A showcase of work from the third year module

Art, Science & Visual Thinking 2020

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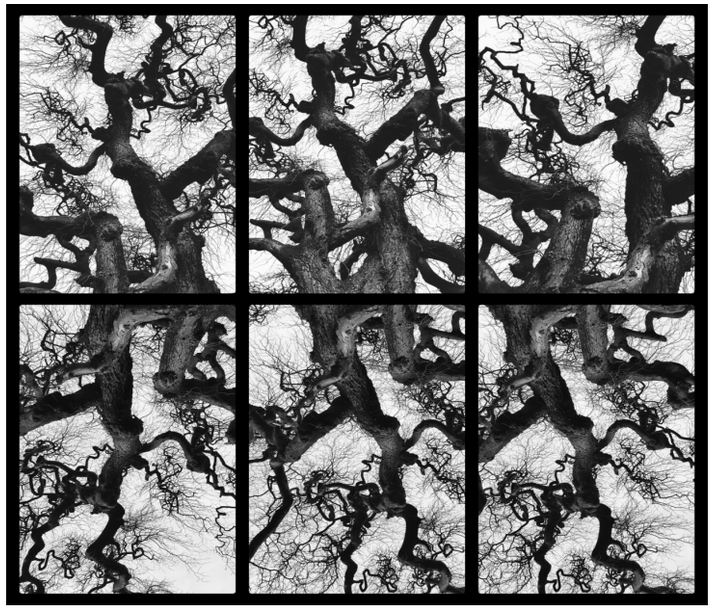


Delia Guerra | As Within So Without

This project is a work in process exploration of the nature of consciousness. In employing the objectivity of science I observed nature, in particular trees. I interwove this investigation with the subjectivity of my artistic and spiritual practice. In shamanism practice, trees are portals to the spirit world.

This image wants to convey the concept of the interconnectedness of all life. The idea behind this project is to consider that if everything is connected this could mean that we might be all one, and at the subtle level we might be all one consciousness.

Eilidh Guthrie

My work this semester has been looking at West Scotland's burns and woodlands and their importance to biodiversity. These areas have a huge variety of mosses and liverworts, plants that can help stop erosion and provide high quality soil for other plants to thrive.

I have been researching the oomycete pathogen Phytophthora and its destruction of conifer trees in Scotland. Due to climate change, Scotland's humidity and wind levels now suit the needs of the pathogen one of the symptoms of this disease is black "bleeding" on the trunk.

I made a biodegradable black slime material to spread on conifers and filmed the process, it is important to have a human figure visually spreading the material as it is because of human actions that this tree disease has been on the rise. This film piece has been projected onto a glass tank which includes water, clay and live plant. Putting this landscape into a gallery space reminds us of its importance when we often take these outside spaces for granted.

I'd like to thank Rumana Kapadia and Jean Duncan for their assistance with this project and the Art, Science and Visual Thinking Module.

Jamie Ewen

The focus of my project is to explore and research skin conditions such as dermatitis, psoriasis and eczema. My goal is to represent them through sculptural, visual artworks. I am specifically looking at skin cells, both healthy skin and affected by certain conditions, and drawing comparisons within themselves and externally. I have noticed a similarity between healthy skin at a cellular level, and skin as we see it when it is affected by certain conditions. This invokes the idea of what is underneath surfacing and making itself known.

I am looking at skin cells as if they were a geological form or some sort of abstract landscape – similar to topographical maps or images from space, so I have chosen to incorporate photogrammetry and other 3D imaging techniques into my project. This has allowed me to create a 3D model from 2D cell images, which has then been printed for display. Laser cutters have also been used to engrave cell imagery onto semi- transparent acrylic resin to create objects that light can pass through. I wanted to include light into this project somehow to allude to phototherapy – light-based medical treatment, which is often used to treat severe skin conditions.

The resolved work is 3D because I want the pieces to be interacted with - touched, held up to the light - to replicate and communicate the feeling and rough textures of these dermatological conditions and represent their solid, physical characteristics.

