fiona Newell, Stefan Hutzler and Robert Murtagh, and their piece *Something in the Way it Moves* investigates how illusory patterns emerge from simple to complex arrangements of dots. Their experiment is part of their ongoing investigation concerning the processing of visual information by the brain and the role of correlations for complexity.

So what does all of this mean and how does it affect our day-to-day lives? Can we control our susceptibility to illusion? Is our tendency to be deceived an advantage in some circumstances and can we use that very human ability—to see and feel things that aren’t there—to benefit our lives in some way?

Perhaps.

THE WILLING SUSPENSION OF DISBELIEF

PAUL GLEESON

ILLUSION researcher, Deception Artist,
Illusionist, Escapologist & Magician

“As a man who lies for a living, you might find it hard to trust me when I tell you that I actually failed science in school.”

I performed my first magic trick when I was 18 years old—I passed the Leaving Cert exams.

Shortly after that, I found myself absolutely fascinated with all things illusory and magical, and began studying this mysterious art form. From the outside looking in, I'm sure it seems quite simple—buy a book about card tricks, buy some cards, and then... Alakazam! You're a magician! Unfortunately, this assumption could not be further from the truth, as this art form requires more than just a few neat tricks and fast hands. Magic in itself is inherently designed with you, the audience, in mind. Like a piece of theatre, it's structured, timed and performed in a way that will elicit the biggest and best moment of astonishment in your mind. That's why, for me, being an illusionist is the best job in world—imagine a job where your sole duty is to create ways to make people laugh, scream, and sometimes even cry.

That said, there was always a side of magic I knew nothing about—the neuroscience side. As a man who lies for a living, you might find it hard to trust me when I tell you that I actually failed science in school. It was a subject that I just didn't find engaging or exciting... and I always spelled it wrong. But through groundbreaking books like *Sleights of Mind* by neuroscientists Stephen Macknik and Susana Martinez-Conde, I quickly realised that I actually use scientific principles in my performances every single day: I use the cognitive biases in your mind to my advantage, I use persistence of vision to vanish coins, I use change blindness to cheat at poker, and I use misdirection to momentarily paralyse your visual cortex. Having the opportunity to work with Science Gallery gave me a second chance at science and, like the best illusions, has blown my mind wide open to the amazing cogs, gears and levers that make our brains run smoothly. What's more, it's also helped me to further understand why the power of illusion works so well.

The late 1800s are respectfully known as “The Golden Age of Magic”—names synonymous with illusion like Harry Houdini, Howard Thurston and Chung Ling Soo regularly filled auditoriums across the world with members of the public who found themselves in desperate need of adventure at a time of crushing economic turmoil.

Illusionists offered audience members a temporary escape from the restraints and worries of everyday life, by transforming deception into drama, and creating breathtaking moments on stage where a beautiful lady could levitate above the crowd, a man could make an elephant disappear, or an unfortunate spectator could be sawn in half. But as technology evolved through a constant state of flux, so too did magic, and the advances of CGI have rendered the demonstrations of those past masters somewhat immaterial today. In the late 1800s there were no cinemas, there were no televisions and there were no special effects, yet interestingly, science fiction writer and inventor Arthur C. Clarke famously said that “any sufficiently advanced technology is indistinguishable from magic”. Nowadays, it doesn't seem out of the ordinary to see a man fly across the sky on a television screen, or a ghostly apparition appear in a bedroom, or somebody who can regenerate their own body parts.

These incredible technological advances beg one simple question—is magic still relevant in this day and age? The short answer is “Yes!”. The long answer? I've had the good fortune of performing for people from every corner of the world, and the one thing that transcends the barriers of both language and culture is a simple moment of astonishment that can be shared with strangers. Why? Because people love magic! Whenever I answer the prying question of, “What do you do for a living?” with the words “professional illusionist”, it is never met with disappointment, but instead sparks intrigue, excitement, and the willing suspension of disbelief. With cards, coins, cash, rings or thoughts I can perform mini-miracles and moments of impossibilities with my bare hands, right before your very eyes. The effect would be somewhat lessened if I took out my iPhone and just played you a clip of me performing these marvels, because seeing it on screen and seeing it happen in front of you are two vastly different things.

Over the last seven years, I've had the distinct privilege of developing and designing illusions for large-scale public events, stage shows, television shows and theatre. The most exciting challenge with ILLUSION was finding a coherent and engaging way to translate what I know as an illusionist

to an empty gallery space that was to be filled with exhibits. Magic in itself is a startling and unnerving art form, and we couldn't resist the idea of taking you, the spectator, on a journey through the gallery where you'll regularly experience those feelings. We are inviting you to step into our very own wonderland of deception, where nothing is quite as it seems, and every turn offers new and different moments of astonishment: Alistair Burleigh and Steph Tyszka's *The Invisible Eye* sees a large eyeball construct itself from darkness, layer by layer, Karolina Sobecka's *All the Universe is Full of the Lives of Perfect Creatures* tempts you to gaze into a mirror and invite a metamorphosis with your inner animal, and if you've ever wondered what it might look like to physically slow down time, Matt Kenyon's *SUPERMAJOR* will leave you breathless.

Like science, psychology and maths, magic has its very own theorists and thinkers, and one of the most famous is a man named Paul Harris who theorises that astonishment is not an emotion that's created, but rather an existing state that is revealed. So, as you walk through the darkened, mysterious passages of Science Gallery, I truly hope that you flirt with our impossibilities, invite a little magic into your life, and let those moments of astonishment reveal themselves to you.

ALL THE UNIVERSE IS FULL OF THE LIVES OF PERFECT CREATURES

Installation, 2012

Karolina Sobecka (PL)

“Part of my interest in this project lies in the combination of the virtual and physical world—inserting a layer of imagination into a physical world we know. The chain of cause and effect remains in place, although slightly augmented. The familiar is transformed into the uncanny, prompting us to see the mechanics of perception, interaction, and relationships with others anew. This installation gives us a chance to interact with a symbolic image of an animal ‘in communication’ with the viewer.”
—Karolina Sobecka

A neural mechanism has recently been discovered that goes some way to explaining how we get experiential insight into other minds. Mirror neurons activate when we perform an action as well as when we watch someone perform an action, and thus have been implicated in imitation learning. In addition to acting on the motor centers, mirror neurons have been theorised to play a role in ‘theory of mind’ concepts such as emotional recognition or contagion. Emotional contagion is based on interpreting



the emotional state of another being expressed through physical features. Emotions (such as fear or sadness) have typical facial characteristics, and mirror neuron theory would consider the neurons as ‘mapping’ the facial features of another being onto the respective areas in our own brain. Evolutionary theory tells us that such direct mapping would be beneficial as it could help us perceive danger or threat more directly and quickly. More complex evolutionary theories link mirror neurons to the appearance of cooperative behaviour or emotions such as empathy and compassion.

In this interactive mirror, the viewer’s movement and expressions are mimicked by an animal head which is overlaid on the viewer’s reflection. The resulting effect invites the viewer into questioning issues of self-awareness, empathy and non-verbal communication. A different animal appears every time a person walks in front of the mirror. The animals represent species from across the spectrum of domestication. The animal mimics the viewer’s facial expressions, interspersing them with its own independent ones. The viewer feels compelled, in turn, to enact those animal expressions, fully inhabiting the role; following while being followed. The as-yet unanswered question is to what extent mirror neurons might function between humans and animals, and do they function for more complex behaviours and emotions. We do know that there is reciprocal behaviour between different animal species, and a certain amount of mind modeling. Studies of predator-prey relationships tell us that survival in those roles depends on successful insertion of oneself into the mind of the hunter or the hunted, even to the point of mimicking its behaviour. Communication with animals relies on a non-linguistic, body-based, instinctive, and emotional aspect of expression. Social psychology studies have demonstrated that imitation and mimicry are pervasive, automatic, and facilitate empathy. Neural mirroring suggests that those mimicry exchanges are a bridge to inhabiting the other’s mind—and to in-depth understanding of each other.

GRAVITYTRAP.COM



The image of a goat (one of the five animals in the mirror) appears over the viewer’s reflection and mimics her facial expression.

BOTTLE MAGIC

Installation, 2000

Jeff Scanlan (US)

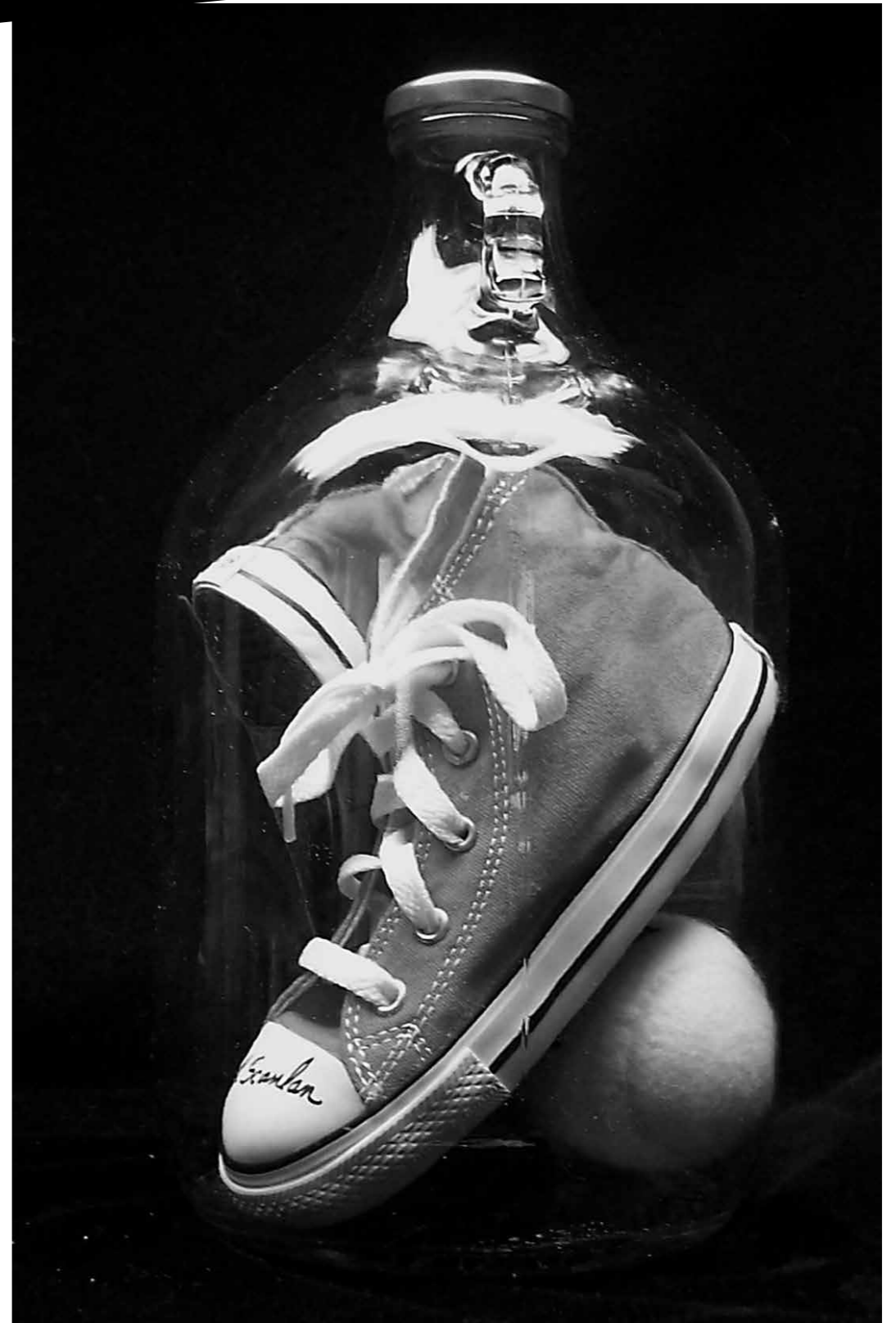
"In 1996, I read an article about the passing of Harry Eng and his incredible bottle art. I wanted to learn how these bottles were made. Unfortunately, because this art form is so difficult, time consuming and secretive, not much information was available. I decided to think like a magician. I spent the next three and a half years breaking many bottles and ruining hundreds of decks of cards, along with other objects, in pursuit of this art form. I finally achieved my goal when I put a bar of Lava soap, still packaged, into a bottle. Since then, like Harry Eng, I've put decks of cards, baseballs, ping-pong, tennis, and golf balls into bottles. I've also put pairs of scissors, padlocks, corkscrews and pairs of gym shoes. I feel like I'm keeping Harry's legacy alive by re-creating his bottle work."
—Jeff Scanlan



An impossible bottle is a type of mechanical puzzle. It is a bottle that has an object inside it that does not appear to fit through the mouth of the bottle. The illusion therefore resides in the question: How was the object put into the bottle? The items inside the bottles were put in through the neck of the bottle, and each bottle is completely ordinary, purchased off the grocery store shelf. The bottles have not been cut, heated or cooled and the bottle was not blown around the item. The bottles have not been manipulated in any way, shape, or manner. Each item inside the bottles is still perfectly usable. For example, the deck of cards are complete, with all 56 cards including Jokers and advertising cards, and in perfect order. You can play a round of golf with the golf ball, and the tennis shoes can still be worn.

