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**Fields**

THE MA ART AND SCIENCE is a site of possibility where, through crossing different fields, artists and scientists break down the usual distinction between disciplines, creating fertile ground for dialogue, collaboration and experimentation.

The separation of art and science in the Western tradition has deep roots that can be traced back to Descartes and the ‘Cartesian Split.’ This distinction is embedded, reinforced through layers of metaphor that describe and distinguish between left-and right-brain thinking, the rational and irrational, reason and feeling, science and the humanities, separating what is the mind from our bodily experience.

As humanity faces serious challenges, dissolving these rigid boundaries between areas of study has become vital work; moving beyond dualism to multiplicity and creating fluid arenas for exchange, through which new thoughts and solutions might develop. Creating and sustaining interdisciplinary practice is not easy, it requires humility, intellectual rigour and courage (Penny 2009), and often hinges on collaboration and communication between specialists from vastly different fields.

This year’s MA Art and Science graduates explore diverse disciplines and topics including biology, colour, consciousness, climate change, ecology, health, medicine, myth, phenomenology, psychology, physics and technology—through interdisciplinary methodologies to make art in all its many varied forms.

*Fields* presents work that crosses design, drawing, installation, moving-image, narrative, painting, performance, photography, poetry, printmaking, sculpture and textiles. It is often interactive, experimental and socially-engaged. *Fields* is the culmination of twenty-four journeys across time and space, and for many of us, it is also the beginning of a story that is still being made.

As humanity faces serious challenges, dissolving these rigid boundaries between areas of study has become vital work; moving beyond dualism to multiplicity and creating fluid arenas for exchange, through which new thoughts and solutions might develop. Creating and sustaining interdisciplinary practice is not easy, it requires humility, intellectual rigour and courage (Penny 2009), and often hinges on collaboration and communication between specialists from vastly different fields.

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MA Art and Science

This pioneering two-year postgraduate course responds to the fast-emerging territory for interdisciplinary and collaborative art practice. MA Art and Science (MAAS) gives students an opportunity to interrogate the creative relationships between art and science and how they can be communicated. Students explore different approaches to making and presenting their work with the aim of proposing and realising innovative outcomes in practice and research.

www.arts.ac.uk/csm/courses/postgraduate/ma-art-and-science

Central Saint Martins

Degree Show One 2018 (23-27 May) will showcase Fine Art programme of courses: BA (Hons) Fine Art; Postgraduate Art Programme at CSM (MA Fine Art, MA Art and Science, MA Photography, MRes Art: Exhibition Studies, MRes Art: Moving Image, MRes Art: Theory and Philosophy). Central Saint Martins is internationally renowned for the creative energy of its students, staff and graduates, with an outstanding reputation for educating foundation, undergraduate, postgraduate and research students across art, design and performance. Fundamental to study at the college are experimentation, innovation, risk-taking, questioning and discovery, within a highly supportive learning environment. Central Saint Martins is part of University of the Arts, an international centre for innovative teaching and research in arts, design, fashion, communication and the performing arts. The University is made up of six colleges: Camberwell College of Arts, Central Saint Martins, Chelsea College of Art and Design, London College of Communication, London College of Fashion and Wimbledon College of Arts.
My work fusing art and science has its roots in my own personal experience and biology. I’m a sound-colour synaesthete with tetrachromatic (four-coned) colour perception. Working in multiple media as a professional artist and designer, I create paintings and use scientific imaging, embodying both the representational and the images I ‘see’ in three-dimensional space when I hear sound. This is further enhanced by reflecting my art through the prism of my tetrachromatic vision palette.

Having worked in and taught gemmology, design, and manuscript restoration, I also use my knowledge of natural materials, their colour, textures, and physical properties to layer my work bringing additional depth and feeling.

I hail from a family of artists, musicians, and scientists. I love to understand the universe, as much as possible, which includes physics, and the inner embodied world, which includes biology. I’m a relentlessly curious person, never tiring of making sense of things. I’ve been fortunate to have the opportunity to draw together all the strands of my various skills and interests combining art and science in this MA at Central Saint Martin’s UAL. For whilst many consider these disciplines to be worlds apart, they are in fact lovers.
For the past four years I have been exploring the body-mind-emotion connection, and it has had a major influence on my art work. I took an interest in costume sculptures during my BA course (costume design for theatre), which then led me to develop an art project, Costumotions, in which I combine costumes and mental health.

In my project I work with people using costume as a medium to explore our inner emotional landscapes. The project strives to display the body-emotion connection visually by locating emotional sensations in the body, creating forms for them and then turning all of the findings into a wearable costume sculpture.