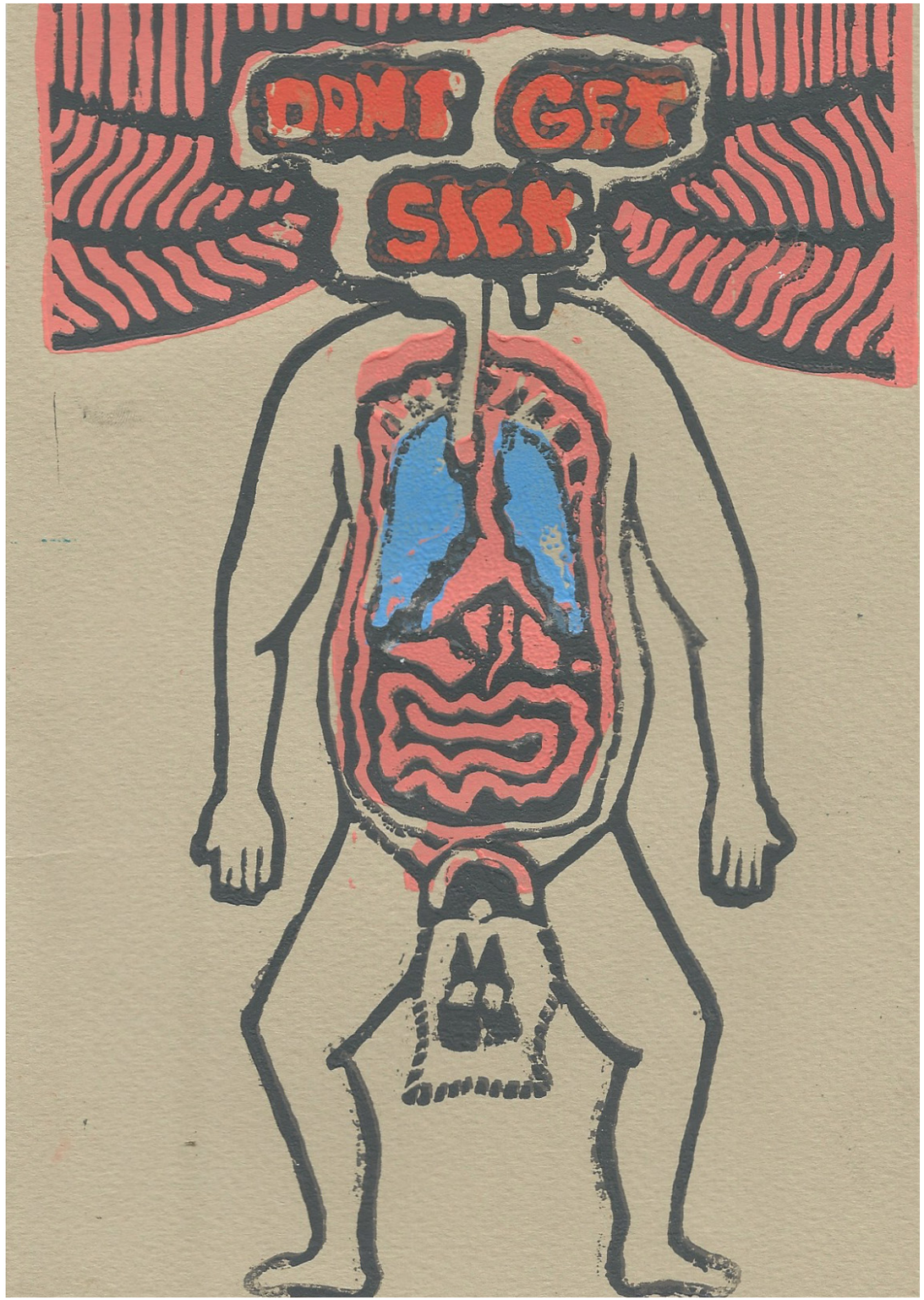
Finlay Horne | Don't Get Sick

I began this module looking into the relationship of science and art the cross-over I found began when I found inspiration from medical textbooks that centre around the human body and its seemingly endless possible aliments; in particular medieval medical diagrams containing grotesque and interesting imagery that I feel are incredibly captivating.

These images are a huge parallel to todays representations of the human body, modern day diagrams are often airbrushed and sleek, the comparison to medieval imagery which was often gory and realistic is a jumping off point to my process of working through this project.

I found through my workings an interesting observation of the apparent naivety in medieval medical drawings, the perception of medieval medicine is that it is bizarre, painful and has a fantastical sensibility that seems obsolete to todays depiction of 3 dimentional renderings.

Despite these observations I realised medieval medical drawings have a more real and beautiful representation of the human body, the gore and the intensity of the imagery which is true to life when compared to todays Computer Generated renderings of a bald, technically perfect yet soulless being. It is important to me not to lose the craft or remove the body when depicting it.