Impossible Bottles have been around for centuries, but were popularised by Harry Eng. Harry Eng (1932–1996) was a magician, inventor, school teacher and educationalist by trade but he will be best remembered for his passion for making people think. This is demonstrated best by his impossible bottles, some of which have sold to collectors for thousands of euros. The art form is very guarded, and when Harry died, he took many of his secrets with him. However, nowadays a very small group of people worldwide are following in his footsteps and learning the art of impossible bottle making.

BOTTLEMAGIC.COM



COLUMBA

Installation, 2012
Roseline de Thelin (FR)

“Acting as a ‘neo-magician’ playing with digital tricks and brain perceptions, I sit upon the border of reality. I intuitively believe the use of new technology will open doors to expanded consciousness and heightened brain function. When we wear glasses that enable us to see the magnetic fields belonging to all beings, our perception of reality will for certain be transformed and expanded. I try to anticipate this moment, and make it real.”
—Roseline de Thelin



Columba is named after the small, faint star constellation *Columba Noachi* (Latin for Noah's Dove) and symbolises our growing consciousness. Continuing the series of *Homos Luminosos* (Latin for Luminous Humans), this new member of the family is a child, a young girl sitting in a constellation of quartz crystal stars. Ethereal, transparent and illuminating she glows, as a metaphor of the veil that divides life and the spirit realm. Her ghostly veiled silhouette appears shining and haunting in the dark, escaping into oblivion. *Columba* was designed to evoke God's waiting room in the spiritual dimension, waiting in limbo, visitors often experience a divine transcendence, entering through the doors of perception.

Made of optic fibres, symbol of the endless possibilities carried by photons, this work combines the use of digital technology with craftsmanship. *Columba* was initially created digitally as a three-dimensional mapping and then carved by hand into thousands of light points across hundreds of optic fibers. The empty space between the points of light create a 'loose definition effect' that pushes the viewer to fill in the gaps similar to the 'persistence of vision' process. The viewer participates with the work and co-creates the three-dimensional image of the figure. This unconscious act generates the sensation of discovery.

ROSELINEDETHELIN.COM

COUNTER

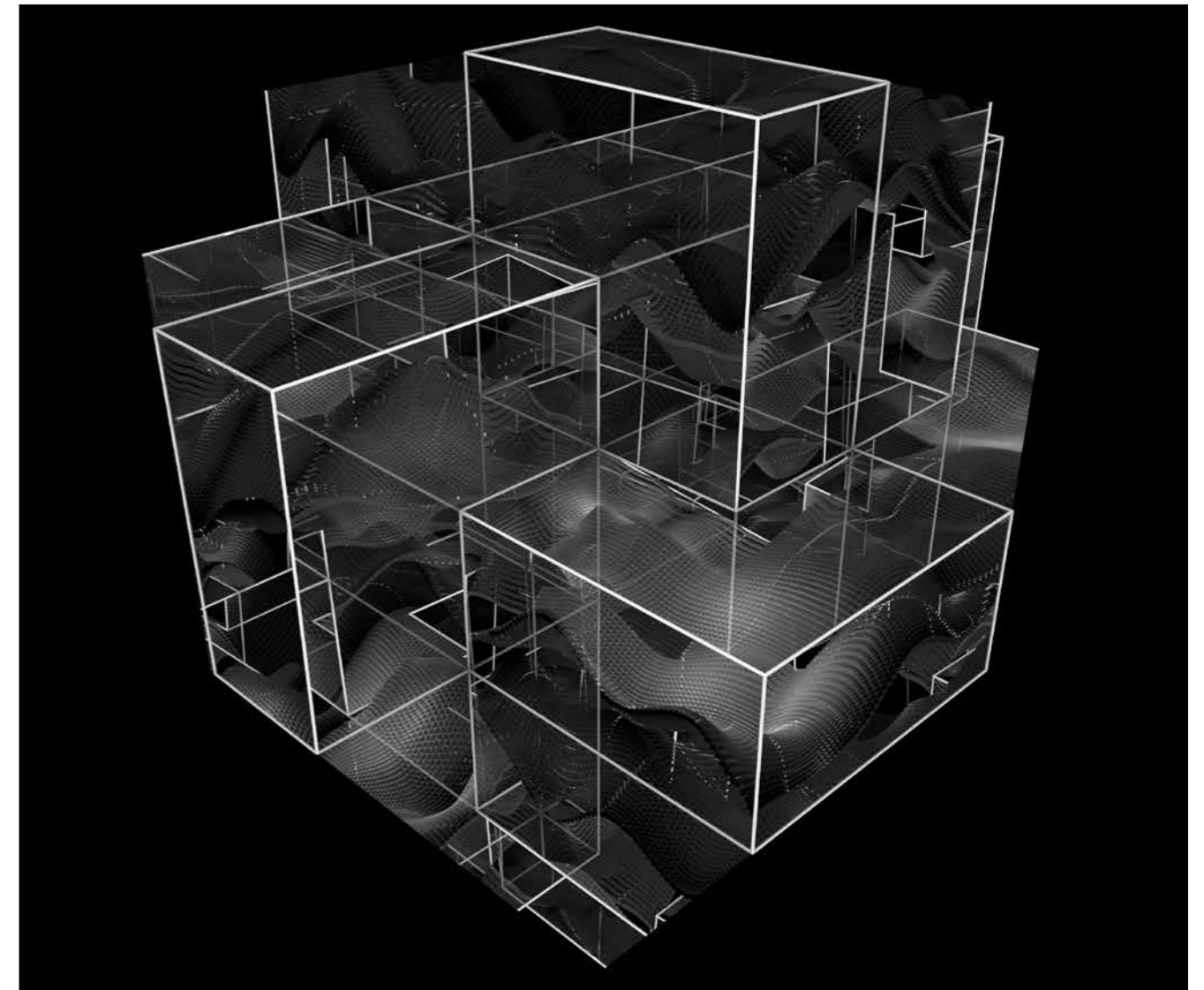
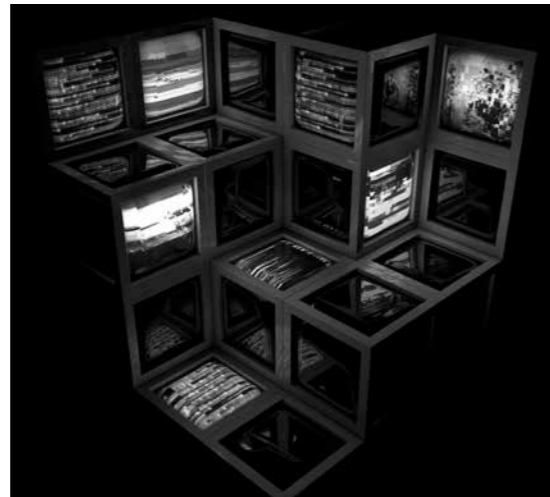
Installation, 2013
Anthony Murphy (IE)

“Inspired as much by paranoia as by paradox, my work investigates the potential of structures to create false experiences of non-existent objects by layering illusion upon the real. In attempting to draw the viewer into questioning their perception, I employ trick perspective and fake lighting created in 2D and 3D animation packages. Using in-silico light-sources and geometry, it is my aim to challenge the audience’s experience of real world objects, presenting them with a variety of alternative structures instead of just one static, material object. Video mapping is an animated progression from painting techniques such as trompe l’oeil and anamorphism—both of which are techniques which rely heavily on the viewer’s position in relation to the work, as well as the viewer’s willingness to be deceived.”
—Anthony Murphy

Counter is a video-mapped structure designed to trick the viewer’s perception as a modern, animated version of the technique of *trompe l’oeil*, which translates from French as “deceive the eye”. *Trompe l’oeil* is an art technique that uses realistic imagery in order to create the illusion that the object exists in three dimensions.

Through the projection of digital imagery onto physical objects, static structures are given the illusion of moving light sources, transformed geometry, reflection, and transparency—before reconfiguring and reconstructing themselves in a variety of new possibilities and permutations. The work aims to temporarily suspend the viewer’s reality by forging relationships between the digital and physical elements of the piece that are at once symbiotic and contradictory. As the work evolves it carries out a number of alterations, the purpose of which is to encourage the viewer to question their experience of the work by attempting to blur the line between a physical and digital definition.

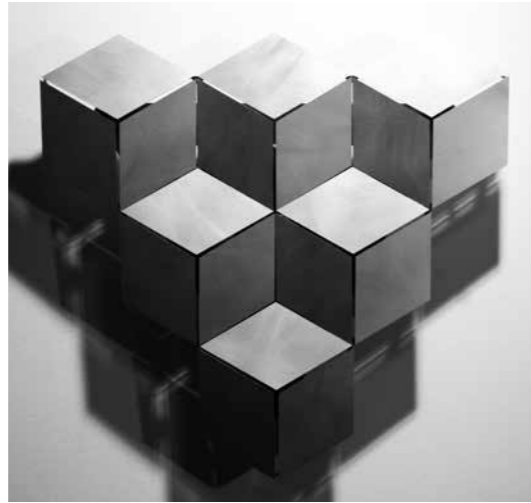
The nature of three-dimensional video mapping has led to research into anamorphosis in painting, Gestalt principles of perception, as well as *trompe l’oeil* and forced perspective. All of this research feeds into *Counter* in a bid to upset the viewer’s visual experience, putting what is seen against what is known and not revealing any way as to how to reconcile the two. The digital and the physical elements of the work represent two ends of the spectrum but as the work progresses the dependence of each of these elements upon the other becomes apparent and the two enter into a symbiotic relationship, with the surfaces of the physical being explored, in depth and detail, by the digital.



CUBES

Installation, 2013
Jennifer Townley (NL)