Through Costumotions, I am hoping to raise awareness on how important it is for us to express our emotions, to maintain healthy body and mind.

As I care for people, I am also a sustainable artist and try to use only recycled materials in my work.
I am interested in Information Theory in relation to the transference of information in nature, from thermodynamic entropy to DNA. I use technology and processes to observe, simulate and capture propagation of natural phenomena. At the moment I am particularly interested in cosmic rays (high energy radiation particles from stars other than our sun) and how they interact with our atmosphere. Since 2017 I have been collaborating with an international group of atmospheric scientists called CLOUD who meet at CERN (the European Organisation for Nuclear Research) each year to perform experiments.

In these experiments chemicals found in our atmosphere are pumped in to a chamber to create manmade clouds, which are then exposed to radiation and light, to simulate our real atmosphere. The purpose is to learn about our atmosphere and to be able to make accurate predictions about climate change. My project Blinkenlights is specifically about the fact that certain vapours from marine and organic environments, when nucleated by cosmic rays, cause clouds to become brighter. This brightening of clouds causes them to act in the opposite way to greenhouse gases by cooling the planet.
Hazel Chiang

My project focuses on debates surrounding consciousness; trying to find a language with which we can discuss this highly subjective phenomenon which itself seems to contradict much so-called ‘objective’ science. My work investigates how physical metaphors in art might describe the non-physical framework of the universe and subsequently locate consciousness within it.

By thinking through philosophical arguments concerning the problem scientifically describing of the physical world, I discovered the limitations of scientific language in its attempt to explain consciousness, therein encountering the need to re-examine scientific modes of measurement (e.g. time). Physicist David Bohm’s concept of the implicate order, provides a way out of this conundrum by revealing a broader system beyond what we can see; i.e., a non-material emptiness constantly passing into the material world within which our consciousness might be adequately explained.

My works act as metaphors of these abstract ideas, both the processes of thinking about them and any final explanation we might deduce from them. I try to depict the practice and concept of scientific measurement from a new perspective, whilst simultaneously responding to the scientific experiments into consciousness in the objects I produced. These metaphors are bridges with which we can connect the material and non-material world, understanding abstract feelings through solid reality.
I am a painter, engaged with materials, and aware of the privilege of the tradition that has come before me.

My work ranges from monochromatic portrayals of the machinery of creativity, for instance the loom and printing press, to colourful fragmented near abstraction.

My freer work evokes a sense of archeology as it develops upwards from the association of small pictorial elements. I often mix fragments of the body and technology, bones and blood vessels next to cogs and circuitry.

Working in monochrome is a celebration of paint, reveling in the multiplicity of grey, and the pureness of white in its various forms, a re-enactment of the painterly play of light, whiteness, over the physical world.

I hope to produce art that is equal to the dark and hidden side of a culture that in many ways finds itself at odds with nature.

To quote Rothko; *(The artist)...is an outsider. The picture must be for him (sic)...a revelation, an unexpected and unprecedented resolution of an eternally familiar need.*

*Loom 1* was selected for the UAL Xhibit project 2018, and awarded the Cass Art bursary. As I have exhibited only rarely, this has opened up my attitude to painting.

**Chris Makin**

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*Loom 1* (right) 90cm by 150 cm, acrylic on linen

*Untitled 8* (below) 150 x 90 cm, acrylic on canvas

*Untitled 18* (below) 90cm by 150 cm, acrylic on flax

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www.chrismakinart.co.uk
Olga Suchanova

I am a visual artist and researcher living in London. My background is in photography and on this course I have transitioned into digital media - exploring, experimenting and identifying three dimensional images, imagining as a means of going beyond the two dimensional picture plane.

The artwork The Sound of Chaos, is the immersive installation, where the viewer will observe the Sun – the source of our life from a very close distance.

The core of the artwork is my visual representation of the Universe and my research explores how the Universe is represented by humans using nonhuman image based technologies.

I use many creative methods and techniques to create artworks, which are derived from understanding physics, chemistry and astronomy.

On The Sound of Chaos, the solar sounds were captured by SOHO spacecraft a co-operative project lead by ESA and NASA.