Joslyn Lundie

Within this project I had started to look at neuroscience in a philosophical way, I have always been intrigued by how our brains work and how our mind perceives and interacts with the external world.
This project looks at how we identify objects and our perception of them.
The concept of this project is based on the great philosopher John Locke and his notion on primary and secondary qualities as well as Berkeley's input on this subject on what helps us to identify our external world, in particular I worked with everyday objects that most people can relate to and identify, thus because we already have an idea of what these objects smell like, taste like and their size and weight. The works and resolved work are down to interpretation and help question how you yourself may identify objects.

The resolving work focuses on things such as Locke did like the importance of Size, Weight, taste and smell and plays around with the usual and known qualities to throw the viewers looking at the work off when coming to the conclusion of what the object may be.

I created a game as a resolved work that is interactive and comedic, it goes along the lines of the classic game Top Trumps and uses the scoring aspect in each category to change objects and their usual attributes – These changes may not be so clear at first sight on the game but as you play the game it has significant and unlikely changes in things such as how we think about the size of the pictured object on the cards or the weight and scores things in a backwards manner creating a comical nature and lets the users of the game think about a world where things may be out the norm.

Kaitlin Sloan | The moon and the tides; a romance.

In my work I am exploring the relationship between the Earth's moon and the Earth's waters. In my research I found that the Earth has a gravitational pull over bodies of water, resulting in "bulges" which in turn cause tides. This invisible force acts as a connection between the two. In my art I am focusing on this influence the moon has over the tides as it is not in harmony but in fact the moon has control over the waves, coaxing them up then pushing them away as it changes through its phases, like the ups and downs of a relationship. Taking a more contemporary viewpoint, I am exploring this concept as a romance as such, with this "body" of water being attracted and physically drawn to the light of the moon. Furthermore, I am exploring the idea of the water mirroring the moon with the reflection on its surface, exposing the water only visible by the light of the moonlight.

Rebecca Rodger | Paintone

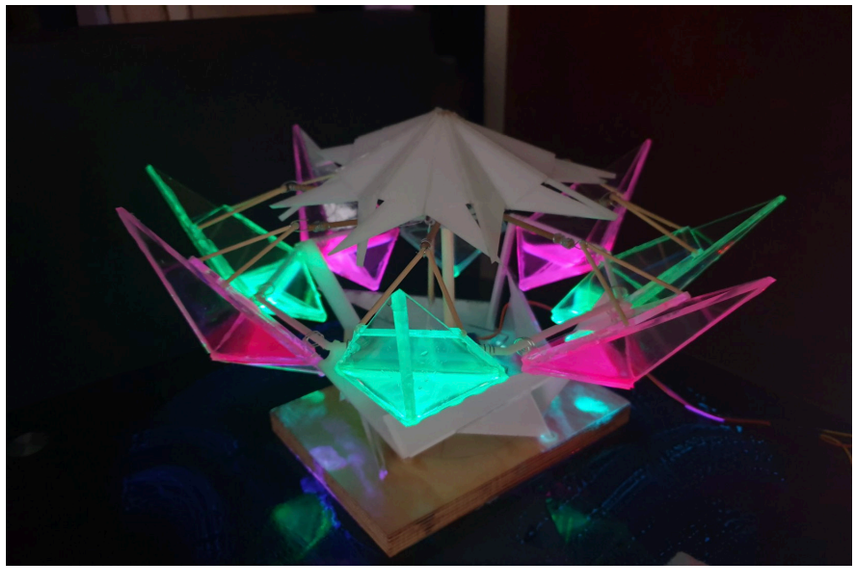
My project has been focused on qualitative (interview) research which explores the fears and other factors associated with the experiences of living with chronic pain and illness. I have produced a series of Pantone cards and changed them to 'Paintone'. Each card shows an element of what living with chronic illness is like displayed on them, portraying small parts of the chronic pain experience which often gets overlooked due to not being main symptoms of the condition.

My intention is to juxtapose the idea that people can pick and choose colours for their home but have no such say on the pain they will have to live with. I also wanted to highlight the invisible aspect of being chronically ill as it starts to become normalised in people's daily routines in the same way that household items and colours in someone's home start to blend in once they have been there long enough. The cards are symbolic of people becoming desensitised to things they see regularly, which in turn makes it harder for chronically ill people to continue to have the support they need from their family and friends.

I am aiming this project at people who know someone living with chronic pain but are struggling to relate, to increase representation and understanding. I wanted to put an emphasis on the social side of chronic pain and explore how looking exclusively at the symptoms misses key parts of what the full experience is to live with a chronic illness. When collaborating with Dr Blair Smith we spoke about looking at the stigmatisation, isolation and quality of life aspects of illnesses as well as the physical symptoms.