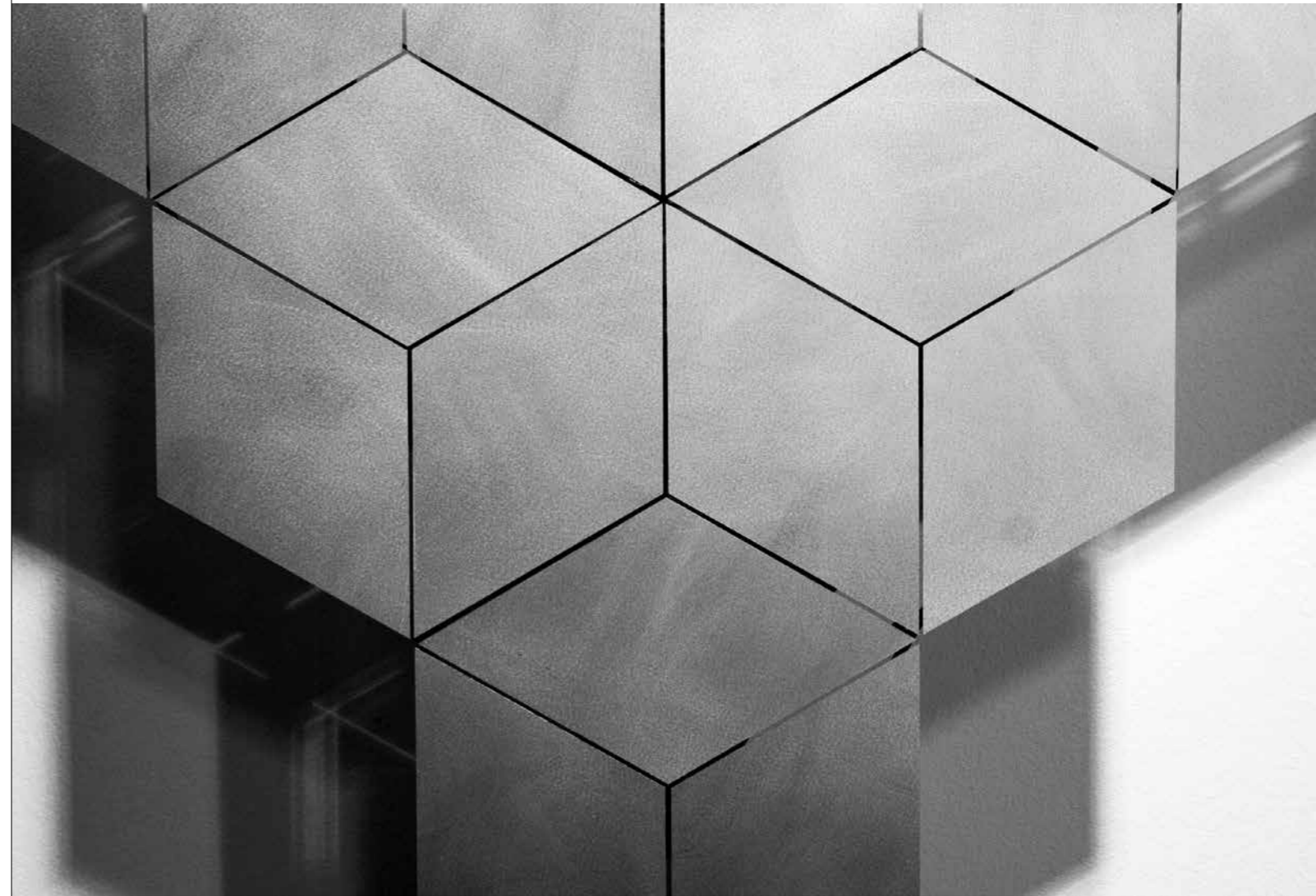
“Geometric patterns that make the human brain see things that are not really there have always been a fascination for me as an artist. I came upon this pattern of diamonds and it made me wonder what would happen if it were to be combined with movement, and Cubes is the result of this experiment. The work is made within the possibilities and boundaries of my workshop but could also become a very large wall—or even building-covering sculpture.”
—Jennifer Townley



Cubes is a kinetic, mechanical art sculpture based on a geometric pattern of diamonds that gives the optical illusion of six cubes, when in fact the perceived cubes only consist of three diamond-shaped forms grouped together. The piece uses the transformation of motion and power that takes place within a machine

and the way the independent mechanisms work together to explore the way the brain, a machine itself, responds to repetitive movements. A diamond which at first glance appeared to be the topside of one cube can at the same time become the underside of another cube, making the pattern of cubes so very interesting.

Powered by a small electric motor, a mechanical construction at the back of the machine moves very slowly up and down. It tilts the eighteen diamond-shaped aluminium plates back and forth, emphasising the three-dimensional form and therefore the illusion of the cubes. The tilting of the aluminium plates causes light to be reflected from different angles and changes the colour of the plates constantly. This makes it even harder to stay focused on the one cube the viewer sees. The aluminium diamonds seem to reconnect themselves with a different cube again and again, inducing a subtle, hypnotising effect on the viewer.



DELICATE BOUNDARIES

Installation, 2007
Chris Sugrue (US)

“Delicate Boundaries explores our expectations and understanding of interfaces and interactivity, using reactive visuals and lifelike behaviours to create a playful environment.

The illusions occur on several levels: first there is the illusion of the bugs leaving the screen; then through playful interactions, the viewer often projects their own interpretations and experiences. Some say they can feel the bugs crawling on them while knowing it is only light!”

—Chris Sugrue

As digital technologies have become embedded in everyday life, the line between the virtual and real is becoming increasingly blurred. *Delicate Boundaries* creates a space that allows the worlds inside our digital devices to move into the physical realm. Inside a computer monitor, a world of organic forms wriggle and flock. When the screen is touched, these small bugs made of light swarm towards the point of contact. This system moves beyond a typical responsive touch-activated display allowing the bugs to crawl out of the display onto the human bodies that make contact with them. They appear to emerge from the computer screen, often surprising their audience as they try to abandon a virtual existence. The magic of this illusion is evident when the viewer permits them to explore their bodies, crawling from one person to the next, interacting with a digital projection in a strangely intimate space.

In *Delicate Boundaries* the audience finds a playful world embodied with lifelike behaviours, organic motion and responsiveness. It invites the viewer into an illusion where something made out of light could be considered as having substance. This strange world comes to life with video cameras, near-infrared lights, digital projection and custom software. Behind the scenes, image processing techniques are employed to track the audience as they interact. The system attempts to understand where someone touches the screen and where the boundaries of the body exists. The story that emerges within the interaction space becomes about the viewer exploring the boundaries between the virtual and the real, between contact with technology, and with each other. Ultimately, the work hopefully reminds us that, suspect or not, there is still some magic in the way we interact with the world.



DIE FALLE

Installation, 1998
Gregory Barsamian (US)

“What I end up doing is mounting three-dimensional, sequentially formed artworks on a motorised rotating cylinder. The cylinder is divided into segments like a piece of pie, in the neighbourhood of sixteen frames. A strobe light is synchronised to flash as each frame passes. Each frame becomes like a single image in a film slightly different from the preceding and following frames. That’s how I create movement.”
—Gregory Barsamian

Taking on the visual illusion known as persistence of vision, *Die Falle* (German for The Trap), is a large-scale zoetrope of a man’s dream-time reality. A zoetrope is a 19th century optical device that uses images and rotation to create the impression of animation. This piece explores the theories of dreams and the unconscious by replacing images with sculpture, creating a dream world that melds art, science and technology into a shadowy realm.

The persistence of vision principle applies to the subject as well as the mechanics of the piece because the viewer’s mind not only fills in the gaps of the animated sequence to give it visual continuity, but also completes the sculpture with the added dimension of personal meaning. *Die Falle* brings the sensory world and logic into conflict: is it dream versus reality or reality versus dream? The brain not only fills the gaps between the movements of the sculptures, but between the conscious and unconscious state. Familiar objects face alternative realities and the sculpture allows a glimpse of the shadowy dream world that the viewer might want to escape from—the aforementioned trap—by bringing it into waking perceptions. Rationality is left behind as the fine line between reality and illusion is revealed.

The piece uses relatively simple technology and doesn’t hide behind the mechanics of the work or try to keep its functioning a secret so that viewers understand the working dynamics and can focus on the content of the piece rather than becoming obsessed with how it works. The narratives are open-ended so people can complete the work through their own personal experiences.

The dream sequences provide a starting point for the deep-rooted philosophical questions posed about the universal nature of our existence. Humans tend to define themselves by what they know and understand, but in dreams, there are many things they don’t understand because they are not certain or logical. *Die Falle* takes a look at the theory that information that has passed through our conscious mind eventually becomes imprinted in the unconscious. The theory says that dreams are records of what has been missed in waking life, making them a more honest record of lived experiences.

GREGORYBARSAMIAN.COM



Gregory Barsamian: *Die Falle*, 1998 (Detail)
Collection of Kinetica Museum
Image: Courtesy Kinetica Museum

MOIRÉ MATRIX: HYBRID FORM

Installation, 2013

Shelley James, blown by Liam Reeves (UK)

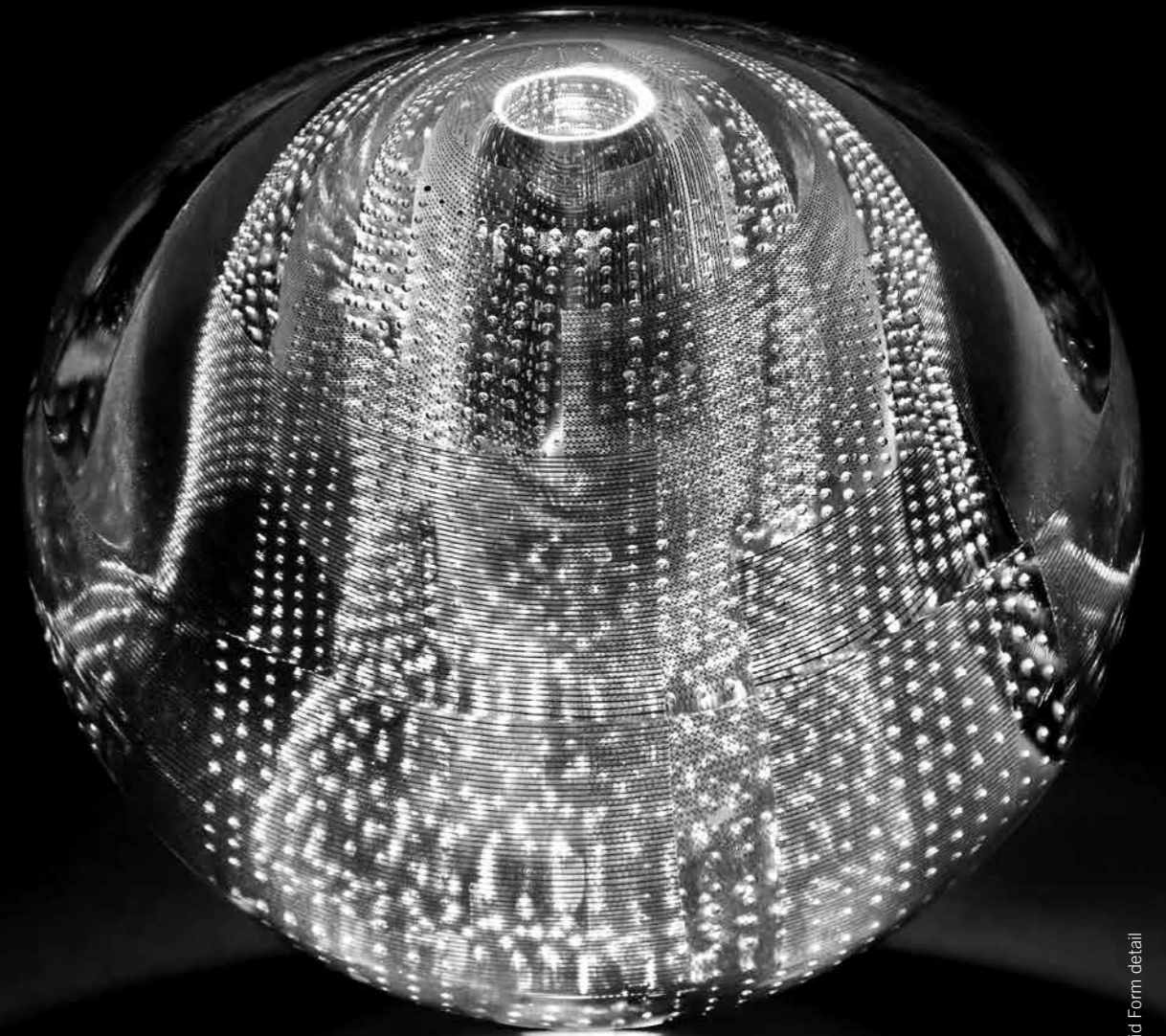
“When it comes to the visual pathways that evolved in a pre-glazed world and the cues that we use to orient ourselves, the transparent, reflective and magnifying qualities of glass are entirely paradoxical and generate compelling and disorienting illusions. The material is wonderfully permeable and mobile, literally drawing the viewer, their companions and the environment into the creative process. This piece is one of a series which plays with the relationship between the rhythms created by the dialogue between internal and external spaces, working with light and shade to consider where the object begins and ends.”
—Shelley James



The brain gauges the relationship between objects in space through a combination of physical ‘bottom up’ cues—such as feedback from the muscles that direct the eyes to focus on a target—and ‘top down’

knowledge about how the world usually appears. For example, the same figure when seen at a distance tends to seem smaller and to move more slowly than when it is nearby. Overlapping edges or boundaries and shadows give further clues and are used to confirm assumptions about the relative position of objects in a scene.

This work combines the magnifying qualities of glass and the graphic precision of print to set up a conflict between these signals, creating a paradoxical space where the relationship between front and back, near and far is constantly switching. Patterns that, according to the usual physical and overlapping rules, lie on a distant plane, appear larger than those that seem to be closer. When the object revolves, the conflict is exacerbated. Elements at the back of the piece seem to pass behind those at the front—but to move more swiftly. The central void appears solid from some angles, while from others it appears transparent and is constantly multiplying and changing shape with the varying thickness and curvature of the material. When the piece is lit, the paradox extends beyond the object to create patterns of light and shade that compound the paradoxical appearance of a form that is both solid and transparent, material and virtual. The piece was built using a series of layers or ‘gathers’ of glass from a furnace before carving and polishing. Each stage encapsulates a lattice of bubbles or lines, positioned relative to the other to generate interference and moiré patterns.