Void CMS, (below) 100 x 100cm, archival digital print
The Sun, (below left) 10 x 5cm, Lumen print
Imaging Universe, (bottom left) immersive virtual reality installation

www.olgasuchanova.co.uk
With a background in Biochemistry and English literature, my creative research and practice explores cultural and environmental narratives. In particular, I am interested in the relationship between humans, the natural environment and technology. Due to the alarming rate of progress in recent years, technology is often referred to as Pharmakon: simultaneously a poison and a cure. Likewise, the natural world consists of poisons and cures. Considering these similarities, my work probes whether technology – as an extension of human identity – has the capacity to enhance an individual’s emotional connection and identification with the natural world. Can this, in turn, promote pro-environmental attitudes and sustainable actions?

Combining experimental methodology, scientific research and cultural philosophies with participative performance, organic materials, site-specific sculpture and new technologies, I investigate the dualities present in both human identity and nature. I hope to engage the viewer with a creative, yet critical analysis of anthropocentric ideals, and encourage them to consider future ‘eco-centric’ landscapes. Corresponding with the Biophilia hypothesis, I believe that when people identify with nature, they will be more willing to partake in environmental and conservation efforts.

Priya Odedra
I believe in the power of art to connect people and transform lives. In my practice, I draw on personal life experience to explore broader issues around the body, what it means to be human, and how to make meaning in today’s world.

On the MA Art and Science course, I’ve been investigating creative connections across fields, making artwork that links topics like astronomy and microbiology, particle physics and medicine, and embodiment and emotions. I’ve developed a practice across many media, including painting, printmaking, archive imagery, 2D work and 3D installation, creative writing, and through collaborations, allowing the choice of media and approach to respond to each project’s needs. I use ‘making’ as an entry point to ‘understanding’.

Anatomy of a Choice builds on autobiographical work about the breast cancer gene mutation I carry and the medical journey I undertook to prevent cancer. Peepholes provide a glimpse into the patient’s inner world, a space that is often overlooked as the body is medicalised. With this work, I’m interested in using the personal to convey the universal, creating a moment in which we can build empathy for one another’s experiences.

We Are All Made of Stars - Matters of Scale, (bottom right) 520 x 520 mm, cyanotype, screenprint, and photolithography on fabric, using breast tissue microslide and sky survey photographic negative
Anatomy of a Choice, (below) installation element, plaster cast with letterpress BRCA1 DNA code
Anatomy of a Choice, (right) installation element, typed DNA code through lens

Jill Mueller

www.jillmueller.com
My work explores the interaction between art, science and politics. Ice caps are melting and species are being wiped out. There is abundant data on this, yet political decisions are not always based on this information. I investigate whether art can bridge the gap between science and public decision-making.

Data is increasingly used to understand our lives, yet is also increasingly alienating in its complexity and vastness. Perhaps because of this, a ‘post-truth’ counter trend has emerged and is argued to have influenced the UK referendum and USA presidential election results.

Who Saw the Deep takes geological information buried in online data repositories and brings it into the ‘real world’. Advanced digital fabrication techniques impose the data onto dug up earth and clay tablets. Some tablets are presented in the Fields show, and some are buried in the forests, fields and settlements they pertain to. There is a deliberate reference to Babylonian cuneiform tablets. These clay objects present the oldest form of written language, and the first recordings of what in time became known as ‘art’ and ‘science’.

My hypothesis is that participatory and interactive art can increase agency and engagement in evidence. The locations of the tablets are provided on my website. Please visit them for yourself - either in the digital or the real world.

Stephen Bennett

www.srgbennett.com
I am fascinated by the implications of medical imaging, leading me to explore how people visualise their bodies at a microscopic level, particularly with reference to cells and mutation, and how that influences a sense of embodiment and identity.

I work in glass, metal and a variety of other materials, primarily making sculptural objects. I believe that engaging with physical objects facilitates radically different ideas and conversation from solely viewing images, whether analogue or digital. Visibility, invisibility, tactility and texture are central themes of my work.

In the Gross Domestic Product series, I explore what happens when benign, everyday objects develop extreme growths of an unexpected nature. The hanging installation Cellscape engages with growth and change through scale and form, visualising a three-dimensional world of splitting cells.

Alongside my individual practice, my recent collaborative projects have included curating and making artwork for The Museum of Extraordinary Objects and Changing Expectations of Art and Science with The Royal Society, an em-em joint residency at THECUBE London, working on public engagement with Soapbox Science and joint projects with fellow artist Jill Mueller, including Open Platform at the Wellcome Collection.
There are several themes that my work approaches, mainly examining the social concepts of the masquerade—through painting, sculpture, screen print, installation, sound, photography, film, lighting, performance and projection.

Having an Asian background, and currently residing in London, I have been exposed to multiple cultures. Full of vampires - London, a city that never sleeps, is worlds apart in its day and night life.