Digital Interaction Design

· Kaye Duno



Kaye Duno | Lumenacci

Lumenacci is a kinetic art sculpture that is designed to link and inspire people in parallel disciplines - art and science by installing one half in an institute that represents each respected side: an art college and a research facility. It works by moving its petals in tandem with activity from the counterpart institute. As activity rises in the research facility, the sculpture in the art college moves. The same happens in reverse.

This trigger connection from what seems to be from “two worlds” aims to inspire and in a way, connect onlookers to find their own place in the undiscovered world between art and science.

Interior & Environmental Design

- Alice Potter
- Florence Allen
- Megan Hutchison

Alice Potter | What is Coronavirus?

Coronavirus is affecting all our lives, whether you're old, middle aged or young. However, the information and graphics released by NHS and the government aren't all always suitable for children. Through rhyme, rhythm and colourful illustrations, I created a children's scientific book about Coronavirus. The language is simple enough for older children to read, but also easy to understand if an adult was to read the book. Sized in a square format the book is small enough to be held in a child's hand, but also sized to clearly see the text and illustrations.

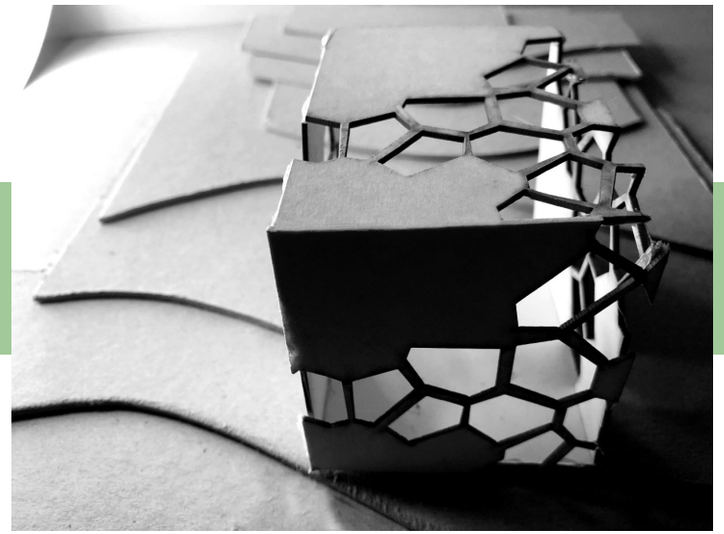
Florence Allen | Scoby Thread

An exploration into materiality as a way to strengthen the relationship between humans and nature.

'Thread' is the result of my curiosity into materiality, specifically looking at sustainable alternatives. SCOBY (symbiotic culture of bacteria and yeast) is a by-product in the completion of the fermentation process of lactic acid bacteria, commonly used in the production of Kombucha and other fermented foods like Kimchi.
When dried, scoby is an incredibly strong material that can be moulded and dyed. It is also biodegradable and can be transformed into packaging, clothing, plastic alternatives and leather.

As a way of strengthening the bond between humans and nature, I have designed a toy collection aimed at children, between the ages of 0-6 children are at their most impressionable. This means exposing them to nature from a young age forms a stronger connection and appreciation that is brought into adult life.

Part of the reason why I'm so drawn to scoby is it's biodegradable nature. I love the idea of showing children that if we are conscious about the materials we use, we should be able to give back to nature after we're finished using a product. After a child has outgrown 'thread' it can be planted and left to decompose back into their surrounding environment.



Megan Hutchison | Re-Grow

A psychological retreat aimed to restore the human body both mentally and physically, 'Re-Grow' is a proposal for a spatial intervention that links health and well-being with green spaces.

In collaboration with the Green Health Partnership Dundee, 'Re- Grow' is an aid in the rapidly increasing need for mental health services, where the outdoor experience is prescribed as an alternative or to complement traditional therapies such as counselling and medication.

The multi-sensory qualities of being outdoors is scientifically proven to reduce amounts of the steroid hormone cortisol, resulting in lower blood pressure and sugar levels, reduced heart rate, decreased mental fatigue and increased immunity and metabolism, which physically relieves stress and pressure on the body.

Through the use of biomimicry within the structures design, the on campus 'greenhouse' reconnects students to the environment whilst also providing a place for social interaction and engagement, where they can share and build on experiences, educate others and learn, and also be inspired by a more sustainable way of food production.