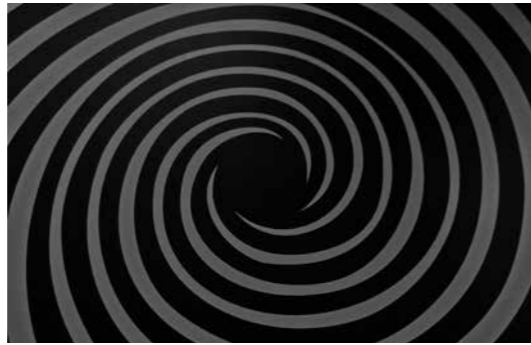
MOTION AFTEREFFECT ILLUSION

Installation, 2013

Helen Mac Mahon (IE)

“The motion aftereffect is the illusion of motion in the visual image caused by prior exposure to motion in the opposite direction. For example, when one looks at rocks beside a waterfall they may appear to drift upwards after the viewer has looked at the flowing water for a period of about 60 seconds. The illusion originates in the visual cortex, and arises from selective adaptation in cells tuned to respond to movement direction.”

—Helen Mac Mahon



Motion Aftereffect Illusion consists of two discs with a spiral image capable of inward or outward motion. In between these two discs is a mirror. When the viewer looks at the centre of one of the rotating spirals

for several seconds, then looks at any stationary pattern, it appears to be moving in the opposite direction. This form of the motion aftereffect is known as the spiral aftereffect. In this piece, the viewer looks at one of the spirals and then looks at their face in the mirror. Depending on the direction that the spiral is going, the motion aftereffect will create the illusion that their head is either shrinking or growing bigger.

Like all aftereffects, this one can be explained in terms of the ‘fatigue’ of nerve cells encoding for one motion direction. When motion detectors in the brain detect movement they produce a strong signal, and when there is no movement detected they produce a weaker (but non-zero) signal. When these detectors are strongly stimulated, they fatigue after several seconds of continuous firing activity. This can also be described as the motion detectors ‘adapting’ to the continuous movement. When the stimulus is removed, or the movement stops, the motion detectors in the opposite direction produce a stronger signal for a few seconds as a result of the balance between these groups being disrupted. The effect disappears when the fatigued motion detectors recover.

PENROSE PATTERN & FIGURE-GROUND

Installation, 2013
Shelley James (UK)

“The connection—and frequent disconnection—between appearance and experience has been a central theme of my work for many years. Perception of space is of particular interest because it engages two different types of gaze at once: the considered look that gathers information for recognition and understanding, and the flickering stream of signals used to direct physical action, seeking out boundaries to gauge relationships with the viewer’s body. Float glass is a wonderful material to play with in this context—printed lines appear suspended in a space that is both present and absent, flat and deep, while the rhythmic patterns generated by multiple layers suggest the dynamic process that transforms a bewildering array of conflicting signals into a coherent illusion of space.”
—Shelley James

These pieces use moiré interference patterns to create illusions of depth and movement, playing with the physiology of the visual pathways and the mechanisms that build and test our perceptual map of the world.

As the viewer moves around the work, each simple structure—four panes of glass printed with parallel and angled lines in black and in white—becomes apparent. Seen from the side, the panels are fragile and insubstantial. Yet as the angle of view changes, they suddenly appear as solid screens over which rhythmic patterns appear to run in different directions and on different planes. While the arrangement of lines is exactly the same on the black and on the white panels, the effects when seen from the light and the dark sides are strikingly different. This can be seen with the naked eye, and yet the illusion persists, exposing the usually unconscious dialogue between the body and the brain.

The work builds upon a long-standing collaboration with the Bristol Eye Hospital and with psychologists in London, Dundee and Bristol, exploring the physical and cognitive cues involved in spatial perception and the implications of new insights arising from the next generation of neuroimaging techniques. The frequencies of the gratings are derived from the artist’s own brain activity, which was recorded while participating in research that aims to measure the subtle shifts in electrical frequency and amplitude that seem to arise a split second before the brain separates a figure from a background, or a face from a vase.

The profile used in the *Figure-ground* piece is the one used in the experiment, while the *Penrose Pattern* references the classic tiling system and Necker cube illusions. The angles are calculated from the artist’s research on moiré effects, and are inspired by the work of artists and scientists including Soto, Wilding, Spillman and Wade.



Penrose pattern
Print on glass 2013
Shelley James
Photo: Ester Segarra

Figure ground
Print on glass 2013
Shelley James
Photo: Ester Segarra

REVELATORS I–VII

Installation, 2013

Helen Mac Mahon (IE)

“My practice is currently concerned with the phenomena of light, movement, perception, and space. The work observes and reveals the artificial ecosystem that exists in the interplay of people, their surroundings and these intangible elements. Changes that occur in any one of these components have a perceptible impact on the other. Rarely static, they exist in a perpetual state of transformation. The work functions as a metaphor for the continual change that exists in the world around us despite our illusions of stability.”
—Helen Mac Mahon

Revelators I–VII is an installation consisting of seven towers made of over 400 acrylic Fresnel lenses. Manufactured as a reading aid to magnify what the viewer is looking at, they equally have the ability to warp and distort all that it is their very function to enhance.

Using this potential for distortion, these towers have been created in such a way that when they are placed together, they create a wall through which everything we see is inverted. The illusion is created in that the world outside is segmented and turned upside down as is everyone and everything within the space that the piece is



installed. The focus of attention is stretched and warped, often beyond recognition, as it is viewed through the lenses. The lenses respond to light, so they subtly change throughout the day in tandem with the daylight and the eventual transition to artificial lighting at night giving the sense of yet another level of flux and change. The concentric circles are etched into the surface of the lenses in order to focus light but they also often divide the light, creating beautiful spectrums of colour that appear from time to time in the different layers of the towers.

The installation is designed to be interactive and invites the viewer to move around the piece. As they do so, it plays with their perception of the world. An entirely different view is experienced through each of the different facets of the towers. This interactivity is a very important part of the installation as it shows the viewer that their movements within the space and around the tower have a direct and perceptible effect on what they see within the piece, creating an artificial ecosystem where both art and viewer are interconnected.



SIGNIFICANT BIRDS

Installation, 2013
Nye Parry (UK)

“Writers such as Richard L. Gregory have investigated how illusions lay bare the perceptual hypotheses with which we approach our environment. Generally, though, the examples are drawn from the visual domain. Significant Birds draws on auditory theory and the perception of sound—and in particular the perception of human speech—and both complements and contrasts with other exhibits. It highlights features that are common to hearing and vision, principles of pattern recognition and parsing, and their differences, for example the importance of time and spatial awareness in the perception of sound.”
—Nye Parry

In *Significant Birds* the listener is confronted with a group of twelve bird cages, each containing a small loudspeaker. From each speaker a pure ‘chirping’ sound can be heard which is in fact a single sine wave extracted from a recording of speech. When all twelve speakers are active and in perfect time with one another the listener hears the speech reconstructed, although no speaker ever contains more than its one single ‘partial’. When we hear speech (or any other sound) our ear breaks it down into individual frequencies which are then reconstituted by the brain into the meaningful sound we hear. In *Significant Birds* the individual tones are separated in space, yet our brain cannot help but recognise them as part of a whole and reconstructs the speech from which the tones are derived. When the tones are introduced individually or shifted in time the illusion is broken and their individual, bird-like natures are revealed.

Additionally, the illusion plays with our ability to localise or find the origin of the speech that we hear. Each partial has a separate location in the gallery space. No speaker reproduces the whole so it is impossible to locate the origin of the sound—we hear it in the space and may even think we know where it is coming from, but on closer inspection its location eludes us. The sound we hear is created in our brains, not in physical space. *Significant Birds* focuses on speech as it is perhaps the most recognisable sound in human culture and we are predisposed to focus in on voices whenever we hear them.



SIMPLY SMASHING

Installation, 2000
Rebecca Cummins (US)

"I first noticed the effect while studying my wine glass during a long university awards ceremony in Sydney, Australia (appropriately 'down under'). Simply Smashing demonstrates the collusion of sophisticated optical principles (refraction and inversion) with social activity and domesticity."
—Rebecca Cummins



Add water to the common red wine glass and it becomes a pristine lens that turns the world upside down. The view appears much like it would in a camera, however a camera lens won't spill if you tip it; move and the view moves too. This common domestic object inverts the view due to its spherical shape and the refractive index of water.

Light rays bend, or refract when they enter the water-filled glass, and refract again when they leave. Due to this, the image the viewer sees is upside down and reversed right to left. The motion of the image is also reversed: when the object moves up, the image moves down; when the object moves closer to the sphere, the image moves farther away.

Simply Smashing is made up of approximately 200 water-filled wine glasses. It is an elegant and playful meditation on perception and fragility. Each individual glass acts like a human eye, becoming a lens that magnifies and inverts the image of its surroundings.

Set in the window of Science Gallery café, viewers will see an inverted version of the world outside. Passers-by on the street will see Science Gallery café through a new lens.



SOMETHING IN THE WAY IT MOVES

Installation, 2013

Fiona Newell, Stefan Hutzler & Robert Murtagh (IE)

“It is often said that all human perception is illusory, and that the brain forms hypotheses about what it sees, hears or feels. In our everyday world, we often perceive shapes and patterns in visual images where none exist, such as seeing animal shapes in cloud formations, or familiar objects in rock formations. Illusions are a very useful tool for understanding how the brain makes sense of stimulation from the external world. Here, our aim is to investigate how changes in the physical properties of a display of random dots can change the perceived interpretation of the display.”
—Fiona Newell

Something in the Way it Moves is a study that examines how illusory patterns emerge from a range of simple to complex arrangements of dots, displayed statically or dynamically on a computer screen. The study is part of an ongoing investigation concerning the processing of visual information by the brain and the role of correlations for complexity. It will invite participants to ponder how order and disorder can be distinguished. Participants will be asked to rate these according to set criteria via direct input on a computer keyboard. A subset of the results will be displayed on a screen throughout the exhibition.

The details of the movement of the dots are important. For example, the motion might be purely random (such as Brownian motion, the erratic random movement of microscopic particles in a fluid) or display strong correlations, like the swarming motion of birds, and thus may appear more or less natural. *Something in the Way it Moves* will look at what makes moving dots look alive.

Illusions are used in research as they help scientists understand how the brain integrates information from across the different senses. For example, the ‘McGurk illusion’ (when the auditory component of one sound is paired with the visual component of another sound, leading to the perception of a third sound) is used to understand how a speaker’s lip movements affect the perception of the sound of their speech. Another example is the ‘sound-induced flash illusion’ (when a single flash of light is accompanied by multiple auditory beeps, the single flash is perceived as multiple flashes) which is used extensively to help assess efficient multisensory integration in the ageing brain.



SUPERMAJOR

Installation, 2013
Matt Kenyon (US)

“The title for SUPERMAJOR is a term derived from what was named the “Seven Sisters”, the seven oil companies which formed a global cartel and dominated the world supply of oil from 1940s-1970s. When doing research for SUPERMAJOR, I spent a lot of time watching video footage of the BP Deepwater Horizon oil spill. The seemingly endless violent evacuation of oil into the surrounding water is starkly contrasted with the golden honey-like liquid poured out of a fresh can of oil. Because of the unimaginable scale of events like Deepwater Horizon, there is a macabre faith that this fossil fuel abundance may never end. These disasters give us a clear image of the implications of such abundance and waste. I wondered what other forms this faith might take. So I decided to build SUPERMAJOR.”
—Matt Kenyon



What goes up must come down. These words describe not so much a scientific truth, but rather a common generalisation. This notion can be applied to a variety of things—from a ball thrown into the air to a stock market, which cannot continue to rise forever. All good things must come to an end. Right? The perceptual structures of the human brain enable individuals to see the world around them as stable, even though the sensory information may

be incomplete and rapidly varying. Some of these perceptual structures are highly susceptible to manipulation. Seeing is not believing. Especially when the refresh rate of our reality hides the truth about our macabre fossil fuel faith. All around us people simultaneously hope and fear that our material abundance may never come to an end.