I am fascinated by people, as I see the beauty from distinct dimensions of a human being. At the same time, I am observing how people disguise their thoughts or their true self, adapt and react differently with new condition. Our ego is always traveling in between fiction and reality of the situation without being noticed. People often adopt various masks constantly changing their perceived persona. If we look closer and from a different angle, we begin to recognise people’s masks and at times their ‘mask of confidence’. I am interested in the dynamic of internal conversation and the mental psychology of individuals. My work reflects the navigating of my own experience with communication, the diversity between oriental and western culture towards human social psychology and the cultural identity of contemporary image content.

We are living in an era of globalisation and international condition, I would like to continue exploring different cultures, combining these with my own culture and experiences.
My art practice explores the multifaceted theme of identity, with my focus currently on memory. Fascinated by the ubiquity of the digital image and technology I work predominantly with photography and large mixed media installations—also playing around with the idea of what constitutes an image. Investigating the psychological and philosophical questions surrounding identity and questioning the relationship between the subjective and objective aspects of identity, my practice explores how these theories and concepts translate into artistic expressions.

The project *Glitch Memories* explores childhood memories and the pivotal role they hold in the formation and understanding of self-identity. Here, glitching was used as a metaphor, exploring the parallels between human memory and computer memory. Exploring the idea of the human brain as a computer system—storing memories to be retrieved later, like files on a hard drive, but at times when we go back to retrieve these memories, we might find them missing some information.

My latest project explores the common link in human attachment to landscape and how we find identity in landscape and place. Landscape is not simply what we see, but a way of seeing: we see it with our eye yet interpret it with our mind and ascribe values to landscape for intangible – spiritual – reasons. Landscape can therefore be seen as a cultural construct in which our sense of place and memories exist in.
I tend to work intuitively, seeking to express my emotionality and ‘what it is to be human’ often engaging with my unconscious mind, for here resides the stuff of our deepest desires and dreams but also our worst fears and nightmares. Ultimately I aim for the viewer to feel a connection with my art, to be drawn into it and to develop an emotional response of their own.

Engaging with my first degree in Psychology has enabled me to gain a better understanding of the cognitive neuroscience behind such an emotional response and this has been illuminating. Similarly, investigation of the psychoanalytical aspects of art making has helped me to appreciate my work as a kind of self-psychoanalysis.

My practice has benefitted enormously from engaging with the art science relationship and tangentially with the exploration and experimentation with materials and approaches. I have particularly enjoyed combining and layering paints, collaging, stencilling and so on, working at scale and incorporating textural, even sculptural elements; the intersection of 2D with 3D.

My works reflect desire, conflict and our ability to connect with the world; it has been described as ‘simultaneously witty, sexy, playful and macabre’ and for me this is a fine endorsement.
We live in a storied landscape with layers of history, ritual and myth lying beneath our feet. The process of singing and weaving ancient stories into our contemporary environment is a practice of connecting to and falling in love with the world around us. My practice uses participatory experience, narrative and performance to collaboratively explore our relationship with the world around us.

Mythically Imagining Kings Cross takes as its starting point the mythology and history of the Kings Cross area, and through participatory performance and workshops develops opportunities for the wider community of Kings Cross to get involved. Mythic imagination springs from intersection of psyche and environment, building narrative into mythos and dreaming up landscapes, creatures and epic interactions. Mythically Imagining Kings Cross aims to map the terrain of the mythic imagination of Kings Cross. It is a collaborative research project; exploring local history and geology, the stories, myths and legends that have been passed down over generations, alongside contemporary imaginings of place. Research and artwork will be shown alongside workshops and performances, accumulating responses to Kings Cross over the project length.

My work is created in collaboration with place and community, this requires sensitivity and negotiation and often starts in subtle embodied actions such as walking and listening, that develop through nurturing conversations with the human and non-human inhabitants of the area, and I can often be found telling stories where the wild emerges through cracks in the urban spaces.
Çağlar Tahiroğlu

I am an interdisciplinary practitioner specialising in art and psychology. Having completed an MSc in clinical psychology and psychopathology at Lyon University in 2011, I am now integrating my academic and clinical background with art practice. Art theorist, Graeme Sullivan’s views correlate with my own: ‘the contemporary artist adopts many patterns of practice that dislodge discipline, boundaries, media conventions, and political interests, yet still manages to operate within a realm of cultural discourse as creator, critic, theorist, teacher, activist, and archivist’.