Graphic Design

- Anna Poehlman
- Aylish Kelly
- Eilidh Smith

Anna Poehlman

I researched and grew my own slime mould (specifically physarum polycephalum); examining it through the lens of consciousness. While slime moulds may be just a clump of cells, they behave in a way that suggests some level of consciousness. While physarum polycephalum may be small, they reflect many of the larger patterns seen throughout nature. This extends beyond our experiences on Earth, as they even mimic our understanding of the cosmic web. In addition to physically growing them, I worked with R script coding to create randomly generated images with characteristics and growth patterns derived from physarum polycephalum.

I wanted to experiment with reoccurring patterns in nature especially those resembling sacred geometry and did my best to weave it into the pieces. Ultimately, I went forward completely embracing the randomness in the code while keeping the connection to the higher level of consciousness I had been exploring. I decided that creating a tarot deck was the perfect combination of my randomly generated images, science, and spirituality that I had been focused on. Having a deck of individually unique images with connections to greater concepts in the universe made all of my ideas tangible and interactive.

I hope that by educating people and opening up their minds to seeing more than just a slime mould, they will then apply that deeper introspection to all facets of their lives. Through this process, I would love people to appreciate the beauty and complexity of even the smallest forms of life.

Eilidh Smith | Eat Kind

Food security occurs when all people are able to access enough safe and nutritious food to meet their requirements for a healthy life in ways that the planet can sustain. The world's population is rising rapidly with the population estimated to reach 9.8 billion by 2050, a 70% increase from 2020. With this there is huge pressure on food production globally.

Eat Kind is a campaign designed to educate the public about the problems surrounding food security. The brochure will be available to pick up in supermarkets so shoppers can learn about scientific approaches to achieving food security and what we can each do at home. As well as recipes that can be made using food that would normally be wasted. I explored many different scientific approaches and decided to focus on genetic modification, plant microbiome and in vitro meat.

Jewellery & Metalwork

- Amy Peoples
- Caitlin Dolan
- Caitlin Taylor
- Chloe Fitzpatrick

Amy Peoples | A Safe Place to Carry With You

One long-term objective of mine is to incorporate natural, found materials from places of meaning into pieces of jewellery for the wearer to use to evoke mindfulness practices no matter where they are in day-to-day life. Creating a physical connection to their personal 'Safe Place'. Through life we are sometimes unable to carry objects with us (such as when working and/or wearing uniform) but are often allowed to wear jewellery unquestioned.

Through this module I have focused on creating my own enamel from sand from places of emotional meaning. Incorporating this enamel into wearable pieces that are inspired by flora and fauna living where the sand was taken from.

The image shown is of sand collected from West Sands, St Andrews.

Caitlin Dolan

In investigating a plausible future of fungal dominance, I have explored how a human can become a sporing site when infected by a species of cordycep fungus. As we know it now, cordycep fungus attacks many species of animal and insect by colonizing mycelium in and around the muscles of the host. The fungus exerts behavioural control and the infected is manipulated until death. A fruiting body then erupts from the animal's body so spores can be dispersed and self propagation can take place.

Cordycep fungus is a 'Natural Leveler', it prevents one species from dominating the environment. The negative impact of the human race on Earth is now more evident than ever before: Our climate is changing, our ecosystem is collapsing, we have caused mass mega-fauna extinction and irreversible chemical change. We are a dominant force, but it would seem that nature could be stronger, and ultimately, more powerful. Through my body of work I have envisioned how a human could become infected based on pre-existing fungal conditions, like Cryptococcus Gatti, and what it would look like to become a cordycep zombie ourselves. Taking inspiration from different fruiting bodies,I have made this mouthpiece that illustrates how a cordycep or human infection would look. Does fungus pose a threat to our very existence? It is becoming increasingly evident that the human race may actually need a leveler to slow population growth and limit the damage we cause to the very environment that nourishes us.

With this in mind, I believe we are entering the mushroom age. If we can cultivate a symbiotic relationship with this incredibly diverse species, and harness the opportunity that fungus provides in bridging the gap between animal and plant life, we maybe able to unleash the potential of the humble mushroom, before it exerts its control on our own species.

Caitlin Taylor | Human Catalyst

The mysteries – that thanks to modern day science are no longer that mysterious – within the human body have always fascinated me. This piece is centred around that, looking closely at cancerous cells and structures in various states. During a call with Scientist Alison Roberts, she said something that really struck me, 'Do you have to understand in image to experience it?' This question really drove a lot of my processes and design ideas, do you really have to understand something to be able to look at it and see beauty or to form an opinion on it?

The main objective of my project was not only bring the alien world that is our own bodies and cells and put it into the context of conceptual and abstract pieces but to also create something that at first glance many may think it's something not of this world; however, it is something that may reside within everyone or in the case of disease some may have experiences with.