In the gallery a wire rack of vintage oilcans sits. One has a visible fissure out of which oil slowly flows, cascading onto the pedestal and the gallery floor. The only thing is, upon close inspection the oil isn't flowing out of the can. Instead, oil appears to slowly flow, drop-by-drop, back into the can. At times the drops of oil seem to hover unsupported in mid-air. At other times, the drops are in the process of a reverse slow motion splash onto the pedestal.



THE HURWITZ SINGULARITY

Installation, 2008
Jonty Hurwitz (ZA)

“This piece is calculated from a precise four-dimensional scan of my own head. I wanted to capture my physical being in as much detail as technology allowed. It felt appropriate to be able to analyse myself at the highest resolution that modern science could record space-time. This sculpture evolved when I was deep in Freudian therapy. Four days a week on the sofa blazing new trails from the road that Sigmund Freud first mapped. To my analyst, I dedicate this piece. Dr Sanchez Bernal, this is the Hurwitz Singularity!”
—Jonty Hurwitz

“The technological singularity” is a future time speculated in science fiction. At the singularity moment, a human-made machine will design a machine more advanced than itself. This moment will mark the end of mankind’s dominance. The singularity is the moment that machines become more intelligent than us. Some analysts expect the singularity to occur some time in the 21st century, although their estimates vary.

Many say that software will never be capable of human emotional intelligence. This could be the case but humanity may offer only one kind of intelligence. A tangible example is Google’s predictive search. Have you noticed in the last few years that it’s become quite good at knowing you? Does it know you better than your partner does? Is Google better than your parents at predicting your next question? When it comes to artificial intelligence and statistical probability, what is the point beyond which we become subservient to machines?

The technological singularity is only one example of a boundary in spacetime. The sound barrier, the melting point of ice, the Lagrangian point are but a few other examples. This sculpture offers a personal and emotional space-time boundary that each of us cross several times in our lives. It represents that moment when a personal epiphany emerges in your life that changes your perspective forever. The Hurwitz Singularity.



THE INVISIBLE EYE

Installation, 2013

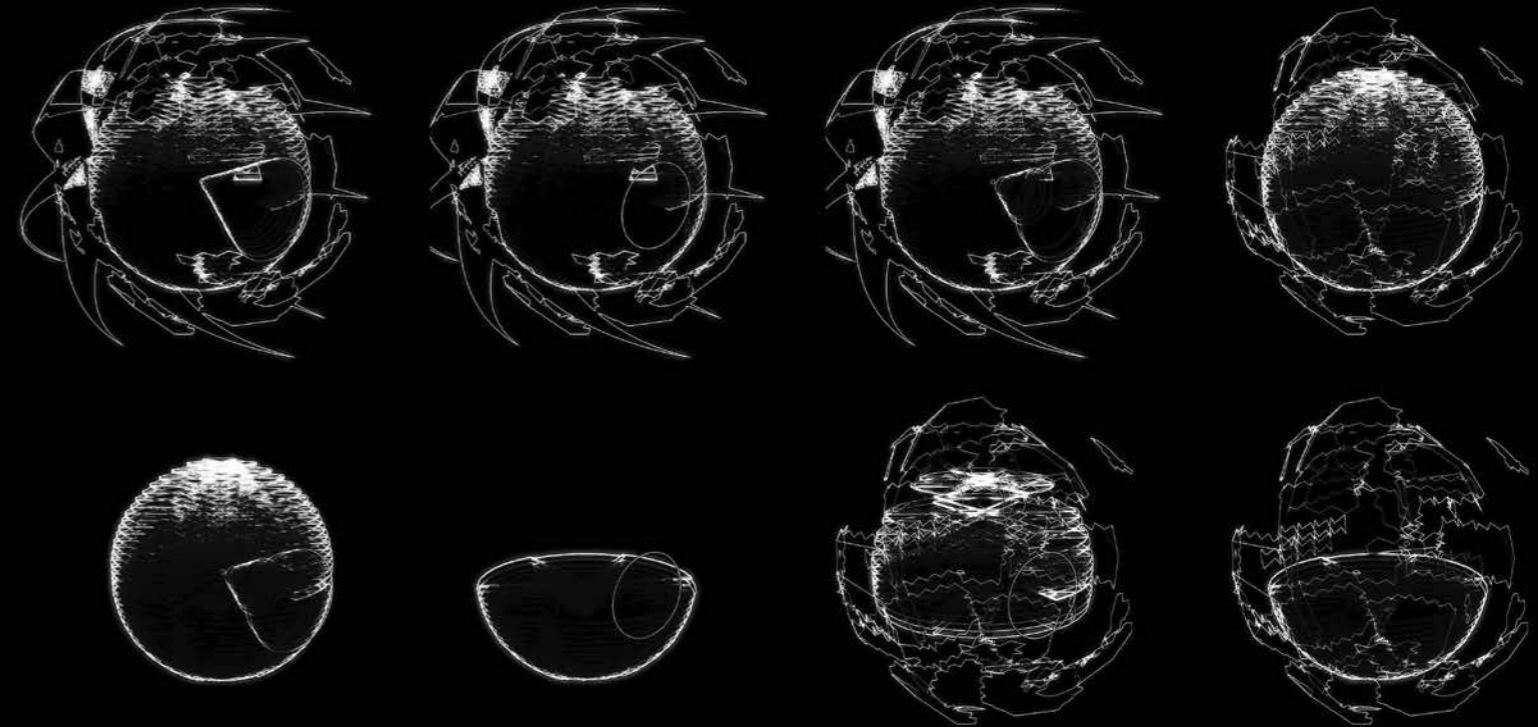
Alistair Burleigh & Steph Tyszka (UK)

“We are fascinated with things we can’t see, and the limitations of our vision. A large amount of the world is frequently hidden from us, and our perception is limited to what is in front of our eyes, from a tight viewpoint. We are really interested in how modern technologies could be used to enhance or augment the traditional human perception of the bubble of reality that surrounds us. Can digital technologies be used and combined with optical illusion techniques, visual perception tricks, materials or fabrication techniques, and specific lighting tricks to create completely invisible or see-through objects? Can the visual state of transparency be controlled on demand? The Invisible Eye is an experimental installation piece exploring these themes.”

—Alistair Burleigh

Designed specifically for ILLUSION, *The Invisible Eye* is a ‘robotic eye’ sculpture constructed from clear plastics in fractal and multi-layered forms. Through the clever use and fine adjustment of various lighting conditions, techniques, and hardware, *The Invisible Eye* aims to produce the illusion that a solid physical form appears and disappears in real space. The sculpture is designed to look as if it is being drawn with light in mid-air, as if a 360-degree computer generated model has somehow escaped from the computer and is hovering in ‘visual reality’ in the gallery space directly in front of the viewer, and in a physically three-dimensional manner. The reflective properties of the fractal surfaces from which the sculpture is constructed further enhance the viewer’s confusion as to in which part of their conventional understanding of everyday space the sculpture exists.

The combination of a subtle ambient soundscape audio track with the complex lighting elements of the piece brings more depth to the immersive perceptual experience of the illusion of invisibility in real space. *The Invisible Eye* responds to an audio track, slowly revealing and hiding the various layers and sections of the sculpture in response to the various elements of the soundscape.



The Invisible Eye, Concept. ©Alistair Burleigh (i>Lab), and Steph Tyszka 2013.

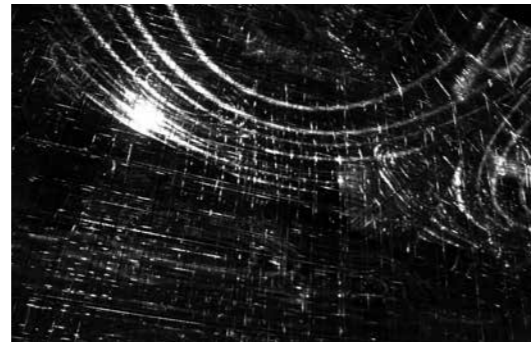
THE POINT OF PERCEPTION

Installation, 2009

Madi Boyd (UK)

“The work is visually appealing and creates an exciting experiential moment for viewers in addition to allowing them to reflect on their awareness of their own perception. Therefore it is not simply an illustration of illusion or a scientific experiment, but provides an artistic experience that people of any age can enjoy and participate in. Illusions remind us that what we see is not a reflection of what is ‘out there’ but shows us what has been useful for humans to see in the past, and confirms how robust the human visual system is. The installation questions why we enjoy illusions, and what feelings they generate. The abstract nature of the work allows individuals to experience a range of feelings and create their own narratives, and thereby understand something more about themselves.”
—Madi Boyd

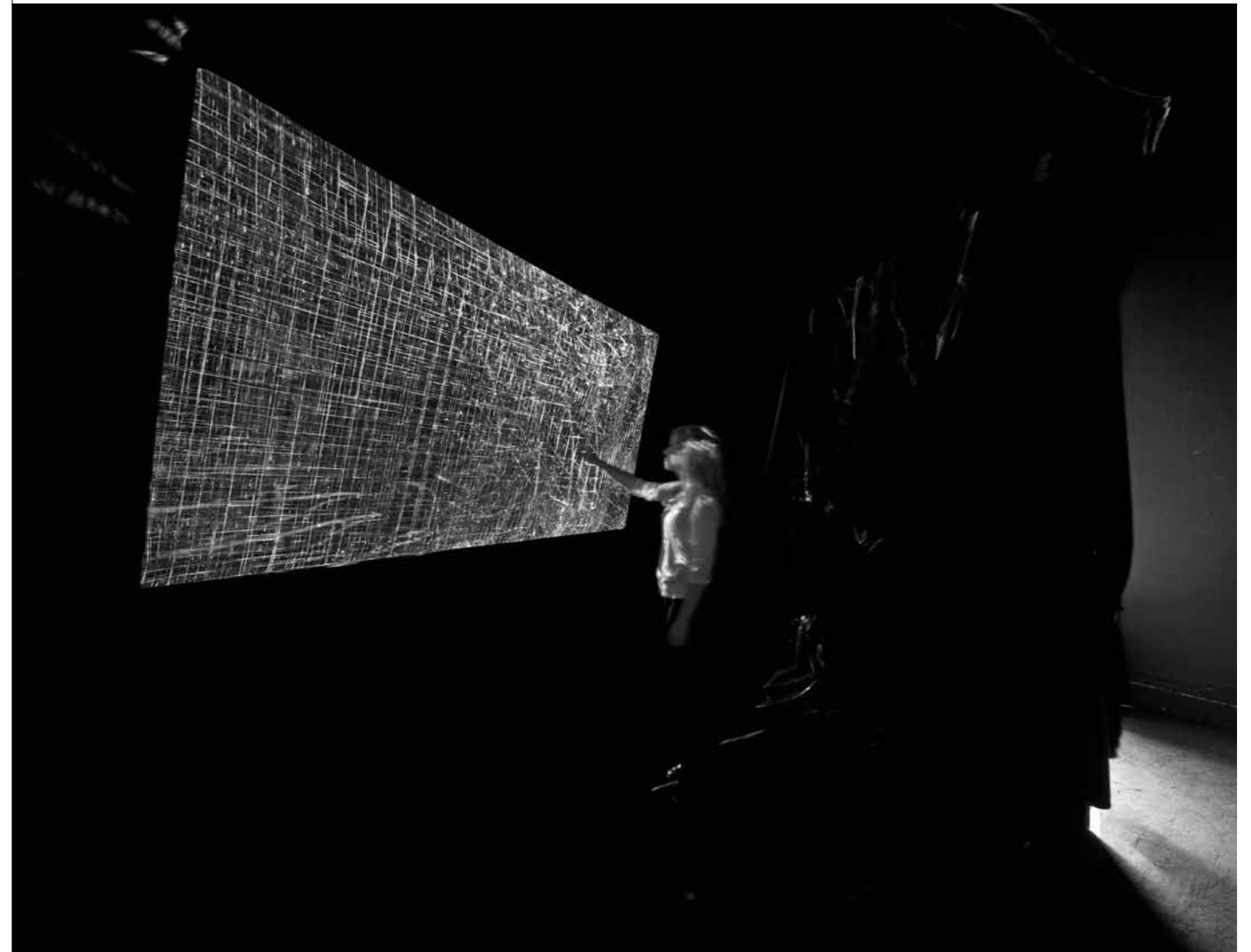
The Point of Perception is a collaborative project between artist Madi Boyd and neuroscientists Mark Lythgoe and Beau Lotto. The project is an immersive art installation that probes ambiguity in perception. It uses illusion in space to disorientate; providing the viewer with just enough visual information to be on a ‘tipping point’ for perceptual understanding. It is an uncertain, abstract but spectacular environment designed to engulf the viewer.