My artistic work investigates a range of topics: from psycho-trauma and psychosomatic disorders such as anorexia to wider political and societal issues like displacement. During the MA Art and Science course at Central Saint Martin’s, I have been particularly interested in women’s experiences with exile, psycho-trauma and creativity. I have simultaneously explored personal and collective trauma through art practice by working with refugee support organisations. I experiment with multimedia creative platforms such as: moving image, projection mapping, photography, 3D installation, organic materials, collaborative performance and art-therapy workshops. Furthermore, I have also given public lectures on exile and refugees with renowned academic organisations such as the Institute of Psychoanalysis, British Psychoanalytic Association and the University of Portsmouth.

Journeys, (right top) digital photography from participative photography series
I am so aware of my body, video still from 3 minutes collaborative video
I am so aware of my body, installation view from Lethaby Gallery March 2018

www.cargocollective.com/caglartahiroglu
Victoria Westerman

I am a practitioner who seeks novel systems of investigation into the subconscious and the universal visual language therein. With this I then explore methods of applying this data to enhance the communication of complex ideas. Because of this I would define myself as more of a visual researcher than a traditional artist as my areas of expertise are in the communication and extraction of visual data from the fields of psychology and programming. In particular, I’m pursuing how this method can be harnessed to communicate scientific concepts that would normally be inaccessible to the non-scientifically minded, by creating a unifying visual language we all share through archetypal imagery.

One such project is a prototype visual data extraction system presented as a digital art workshop that gives people the opportunity to make art with an A.I. and their peers. I hope that traversing and chartering the unconscious mind in more systematic ways can result in us using this as a tool to more efficiently visually communicate as a society.

I also explore methods of tapping into the subconscious and altering human consciousness itself using modern technology through a practice called Techno-shamanism. This side of my study tries to communicate the transition of human culture from the organic to the digital through one of our most ancient of practices. Populating the digital matrix with our spiritual and psychological identity as a species is necessary if we hope to ever feel at home there and this project is a symbol of that transition.

www.victoria-westerman.com
Human inconsistencies have always intrigued me. Nonetheless, I find it fascinating how man is the only being capable of studying his inconsistencies. Hence technology is presented as a double-edged sword which on the one hand offers many facilities, but on the other, detaches us from our natural instincts. My research has been focussed on touch screen technology impacts on mental health, embodiment, and social behaviour, as well as its repercussion on the empowerment of the Society of the Spectacle.

Through a sociological and anthropological approach, contrasting past civilisations with the contemporary scenario, I create mixed-media artworks. Lately I have been applying ethnographic techniques in a flâneur act in London’s Metro. Challenging traditional conceptions by transforming a ‘scientific research’ into pieces of arts with performative potential.

My artworks appear as a naïve critic to the emptiness of joyfulness of our consumerist society. Through materiality I both try to reassess handcrafts and also push the boundaries among binary conceptions: research and material, crafts and technology, humanity and virtual intelligence. Pursuing to find the balance between reassessing haptic sensitivity and approaching new technologies. Therefore attempting to give transversal messages that impact over society and offer poetic solutions to face the Anthropocene.
I am an Irish artist, tv producer/director and writer. I am presently working and collaborating with a local community in the Shan State of Myanmar on an ecology pilot project on 'Inle Lake' called TEAM The Earth And Me. Together we identified what is affecting the health of the lake and the natural environment around its shores through art and science workshops, culminating in a 3 x 2m painting, many drawings, photographs, mobiles and a 3D installation.

Since then I have been working on a fictional story about the lake and a young boy called ‘Win’ with ‘Inle Heritage’ a local foundation. The project is connected to thirteen other waterways in China, Russia, India, Saudi Arabia, Australia, Norway, Monaco, Ireland, Canada, USA, Brazil, UK and Ghana in the story.

Before I started the illustration I wanted to take time out to explore the connection between art and science hence the MA at CSM. I am exploring the relationship between my 62 natural chemical elements and Earth’s 98. Using water, wax, resins and other materials on Japanese papers, canvases, synthetic skins etc. I am creating paintings that express some sense of: ‘When I pollute Earth’s air, land and water I am polluting myself’.

**Seeing Air 1** (below) 2016, 3m x 1m, bees wax, organic pigments, gum arabic, honey and water

**Yangtze Rive Turns Red** (left below) 2017, 1.5mx1.5m, organic and inorganic pigments, gum Arabic, honey, water, paint stripper, gouache

**Yangtze Study 1** (bottom) 2017, 5m x 2m, organic and inorganic pigments, gum arabic, honey, water, paint stripper, gouache

www.ainneburke.com
Liv Bargman

I’m exploring the intersections of science communication and visual communication. Illustration is a tool for disseminating science knowledge, shaping futures thinking and speculative design, across audiences.