The title 'Human Catalyst' came from the focus on the human body and the hopes that the series I had hoped to create would spark thought or conversation.

Chloe Fitzpatrick

Throughout the project I was exploring the unseen microscopic world inside ponds, our connection with it and finding ways to incorporate it into jewellery! I collected a range of samples from back home and examined them through a microscope. I found a lot of diatoms and algae species which was very exciting!!

One of my key objectives was to nurture and take care of these creatures. I did a lot of research and found out that they only oxygen and food to stay alive! I came up with various designs to cater to their needs - I wanted to create living jewellery pieces, to deepen the connection between us and the microbes.

I experimented with a range of different lens – from a digital microscope to a 'foldscope'. The foldscope let me see microorganisms swimming around the water which inspired me to take apart the lens and incorporate it into my design. Overall, I'm really pleased with the ring I created because it is able to hold water and I am able to use the lens to look at the microbes!! The ring has water in it from back home so when I look at it, I feel like it is a part of home. I want to carry on the idea of living jewellery in fourth year and spend more time on developing the idea because I have had a lot of fun with it!

Product Design

- Alistair Horne
- Anne Christiansen
- Daniella Levins
- Erin Ross
- Faith Wilson
- Keira Ritchie
- Robert Harper

Alistair Horne

The ability of Physarum slime mould to replicate railway networks.

The focus of my project is to explore and research the efficiency of railway systems by the usage of a specific type of slime mould called the Physarum Polycephalum. The slime mould is used to replicate the pre-existing and future path of public transport such as trains and metros.

My aim is to represent them through a series of graphic design publication which would be shown to engineers and urban planners to create more efficient nature calculated pathways.

The project could affect pre-existing networks to be changed to the newly proposed ones by the mould.

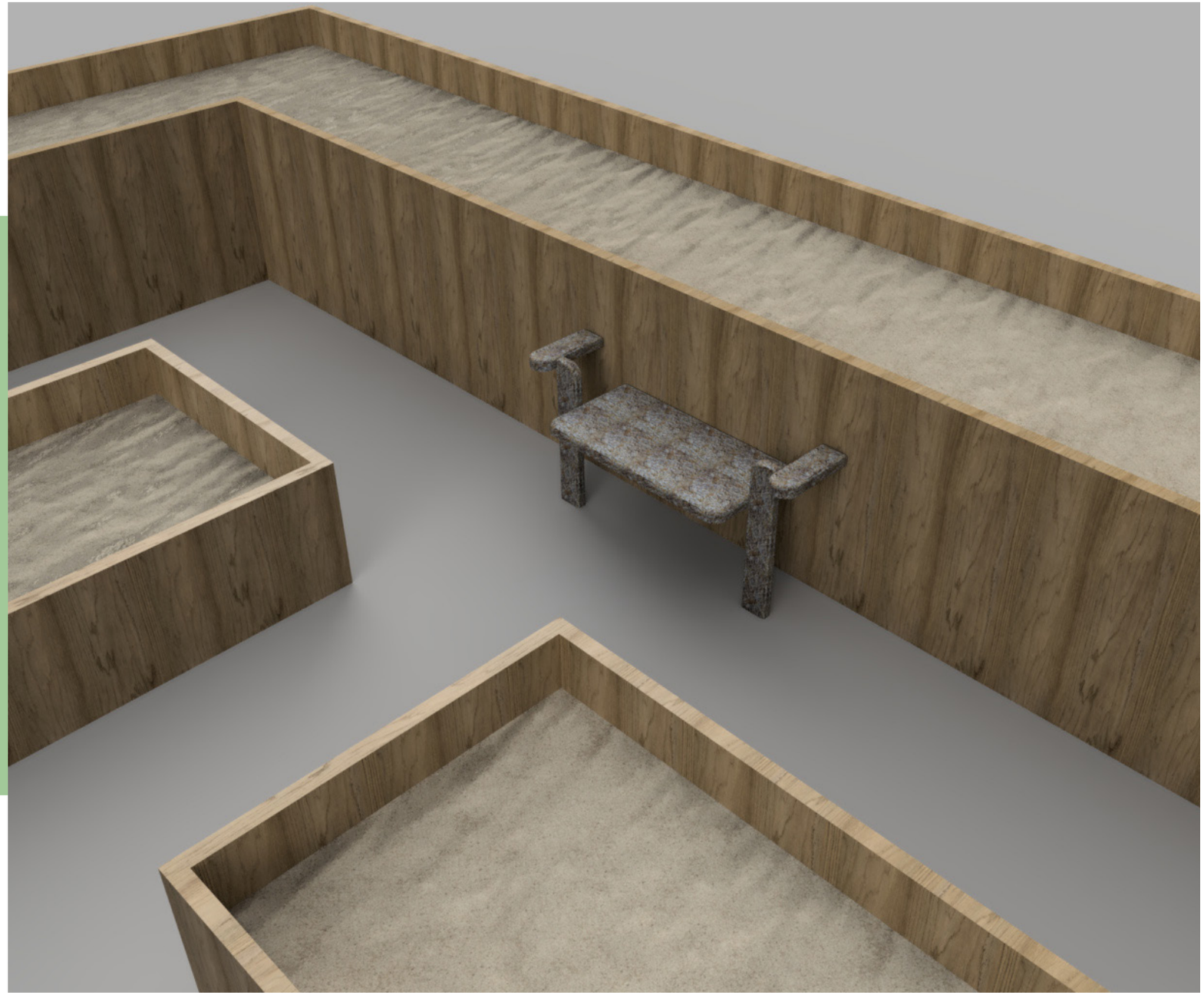
Future infrastructure could also be inspired by the slime mould for a more efficient pathway. Since the mould can effectively calculate and show an efficient path through obstacles that humankind has taken more than a hundred year to calculate (as seen in by the Hokkaido University in a project led by Atsushi Tero), the mould could be used by planners to save money and time.