The installation consists of a controlled environment with a visually uncertain space in the centre, a space with just the right amount of visual material so that people are on the brink of comprehending what they are looking at, but are unable to resolve it entirely. The hypothesis behind this is that this would be the most interesting place for the mind as it would continually search for certainty. *The Point of Perception* seeks to identify when and how form emerges from formlessness in the visual field. The work is designed to be absorbing, so that people lose themselves for a moment —some viewers have described feeling as if they themselves were invisible.

The work itself is a large, mirrored, pyramidal box filled with hundreds of metres of horizontal and vertical lines of string. The projection moving along the lines creates an array of changing points of light in space. The positioning of the mirrored surfaces and the choreographing of the film make the space appear to expand and shrink as the points of light travel through and fill up more or less of the space and the grids appear to move between ordered regularity and chaos. The aim is to allow people to witness the ambiguity inherent in their own perception. The interest in this confusion and the emotion that uncertainty produces in the viewer is partly how and why this puzzle for the brain was created.

The installation consists of a controlled environment with a visually uncertain space in the centre, a space with just the right amount of visual material so that people are on the brink of comprehending what they



TITRE VARIABLE N°9

Installation, 1999
Pierrick Sorin (FR)

“My first productions were little Super 8 films, and from there I developed the concept of autofilming—filming myself in fictional settings where I portray various protagonists, like in the series Pierrick & Jean-Loup (1994). I play two brothers, Pierrick and Jean-Loup who fall prey to a certain boredom, and engage in activities that are at once stupid and creative. This concept of boredom, this life that we have to busy ourselves with and the worries of every day, is a founding principle in my oeuvre. As for my trademark, it must be the little “théâtres optiques” (optical theatres) that I’ve been developing since the mid-nineties” —Pierrick Sorin



Titre Variable n°9 is an ‘optical theatre’ that blends new media with traditional diorama, consisting of a wooden structure, a vintage vinyl turntable, a spy-mirror and a video-screen.

Based on the principle of the hologram, this installation enables a double vision: once a video screen hidden behind a spy mirror is turned on, the viewer sees someone walking onto the spinning vinyl disc, as well as their own reflection. The virtual image fits completely into the real elements of the artwork in a perfect illusion. The piece places immaterial subjects amongst real-life material objects, creating a subliminal realm of illusionary reality.

The video portrays the artist as the protagonist. Presented in the guise of a small ectoplasm, he runs on the turntable and sometimes almost falls. He’s dressed as Mr Hulot, with the genuine iconic raincoat worn by Jacques Tati, the famous comical uncle in the French movie *Les vacances de Mr Hulot*. The accompanying lullaby is coming from the record playing backwards: the sound is repetitive and incomprehensible.

The title *Titre Variable n°9* (variable title number nine, in English) suggests a free interpretation by the spectator of the inaudible words. This small-scale, pseudo-holographic optical theatre embodies simple technical means and a taste of abrasive humour and self-mockery.



TYPOGRAPHIC ORGANISM

Installation, 2011
Adrien M / Claire B (FR)

“Typographic Organism is an installation first made for the XYZT, Les paysages abstraits exhibition. It is made as an interactive and immersive walk into a digital and lush territory, where touching algorithms or feeling the matter of light become possible. With this installation, the illusion of letters floating in the air is created through old magic techniques associated with new technologies.”
—Adrien M / Claire B



Forms float in an aquarium. They are made from letters, but their movements suggest that they are actually small creatures, like bees trapped in a bottle. They start moving when people blow on them, and their hustle and bustle poetically mixes semantics of language and motion.

The installation uses the Pepper's ghost principle, a classic illusionary technique from the 19th century which enables objects to float in midair, disappear, become transparent, or morph into something completely different. It is based on a trick of light, the optical properties of glass, and the tendency of the human brain to believe that some images it sees are three-dimensional when they are, in fact, flat on a screen.

Glass, while transparent, serves as a partial mirror, reflecting back some of the light that hits it. This is why we can see ourselves in the window of a darkened shop-front. In the Pepper's ghost illusion, a piece of glass is angled forty-five degrees from a brightly lit object set in a darkened area. Care is taken to ensure the angle is just right, and that the viewer cannot see the object itself, just its reflection in the glass. Because people are accustomed to light travelling in straight lines and because glass is transparent, the brain assumes that the object is behind the glass instead of being a reflection, resulting in a ghostly apparition.



WHAT WE SEE

Installation, 2013

Joanna Hopkins (IE)

“This work aims to question the audience’s awareness of their viewership, and how it can be altered and adjusted by forces outside of their control. This interactive art installation mimics the actions of our everyday lives by parodying and subverting the use of the normal sitting room set up where we sit down to watch TV. This installation requires the viewer to complete the work. When the video becomes apparent through the glasses, the viewer tries to understand or solve the trickery. They watch the video, wondering if the answer is in the conversation. The video that plays aims to draw the viewer’s attention to their actions by becoming aware of their surroundings in the mirrored film set/installation set.”

—Joanna Hopkins

What We See is an interactive, multimedia installation that consists of an LCD screen with the front interior polarising filter removed, rendering the information on the screen invisible. Masked by the backlight of the monitor, it appears as a blank white screen. This extracted filter is cut up and placed in a pair of glasses which are used to view the screen, revealing a short video that plays on a continuous loop.

The interior shot of the video and the installation’s set-up in the gallery are a mirror of each other. The viewer places themselves ‘within’ the set of the video by sitting in an exact replica of it. By viewing themselves mirrored in the artwork, the work questions the validity of their viewing, the ways by which they see things and the ways in which they believe what they see.

What We See is a conversation between two people that refers to open, non-specific situations, empty questions and answers that allow the viewer to infer what they wish from it. The characters play out conflicting gestural indicators to their dialogue, negative shrugs accompany positive answers. The conversation aims to portray and play with strands of two theories; cognitive dissonance theory, in which we adapt our attitudes to the outcome of a situation, and a strand of the self perception theory, in this case the way a question is phrased is used to anticipate a desired response. “Do you always...” questions are responded to with a negative answer, and “Have you ever...” questions are responded to with positive answers.

This interactive installation aims to encourage the viewer to question what they see in their daily lives, and to explore the areas in which we can adjust and adapt modes of technology for our own uses and experimentation. It explores augmented reality technology, and how the advance of this technology is affecting the way we are developing, changing, and learning as a society. It aims to explore how new technologies are changing the way people think, act and perceive—both themselves and the world around them.



YOU. HERE. NOW.

Installation, 2013
Ian Willcock (UK)

“In creating this, I was concerned about the context for digital art; for many works, there is no context other than that provided by the technical means of its presentation—the type of device or computer that it requires to be presented. Other than this, the work is the same in any part of the world, at any time, and for any viewer. As an artist interested in social process, this placing of artefacts and experiences outside of the usual means for developing cultural meaning and reference is troubling and unsatisfactory. You. Here. Now. attempts to make the viewer’s perception, the site of the installation, and the instant that it is encountered essential parts of the experience of the work. It requires the user to make decisions about the way they will view it and hence what they will see. It draws its materials in real-time from news items ensuring that each experience is the result of both individual choice and collective, time-dependent preoccupations.”
—Ian Willcock

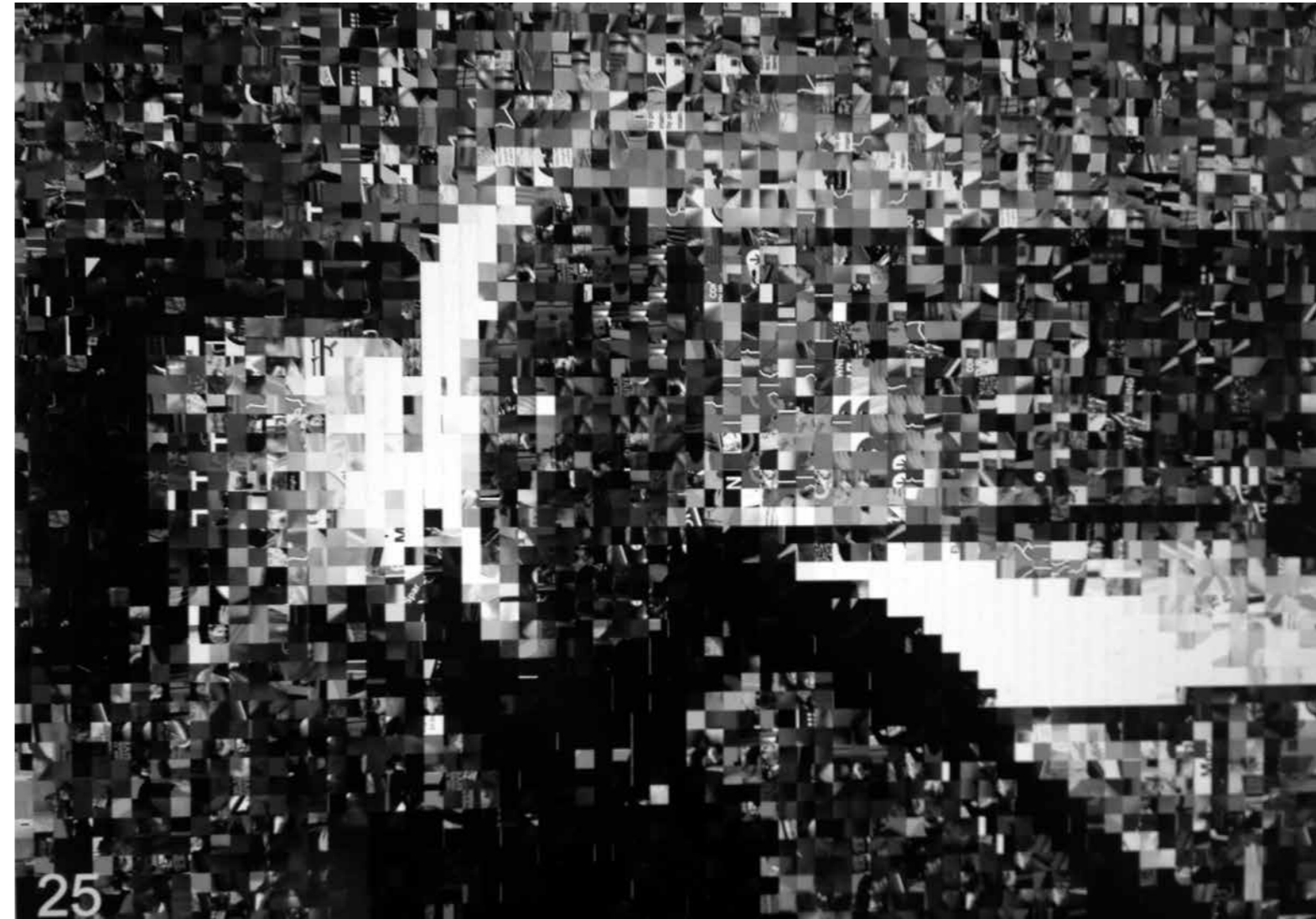
You. Here. Now. is a dynamic portrait system that produces images which hover between representing the viewer and representing the time and social preoccupations at the instant the viewer engages with the installation.

The system constantly trawls the websites of selected news organisations and downloads all the visual imagery it comes across. These images are then used to provide a large number of fragments, each of which reflects the preoccupations and priorities of the news gathering organisations, but which are (because of their size) prevented from functioning iconically. The fragments are all catalogued and stored, together with their average colour value in a constantly evolving database. This is the palette from which the work constructs portraits of those who interact with it.

To engage with *You. Here. Now.*, all that is required is an investment of time; the passer-by must pause a while. As they examine the piece, a portrait of their face will gradually emerge from a background of several hundred tiny fragments which are in a continuous state of flux. Through the currency of its materials and specificity of its location, the resulting image is a portrait which is a product of the specific time it was created. It carries within its basic materials references to wider narratives of power and place from which both the work and the portrait have emerged.

Looking at the large image on the screen, the viewer can only see the vaguest outlines of themselves emerge, their attention is drawn to the vibrancy of the continually adapting image and its constituent detail. Their perception will transition between the recognition of vague outlines—colours of garments, shapes of faces—and the kaleidoscopic, almost hypnotic, play of hundreds of picture elements.