My focus is about the future development of antibiotics and antimicrobial resistance (AMR). I pose the idea that the future is Medieval. The body of work I have created is a selection of materials issued from a fictional governmental body, called the Office For Good Measure. The aim of the office is to encourage people to collect soils for the development of medicines to counteract AMR.

The project uses metaphor and symbolism to represent future predictions to critique our methods of speculation about what will be. I look at time, as antibiotics over time fail to work, or forgotten ones become useful again.

I’m particularly focusing on leafcutter ants and the antibiotic strain of fungus, streptomycetes. The ants are part of the discovery to engineer better antibiotic producing bacterial strains, finding better protection against disease. The old diseases from the middle ages could re-emerge. UEA and John Innes Centre are examining under-explored environments, like tropical fungus growing ant nests; in the hope they will provide us with the next generation of antibiotics.

Let it Brew for 9 Nights, (left) from How To Make The Best Remedy, (Format - Book/Newspaper), mix media/digital
Se Betsta Laecedom, (below) poster, mix media/digital
Wiggle, Loop, Pivot, Bend, from How To Do The Soil Dance (Format - Book/Newspaper), mix media/digital

www.livbargman.co.uk
I am curious about the construction of time, our exact experience of a single moment upon agreed perceptions of reality, which is collected into memory and collectively recorded into what we call a history. I have explored the possibility of documenting fragments of the world in an illusion of timelessness in which the direction of time is defined through the notion of entropy and, time direction ‘forwards’ means continuing disarray, mess and breakages. I practice two forms of working, one a construction of the blue-print created within my hyper-vivid mind’s eye, what follows is ever informative journey of abstraction, from my mind to making in physical space. The second is the capture of visually interesting images through 35mm film where the initial image undergoes a playful dissection and warping into another image, a reversed motif. The ultimate intentions are to disseminate the practice of different fields into a poly-field spectrum of knowledge and creation; there is no difference between the work of the artist and the scientist simply the entropy that occurs around them affecting the pathway of the creator.

Amy Starmar

I am curious about the construction of time, our exact experience of a single moment upon agreed perceptions of reality, which is collected into memory and collectively recorded into what we call a history. I have explored the possibility of documenting fragments of the world in an illusion of timelessness in which the direction of time is defined through the notion of entropy and, time direction ‘forwards’ means continuing disarray, mess and breakages. I practice two forms of working, one a construction of the blue-print created within my hyper-vivid mind’s eye, what follows is ever informative journey of abstraction, from my mind to making in physical space. The second is the capture of visually interesting images through 35mm film where the initial image undergoes a playful dissection and warping into another image, a reversed motif. The ultimate intentions are to disseminate the practice of different fields into a poly-field spectrum of knowledge and creation; there is no difference between the work of the artist and the scientist simply the entropy that occurs around them affecting the pathway of the creator.
Bekk Wells

I am interested in the disconnect between our experience of the world and our attempts to describe it through means such as language, images, maps, graphics, equations and various types of models. My recent work addresses themes of materiality and immateriality: our sensory interactions with matter and materials versus the unintuitive scientific explanations for material properties.
Chang Zhou

I am a photographer, furniture designer and art researcher. With my background in Chinese traditional calligraphy and painting, I always focus on the combination of humanistic value and environmental design. All my works are trying to explain the beauty from natural to artificial. Natural usually be identified as real and better, and artificial be identified with phony and worse. I, as an artist in art and science, my design always uses scientific methods and artificial materials to promote our natural environment. This is called artificial nature. I think artificial nature will be an important role as a logical starting point in future art and science design.

With the influences from Cindy Sherman, Zaha Hadid, Miriam Schapiro, I explored both humanistic value and philosophy consciousness in science and man and nature. Then, I use the combination of various natural and scientific materials, such as magnets, wood and plastic to test my idea and synthesize a new concept of art. Therefore, my works present a mixture of sculptures, photographs and installations.
I believe interdisciplinary art practice can heal inner wounds. Through intersecting various fields, we can potentially break through the limitations of single method healing. In my project, *A conduit of loss*, chemical crystal formation was conceived as a medium between the living and deceased. The idea was inspired by data theory and animism in the context of understanding the nature of death. By building mechanical kinetic structures and coding a virtual environment of interaction, I seek to construct channels for connections. However, who are we trying to connect to? Is it the deceased in our memory, or the one that truly exists in the world?
My practice is a stimulating mix of skills and approaches that question how the world is put together in terms of energy, forces and form as filtered through human perception. Learning through materials, I create sculpture (glass, paper, plastic, metal) and use photography and printmaking to investigate areas where man and nature intersect. Often this process incorporates periods of research into scientific concepts, collaboration or site-specific work.