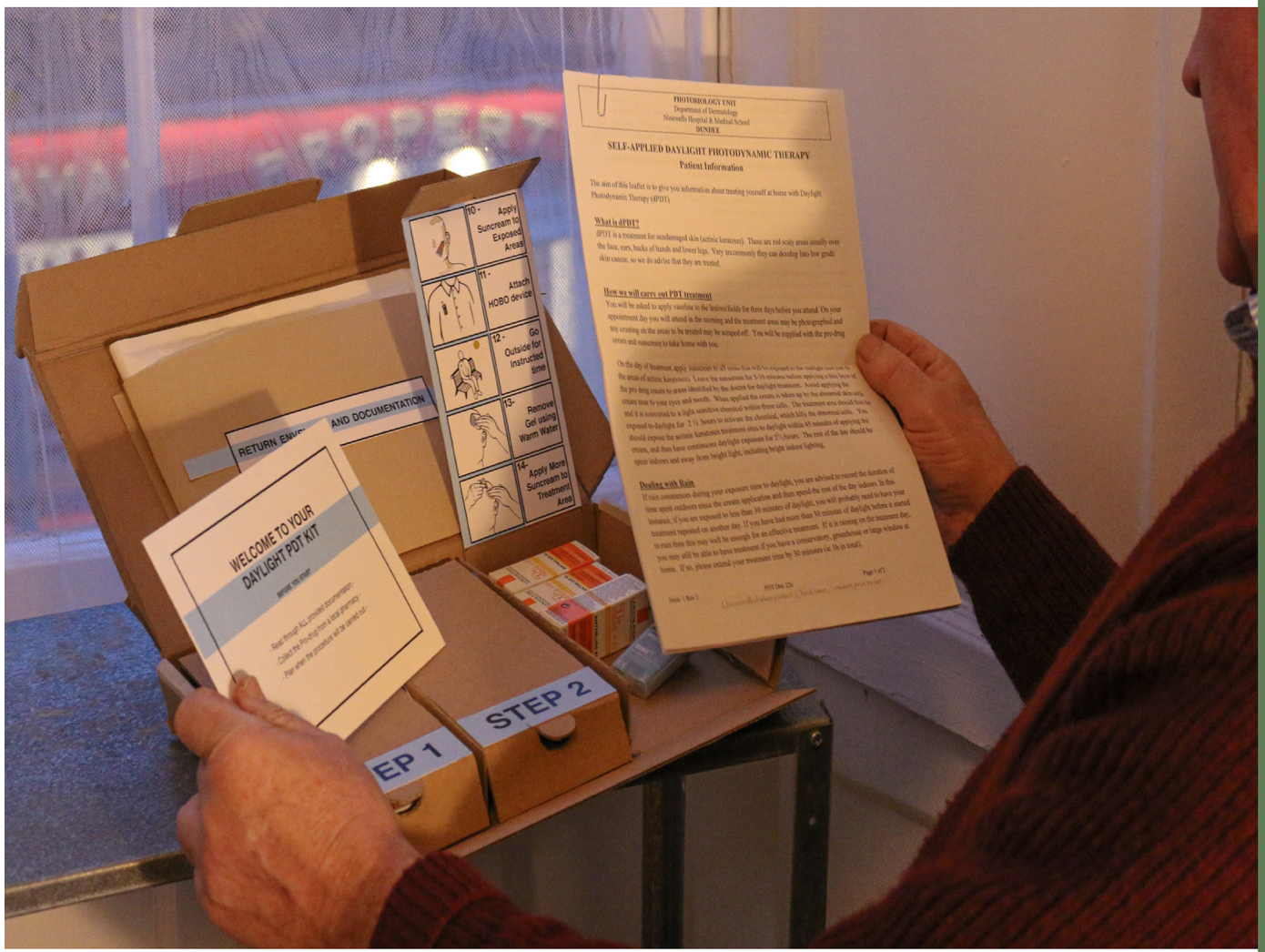
The resolved work in both 3D and 2D, this is because I want the piece to be easily understood by the target market.