However, taking a picture of the piece on a mobile phone and looking at the image on a small screen, removes the detail and wider context, and reveals their portrait as a familiar representation. Emptied of detail, they recognise themselves.



BIO

ALL THE UNIVERSE IS FULL OF THE LIVES OF PERFECT CREATURES[Karolina Sobeczka \(PL\)](#)

Karolina Sobeczka works with animation, design, interactivity, computer games and other media and formats. Her work often engages public space and explores the way we interact with the world we create. Karolina received her Bachelor of Fine Arts from the School of the Art Institute of Chicago and her Masters of Fine Arts from Calarts in Experimental Animation/Integrated Media. She has also studied and taught in the University of Washington Digital Arts and Experimental Media Ph.D. program. Karolina's work has been shown internationally, including at the Victoria & Albert Museum, MoMA, Beall Center for Art + Technology, ISEA and Medialab Prado. She has received awards from, among others, NYFA, Creative Capital, Princess Grace Foundation, Rhizome, Platform International Animation Festival, Vida Art and Artificial Life Awards, and the Japan Media Arts Festival.

BOTTLE MAGIC[Jeff Scanlan \(US\)](#)

Jeff Scanlan is 48, and a magician by trade. He is best known as America's Sports Magician—one of the only

magicians in the United States who combines magic with sports props and themes. He performs for Fortune 500 companies, professional sports teams, athletes and owners throughout the country. Jeff has become known worldwide for his bottle work, one of only a dozen people who have mastered the difficult, time consuming and secretive art form. He resides in Mt. Prospect, IL (a Northwest suburb of Chicago) with his wife and daughter.

COLUMBA[Roseline de Thelin \(FR\)](#)

Roseline's work focuses on the exploration of three-dimensional forms combined with the epiphenomena of light. Playing with reflection, refraction, fragmentation, conduction and transparency, she creates light sculptures and modern chandeliers for private and public spaces. She uses a large range of materials including mirrors, quartz crystal, Perspex, metals and fibre optics. She finds inspiration in new technologies, quantum physics, astronomy, sacred geometry, symbolic archetypes and optical illusions. Since 2012 she has been represented by the Kinetic Museum and her work is featured in their collective art shows. Roseline has a Masters in Art Management from Dauphine University in Paris, studied Fine Art in École des

Beaux-Arts in Paris, and Contemporary Art History in École du Louvre in Paris. She combines her profound experience with the creative process with a lifelong interest in psychology and self-development, to facilitate creative workshops for students, adults and children.

COUNTER[Anthony Murphy \(IE\)](#)

Anthony Murphy is a graduate of IADT Dun Laoghaire who, over the last 4 years, has exhibited video mapping work nationally, both inside and out of the gallery context. Where video mapping works such as *All Surface* (2009—Dun Laoghaire Art Collection), *nEuclid* (2010), *pUSHER* (2010), *CAVES* (2011), and *Terra* (2012) were sculptural installations created for intimate spaces, working as designer and animator with Lightscape has afforded him the opportunity to present large scale, outdoor work at Drop Everything, Electric Picnic, and projecting onto the Port Building as part of Moira Sweeney's Stevedoring Stories during the Dublin Tall Ships Festival.

CUBES[Jennifer Townley \(NL\)](#)

Jennifer Townley makes kinetic art - mechanical constructions that often move very slowly, mostly powered by an electric

motor. Her fascination with mechanical movement, combined with her interest in the way the human brain responds to repetitive movements and patterns leads to the machines she builds. They are the result of experiments with movement and patterns. She studies the construction of geometrical patterns and gives them an extra dimension by adding movement, or tries to discover what patterns are formed by mechanical constructions and how they change shape over time. Her inspirations are mechanical movements that occur in engineering, dynamic movements from physics, mathematical patterns that are common in geometry, Islamic art, and the drawings of M.C. Escher. She likes to deconstruct them in a mathematical way, to see how the structure is built, what the basic elements are, and how they could be reused.

DELICATE BOUNDARIES[Chris Sugrue \(US\)](#)

Chris Sugrue is an artist, designer and programmer from the United States. She develops interactive installations, audio-visual performances and experimental interfaces. Her works experiment with technology in playful and curious ways and investigate topics such as artificial life, eye-tracking and optical illusions. She has exhibited internationally in such festivals and galleries as Ars

Electronica, Sónar Festival, Pixel Gallery, Medialab-Prado, Matadero Madrid, and La Noche En Blanco Madrid. Chris holds a Masters of Fine Arts in Design and Technology from Parsons School of Design. She worked as a creative engineer at the Ars Electronica Futurelab, and was the recipient of a year-long fellowship at the Eyebeam Art + Technology Center in New York. She has taught courses in the Design and Technology department at Parsons School of Design, the Interface Culture program at the KunstUniversität in Linz, Austria, and numerous workshops on visual and creative programming.

DIE FALLE[Gregory Barsamian \(US\)](#)

Gregory Barsamian studied philosophy at the University of Wisconsin while he supported himself by working in a bicycle shop and fixing cars. He made his first kinetic sculpture in 1990 using pieces of fabric, foam rubber, strobe lights, newspapers, sculpted body parts and a motor. As a young artist, Gregory sought to combine his interests in philosophy, dream psychology, sculpture and mechanics. An early and simple optical device, the zoetrope provided a starting point. For over 30 years Gregory has exhibited his work internationally and created many large scale commissioned works for museums and science centres

including Phaeno Museum in Germany, MOMI in New York and ICC in Japan. His most recent commission was for the world's largest private art collection at David Walsh's Museum of Old & New Art in Tasmania. In 2001 he won the MIT/Leonardo New Horizons Award. He is represented by Kinetic Museum.

MOIRÉ MATRIX: HYBRID FORM PENROSE PATTERN & FIGURE-GROUND[Shelley James \(UK\)](#)

Trained in textiles at the École nationale supérieure des Arts Décoratifs in Paris, Shelley pursued a career in corporate design for international clients including Visa International, Shell and Habitat. Keen to explore the theme of identity from a more personal perspective, she started to work with medical scans, exploring the connection—and frequent disconnect—between appearance and experience. This led to an ongoing residency with the Bristol Eye Hospital, supported by the National Glass Centre, Crafts Council England, the Wellcome Trust, and the Arts and Humanities Research Council. Her current Ph.D. at the Royal College of Art works with physical cues to depth to create artworks that generate illusions of space and movement, exposing the usually unconscious process of perception. Her work is in public and

private collections in France, the US, China and the UK. Current projects include the Centenary Celebrations for the Medical Research Council, a Saatchi-curated installation, and a residency at the Corning Studio in New York.

MOTION AFTEREFFECT ILLUSION

REVELATORS I-VII
[Helen Mac Mahon \(IE\)](#)

Helen Mac Mahon is an artist living and working in Dublin. A recent graduate of Dublin Institute of Technology Portland Row, her work is currently concerned with the investigation of perception. She works with both installation and sculpture, creating immersive works using light and a wide variety of commonplace materials. She focuses on items designed to visually enhance and clarify (such as lights, magnifying lenses, reading glasses and mirrors) that also have the potential to distort and obscure the very things it is their function to reveal. She attempts to maintain the integrity of the materials while the viewer is allowed to experience them in a new and often surprising way.

SIGNIFICANT BIRDS [Nye Parry \(UK\)](#)

Nye Parry is a sound artist and composer whose work encompasses sound installation, multimedia, concert works and over 20 scores for contemporary dance. He has made sound installations for museums including the National Maritime Museum in London, the Heineken Experience in Amsterdam, the Science Museum in London and the British Museum. His most recent major installation, *The Exploded Sound*, was premiered in Ljubljana, Slovenia in September 2012. Other recent projects include sound and software design for Richard Baker's *The Tyranny of Fun*, a Birmingham Contemporary Music Group commission involving specially designed sensors embedded in percussion mallets, which was premiered in February 2013. He teaches at the Guildhall School of Music and Drama and Trinity Laban Conservatoire, where he has just led a project to design the sound for the National Maritime Museum's summer exhibition *Visions of the Universe*. Nye currently holds a research fellowship at CRISAP (Creative Research in Sound Arts Practice) at the University of the Arts, London.

SIMPLY SMASHING [Rebecca Cummins \(US\)](#)

Rebecca Cummins explores the sculptural, experiential and sometimes humorous possibilities of light, optics and natural phenomena, often referencing the history of optics in installations that have included a machine for making rainbows, traveling and site-specific camera obscuras, a video rifle, paranoid dinner table devices, a periscope birdbath and a variety of photographic and sculptural approaches to marking time. She has exhibited widely in Australia, the U.S., and Europe; exhibitions include the Shanghai Biennial, Shanghai, China; The South Australia Biennale of Australian Art, The Biennial of Seville in Spain, and Wireless Experience, Museum of Contemporary Art KIASMA in Helsinki, Finland. She taught at the University of Sydney for 16 years before moving to Seattle in 2001, where she is currently an Associate Professor at the University of Washington.

SOMETHING IN THE WAY IT MOVES [Fiona Newell, Stefan Hutzler & Robert Murtagh \(IE\)](#)

Stefan Hutzler is Associate Professor in the School of Physics, Trinity College Dublin (TCD), where he heads the Foams and Complex Systems Research Groups.

He is a Science Gallery Leonardo and was co-curator of BUBBLE (2009) and OSCILLATOR (2013). Fiona Newell is Professor in the School of Psychology and Institute of Neuroscience, TCD. She is also a member of the Science Gallery Leonardo group and was co-curator of METROPOLIS (2009), LOVELAB (2010) and has made many other contributions to Science Gallery exhibitions. Robert Murtagh is a postgraduate student at the TCD Foams and Complex Systems Research Group.

SUPERMAJOR [Matt Kenyon \(US\)](#)

Matt Kenyon is interested in the convergence of art, emerging technologies, and popular culture. His recent works often feature wearable computing technologies or robotics, used to express a cultural critique. In 1999 Matt co-founded SWAMP (Studies of Work Atmosphere and Mass Production) with Douglas Easterly. Their work focuses on critical themes addressing the effects of global corporate operations, mass media and communication, military-industrial complexes, and general meditations on the liminal area between life and artificial life. He is currently an Associate Professor in the Penny W. Stamps School of Art & Design at the University of Michigan, where he teaches art.

THE HURWITZ SINGULARITY [Jonty Hurwitz \(ZA\)](#)

Jonty Hurwitz has always been torn between art and physics and the reconciliation of his left and right brain. Each one of his pieces is a study on the physics of how we perceive space and is the stroke of over one billion calculations and algorithms. Each piece draws upon a unique way in which our brains interpret the spatial information they receive, playing with our perception of reality. From algorithms, to finance, to paint, to technology, his artwork represents parts of who he is but also his understanding and evaluation of the world. Jonty uses a variety of mathematical and engineering processes to produce his work—a combination of computer processing, algorithms, 3D printing, laser cutting and a range of manufacturing processes in putting together pieces. Jonty is an entrepreneur, inventor, investor in social enterprise, an artist, and scientist. He is also one of the co-founders of Wonga.com, and has won many awards for innovation and use of technology.

THE INVISIBLE EYE [Alistair Burleigh & Steph Tyszka \(UK\)](#)

Alistair Burleigh is a digital artist and electronic music producer from Bristol.

His work has traditionally explored ways to enhance the perceptual realism of digital form within the bubble of 'reality' that surrounds us everyday, aiming to cross the divide between physical space and digital space. Alistair has been working primarily with 360-degree video mapping as a creative medium since 2004. In that time he has developed numerous immersive digital environments for both prestigious clients on a global basis and more artistic-led projects closer to home. Some of his project highlights to date include a giant video mapping 'VJ cube' for the James Bond film *Quantum of Solace* filmed in Panama, a complex 3D promotional video mapping installation in the form of product packaging for Chanel Perfumes and Beauty at Palais de Festival, Cannes, and a large scale mapping installation for The United Arab Emirates Pavilion at World Expo 2010, Shanghai.