Currently I’m investigating the force of gravity – how we understand it through physics and its effect on our sensory system as studied by neuroscience. Inevitably, gravity also influences our perception of time and reality. Recent work delves into concepts of space proposed by gravitational lensing linked to dark matter and how physical sensation can emerge in art and language; revealed in the phrase ‘the weight of memory’.

Lisa Pettibone

Making Space, (right), 300 x 150 x 50cm, glass and fabric installation
Entropy, (far right) 34 x 25 x 6cm, digital print with screen printed colour on back, cut and manipulated, wood box
Fragments of Attraction, (below right) multiple sizes on 60 x 33cm base, fused and slumped glass pieces on black glass

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As well as their personal works, MAAS students were involved in an array of individual and collaborative activities and projects with institutions and organisations during the course.

CERN

In December 2016, a group of over twenty students visited CERN, the European Organisation for Nuclear Research and home to the Large Hadron Collider, near Geneva, Switzerland. Invited by the Art at CMS program based at CERN, they met with scientists and staff over four days to develop an understanding of particle physics. Responding to their deep curiosity about the workings of the largest science experiment in the world, students went behind the scenes on tours and lectures, visited labs, and rubbed shoulders with CERN’s diverse community in the historic communal canteen. Inspired by the trip, a smaller group of students returned for more directed personal research in May 2017, including initiating student-led workshops and a roundtable discussion about art, science and creativity. Artworks developed from both trips were shown at a student-led exhibition titled CSM x CMS Entangled in London, June 2017, and in a second exhibition in the public windows at Central Saint Martins in November.

Participating artists: Allison Barclay, Stephen Bennett, Joshua Bourke, Helen Cawley, Hazel Chiang, Reggy Liu, Fiona Morf, Jill Mueller, Priya Odedra, Pandora Peng, Lisa Pettibone, Amy Starmar, Olga Suchanova, Bekk Wells

THE CUBE

In 2017, seven MAAS students took part in the em-em (embodiment and emotion) residency, a seven-month long collaboration with THECUBE in East London. THECUBE is a co-working and exhibition space dedicated to design, science and technology. For the residency, each artist explored a theme in relation to embodiment and emotion, including emotional identity; gravity; memory, objects and emotions; and sensory perception and colour. Their investigations were shared with the public through an exhibition and a series of curated talks engaging speakers from across fields, bringing together academics, artists and scientists. Through the residency, the artists aimed to bring new perspectives to current dialogues on embodied cognition, building bridges between disciplines.

Participating artists: Allison Barclay, Julie Light, Jill Mueller, Lisa Pettibone and Eleonora Sher
The Biodesign Challenge

This project marked the first collaboration between MAAS and MA Material Futures (MAMF). Responding to the brief Biodesign and the Anthropocene, student groups created projects that probed the potentials of biology and design to create a more sustainable future. Seven MAAS students joined the MAMF course for an intense eight-week introduction to the fast-emerging field of synthetic biology, including a visit to Imperial College’s synthetic biology lab and a workshop collaborating with living systems such as slime mould. Students Liv Bargman (MAAS) and Nina Cutler’s (MAMF) project The Quantworm Mine was chosen to represent CSM at the Biodesign Challenge in New York. The project explored interspecies collaboration and the biodiversity of soil. Researching the power of earthworms to bioremediate contaminated soil in post-industrial sites, the duo devised potential systems to harness this particular process. The Quantworm Mine went on to win the first international Biodesign Challenge at MoMA, NY.

Participating artists: Liv Bargman, Tere Chad, Reggy Liu, Caglar Tahiroglu, Pandora Peng, Bekk Wells

Tate Exchange

Jewellery evoking the most isolated inhabited place on the planet; a collectively constructed oversized data visualisation of climate change affecting the Indus Valley; a giant pinhole camera capturing the Shard; a wall comprised solely of doodles. These are some of the highlights of MAAS taking over the Tate Modern: Tate Exchange as part of CSM’s collaboration with the Tate. The ‘takeover’ occurred twice, in January 2017 and January 2018.