Steph Tyszka uses computer processing as a temporal canvas to create systems that unobtrusively augment everyday environments. His work offers a non-commanding and non-proscribed space where a viewer has freedom to interact and explore the altered environments from their own perspective, incorporating their own character, and encouraging an opportunity for playful discovery. The inclusion of elements that function outside of human senses and perception

provides scope for a deeper level of discovery and incidental interaction. Steph uses emergence and complexity principles to allow these systems to support a scalable experience, responding to the viewer's desired level of interaction—from unnoticed presence through passive observer to engrossed manipulator. With a background in stage lighting and television production, Steph has the knowledge and experience of planning, installing and running high-profile shows and events.

THE POINT OF PERCEPTION

[Madi Boyd \(UK\)](#)

Since graduating in sculpture from The Slade School of Art in London in 2005, Madi Boyd has exhibited extensively both installations and short film works, including at The Science Museum in London, Kinetica Art fair, the British Film Institute, Art Laboratory Berlin, and at international events such as The Vancouver Olympics. She is an installation artist, fusing large scale sculpture with projected moving image to create performing environments. Her work explores interactions between physical space and moving image, and often uses technology and digital media. An important part of her artistic process is to collaborate with scientists and psychologists in order to understand how

the elements she works with (primarily motion, light, pattern, form, space) are received and interpreted by the brain. She lives and works in London.

TITRE VARIABLE NO9

[Pierrick Sorin \(FR\)](#)

Born in 1960 in Nantes, Pierrick Sorin is a video-artist. He produces short films and visual devices in which he mocks the human existence and artistic creation with a burlesque accent. Avid practitioner of self-filming, he is often the only actor in the stories he invents. His works have been presented in the Cartier Foundation, Centre Georges Pompidou, the Tate Gallery in London, the Guggenheim Museum in New York, Metropolitan Museum of Photography Tokyo. Having artistic attitude while being contemporary and intellectual, his work remains accessible to a wide audience. Pierrick has also created audiovisual devices applied in event communication. For example, he has collaborated with Jean-Paul Goude for Chanel and has produced several works in conjunction with the Galeries Lafayette Haussmann. *Titre Variable n°9* is included in ILLUSION courtesy of the artist and Aeroplastics contemporary in Brussels.

TYPOGRAPHIC ORGANISM

[Adrien M / Claire B \(FR\)](#)

The company Adrien M / Claire B has been working in the field of digital arts since 2004. Its creations are performances and exhibitions that associate reality and virtuality. Its specificity is the custom-made development of its computing tools. Among the artistic and technological stakes, the attention is focused on the human being and its body, using contemporary tools in the service of a timeless poetry, developing and using a visual language based on gameplay and pleasure as mediums of the imagination. The artistic project is led by Adrien Mondot and Claire Bardainne. The company is based in Lyon, France, where it occupies a studio of research and creation.

WHAT WE SEE

[Joanna Hopkins \(IE\)](#)

Joanna Hopkins is an Irish artist born in 1984. She works predominantly in video and installation, with a focus on interactive exhibits and audience participation. Her work explores the themes of augmented reality and digital technologies, and the changing ways in which we perceive both ourselves and others through these mediums. She currently lives and works in Belfast.

She has exhibited widely across Ireland and Northern Ireland and was the 2012/2013 recipient of the first Visual Artists Ireland and Digital Art Studios Belfast Residency Award. Recent solo exhibitions include *Polarise* at Catalyst Arts Belfast, June 2013, and recent group exhibitions include the *CATA Project* at Eva International 2012.

YOU. HERE. NOW.

[Ian Willcock \(UK\)](#)

Ian Willcock is a digital artist, researcher and lecturer in Interactive Media and Live Performance. His musical, multimedia and digital-performance pieces have been presented internationally and he has received many prizes and scholarships. Several of his pieces are published and his work is available on commercial recordings. He has collaborated on a number of large-scale digital performance and mixed-media installation projects and in 2012 completed his doctorate in Multimedia and Live Performance at De Montfort University. Since 2009, he has been a Senior Lecturer in Interactive Media at the University of Hertfordshire, where he now leads the PG Media programme.

ACKNOWLEDGMENTS

COLUMBA

Roseline de Thelin is represented by Kinetica Museum.

DELICATE BOUNDARIES

Created with the support of Medialab-Prado, Eyebeam Art + Technology Center, and Hangar; and the help of Zachary Lieberman, Damian Stewart, Blanca Rego, Jordi Puig, Gonzalo Posada

DIE FALLE

Courtesy of Kinetica Museum's collection.

SIGNIFICANT BIRDS

Supported by CRISAP, University of the Arts, London; Lansdown Centre for Electronic Arts, Middlesex University; and Jamie Campbell.

SOMETHING IN THE WAY IT MOVES

Supported by Science Foundation Ireland.

SUPERMAJOR

Supported by Penny W. Stamps School of Art & Design.

THE HURWITZ SINGULARITY

Jonty Hurwitz is represented by Old Street Art, London.

THE POINT OF PERCEPTION

Supported by The Wellcome Trust Arts Council.

TITRE VARIABLE N°9

Courtesy of Aeroplastics contemporary, Brussels.

TYPOGRAPHIC ORGANISM

Sound and informatic conception: Loïs Drouglazet
Design and construction: Martin Gautron
Sound: Christophe Sartori
Lights: Jérémy Chartier
Set up: Jérémy Chartier, Loïs Drouglazet, Laurent Lechenault, Vincent Perreux, Christophe Sartori
Scenography (intern): Charles Boinot
Physics models (intern): Antoine Costes
Production planning / ay-rOop
Administration & Production: Marion Gatier
Touring & Development: Mathieu Calueba
Associated with Hexagone and Scène nationale de Meyla. Financed by Conseil Général de l'Isère.
Supported by DRAC Rhône-Alpes, by Région Rhône-Alpes, and the city of Lyon.

WHAT WE SEE

Supported by the Kilkenny Arts Office Artist in Residence Programme, and the Visual Artist Ireland and Digital Arts Studios Belfast Residency Award Programme.

YOU. HERE. NOW.

Supported by the University of Hertfordshire.

ILLUSION CURATORS

RICHARD WISEMAN

Professor Richard Wiseman is based at the University of Hertfordshire, where he holds Britain's only Chair in the Public Understanding of Psychology. He has gained an international reputation for research into unusual areas of psychology, including luck, deception, and the science of self-help. His three books, *The Luck Factor*, *Quirkology* and *59 Seconds*, have all topped the best-seller lists and have been translated into over thirty languages. He has presented keynote addresses at The Royal Society, Microsoft, Caltech, and Google. Over 2 million people have taken part in his mass participation experiments, and his YouTube channel has received over 11 million views. He is one of the most frequently quoted psychologists in the British media, and was recently listed in the Independent on Sunday's top 100 people who make Britain a better place to live.

MICHAEL JOHN GORMAN

Michael John Gorman is the Founding Director of Science Gallery. Currently, through a gift of €1M from Google.org, he is developing an international network of Science Galleries in partnership with leading universities in urban centres worldwide. Michael John is also Adjunct Professor of Creative Technologies at Trinity College Dublin, Director of the Idea Translation Lab (in partnership with Harvard University) and Coordinator of the European StudioLab project. Prior to coming to Trinity College Dublin, he worked at Stanford University where he lectured in science, technology and society, and has held postdoctoral fellowships in Harvard University and MIT. He has authored numerous publications and articles on aspects of the relationship between art and science and history of science. He holds a PhD in seventeenth century history of science from the European University Institute in Florence.

ILLUSION RESEARCHER

[Paul Gleeson](#)

ILLUSION EXHIBITION BUILD

[Sugarglass Theater](#)
[Jack Restan Displays](#)



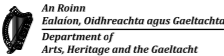




ILLUSION GRAPHIC DESIGN

[Detail. Design Studio](#)
[Ruža Leko](#)
[Freddie Stevens](#)

ILLUSION CATALOGUE PRINT

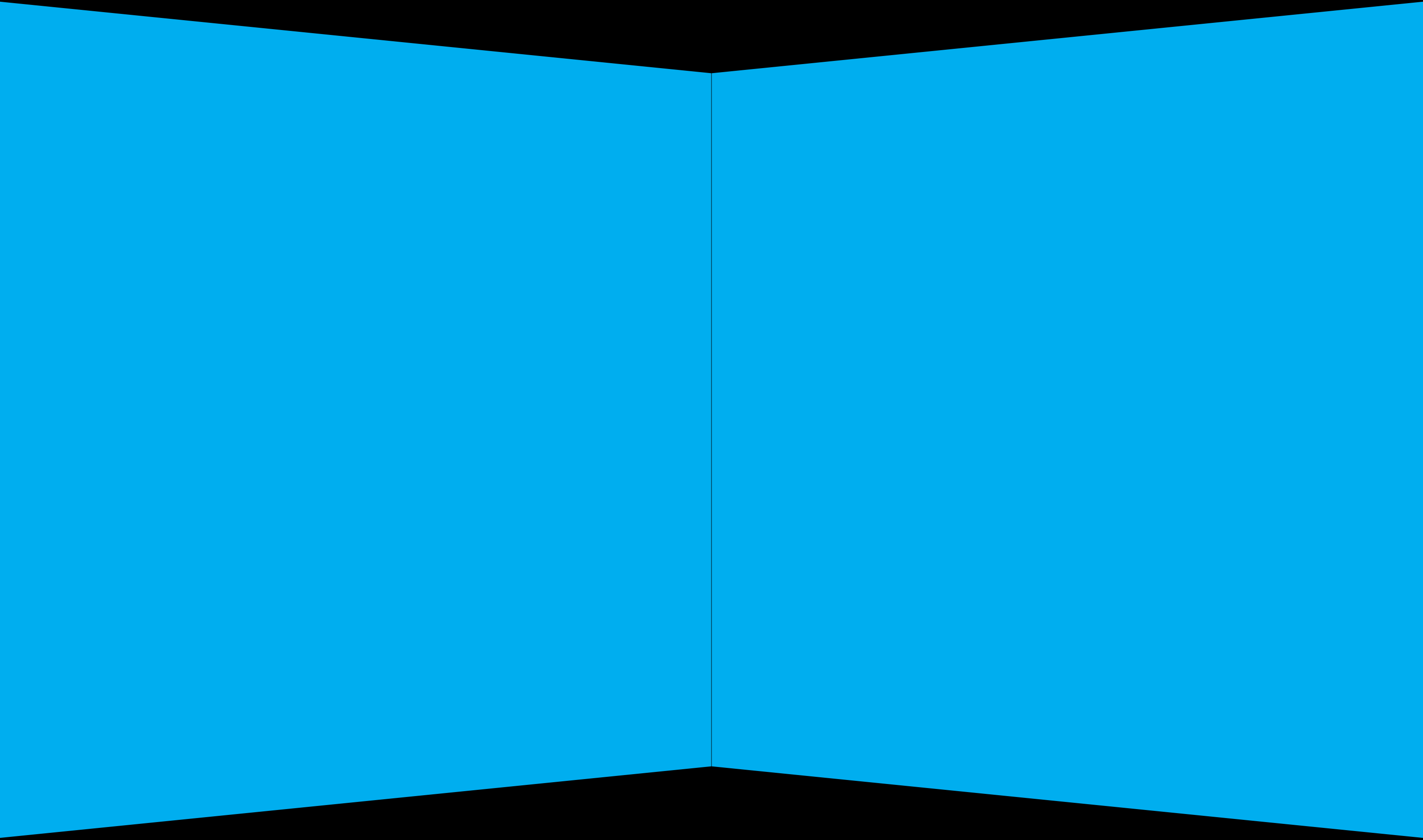
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PROGRAMME PARTNERS 2013			UNIVERSITY OF DUBLIN FUND
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Science Gallery at Trinity College Dublin is a dynamic and vibrant cultural space where science and art collide, ideas meet and curious minds connect. Featuring work by both national and international scientists, artists, engineers, designers and technologists, Science Gallery explores broad themes that can be interrogated from a variety of disciplines and perspectives. With a primary audience of young adults from 15 to 25 years old and a strong community that visits regularly, Science Gallery provides a lively social space for public engagement with science. Through an ever-changing programme of exhibitions, events and workshops, the space serves as a porous membrane for ideas and connections between the university and the city around it.

Thanks to the generous support of its partners, Science Gallery develops four ground-breaking exhibitions in Dublin every year. Being a partner allows companies, foundations and individuals to enjoy year-round association with Science Gallery and its work to ignite passion and creativity. If you're interested in joining Science Gallery to inspire the next generation of innovators and build a fresh start for Ireland's future, visit www.sciencegallery.com/support.



ISBN 978-0-9926110-0-2