Participating artists: Stephen Bennett, Tere Chad, Lisa Pettibone, Gary Scott, Eleonora Sher, Olga Suchanova, Çağlar Tahiroğlu, Beckie Leach, Julie Light, Jill Mueller, Bekk Wells, Allison Barclay-Michaels, Priya Odedra, Victoria Westerman, Chang Zhou
The Royal Society

When the Royal Society wanted to approach their project about UK science research culture in a new and creative way, they asked MAAS artists for ideas. The resulting collaboration, *The Museum of Extraordinary Objects*, brought together seven artworks by eleven artists, where each piece was an exhibit designed to stimulate discussion around a different theme. *The Museum* launched at the Royal Society in June 2017, and then spent four months touring the country, leading to interactions with over 1000 scientists. The Royal Society have since created an open access workshop featuring *The Museum* that can be used by any organisation, anywhere in the world, that wants to help shape future science research culture.

Following the success of *The Museum*, the collaboration continued with new artworks from seven artists developed for the exhibition *Changing Expectations of Art and Science*, to accompany the TEDx event held at the Royal Society in January 2018.

*Museum of Extraordinary Objects* participating artists: Liv Bargman, Stephen Bennett, Joshua Bourke, Helen Cawley, Tere Chad, Hazel Ching Hsuan-Chiang, Julie Light, Reggy Liu, Priya Odedra and Amy Knight.

*Changing Expectations of Art and Science* at TEDx participating artists: Stephen Bennett, Helen Cawley, Julie Light, Jill Mueller and Bekk Wells.

NanoVignettes

In 2017, three students were involved with University of Cambridge Nano Doctoral Training Centre’s (NanoDTC) *NanoVignettes*. Each student was paired with a PhD-candidate scientist and learned about their partner’s research by visiting the lab and discussing the potential applications of nanotechnology, including designing enzyme mimics from DNA; assembling metal organic frameworks to transport medicine; and generating efficient carbon-based LEDs and producing energy from the reaction between gold nanoparticles and light. The outcome of the collaborative project is a series of videos in which the artist creatively interpreted the scientist’s work. Using artistic mediums and non-scientific narration, the videos aim to make nanoscience more accessible and engaging for a range of audiences. The videos were shown at a *NanoVignettes* launch event in March 2018 and will be presented at the Royal Society Summer Science Exhibition 2018.

Participating artists: Victoria Westerman, Reggy Liu and Priya Odedra.

Participating artists: Liv Bargman, Stephen Bennett, Joshua Bourke, Helen Cawley, Tere Chad, Hazel Ching Hsuan-Chiang, Julie Light, Reggy Liu, Priya Odedra and Amy Knight.
Soapbox Science

Five MAAS students participated in the inaugural artist and scientist collaboration at Soapbox Science in 2017. Soapbox Science is ‘a public outreach platform for promoting women scientists and the science they do’. Artists were paired with leading researchers in a variety of fields and tasked with the challenge of creating artworks or activities to engage family audiences at the Thamesmead Festival 2017. Their collaborative journeys inspired original and inventive ways to transfer key themes of research around phenomena in physics, behaviour of gravity between sponge-clusters of galaxies, what supermassive black holes can tell us about the universe, biological exploration for the reasons babies kick within the womb, and psychological provocations, challenging visitors to draw their emotions. This partnering demonstrated that opening oneself to learn a new set of ideas positively alters perception and provides provocation for one’s own field.

Participating artists: Meri Lahti, Julie Light, Jill Mueller, Lisa Pettibone and Amy Starmar

Other collaborations

MA Art and Science students exhibited work at Imperial College’s Festival of Science and Art in April 2017. This collaboration continued into 2018, with students participating in Imperial’s Science Festival and contributing artwork to Imperial’s magazine iScience. Similarly, students have worked with members of the Biochemical Society to explore the role of art in the Society’s research.

Students have also forged partnerships through a range of international residencies and study trips. Students have participated in Lumen Studio’s residency in Atina, Italy, to explore themes of astronomy and light, resulting in exhibitions in Atina, and London’s atmospheric Crypt Gallery. In June 2017 students participated in a research trip to Florence, and in 2018, a residency in Joya: Arte + Ecología research facility in Andalusia, Spain. This builds on Stephen Bennett’s residency at Joya as part of UAL’s Art for the Environment International Artist Residency Programme (AER) programme. Helen Cawley has been awarded an AER residency this year, visiting LABVERDE in the Amazon Rainforest in Brazil. Lisa Pettibone has been invited to be artist in residence at Mullard Space Science Laboratory (UCL London/ Surrey) from September 2018. Çağlar Tahiroyglu and Pandora Peng have been selected for the European Academy of Participation in June 2018 in Amsterdam and many more exciting projects to evolve post graduation.
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