Anne Valbak Christiansen

| The Botanic Bench

Feel-Good Fungi is a project investigating the links between living materials and social sustainability. It seeks to break the mental barrier between nature and industry by bringing nature to the industry, and by making nature the leading technology within production. The mission is to create objects with positive ecological impacts as well as positive social and human centred impacts. For example "The Botanic Bench" a fold-out chair/seat attached to raised beds within botanic gardens, it allows rest for visitors with the need for one, and works as a stool for children so that they can look into the raised beds.





Daniella Levins
| Daylight Photo-Dynamic Therapy

For the past 6 weeks I have been working directly with the Tayside photobiology department in Ninewells, undertaking a live project of domesticating one of their medical procedures; Daylight PDT, which tackles actinic keratoses in older patients.

The project entails the design of a box package, the integrated instructions and the patient journey itself. The design of this kit has to be tailored for older users, meaning it has to be very specific yet straightforward making this procedure as easy to follow as possible, with a satisfactory experience overall.

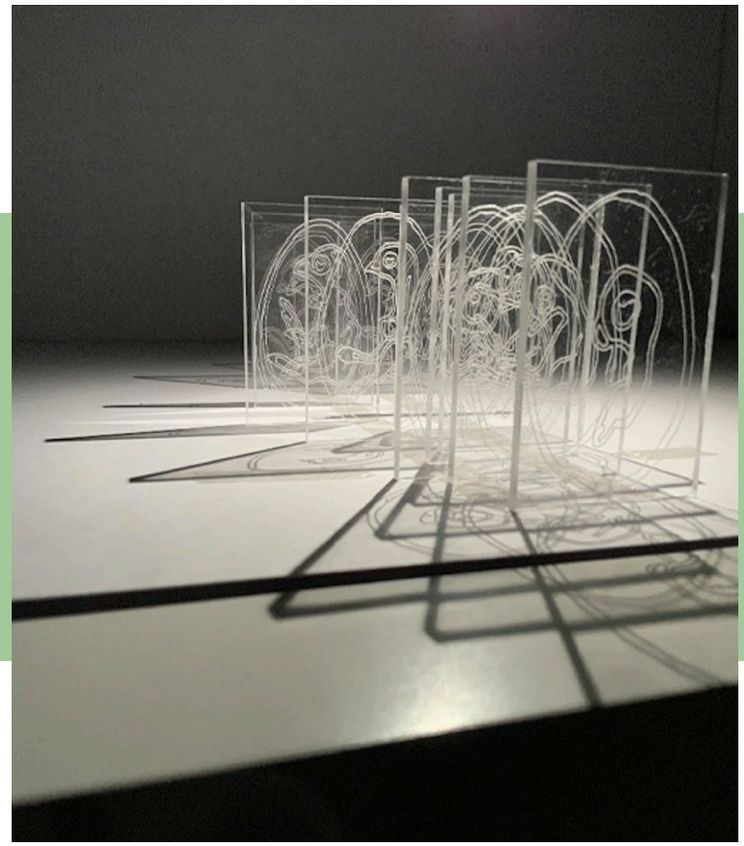
I had researched and considered different exterior and interior designs of packaging but returned to an unpretentious, stripped down design which simply serves its purpose; Transport the equipment safely and guide the patient through the method correctly.

The Final prototype is a package & manual integration, demonstrating clear navigation around the box and highlighting the essential steps of the procedure.
The colour pallet is composed of neutral blues and white, complemented with engaging, not distracting graphics to support the instruction manual. The kit is solely made from paper and cardboard making the entire thing recyclable and environmentally friendly. In the prospect of this project, components such as the latex gloves and excess plastic packaging can be substituted for less impactful materials, making it 100% recyclable.

Erin Ross | Compine

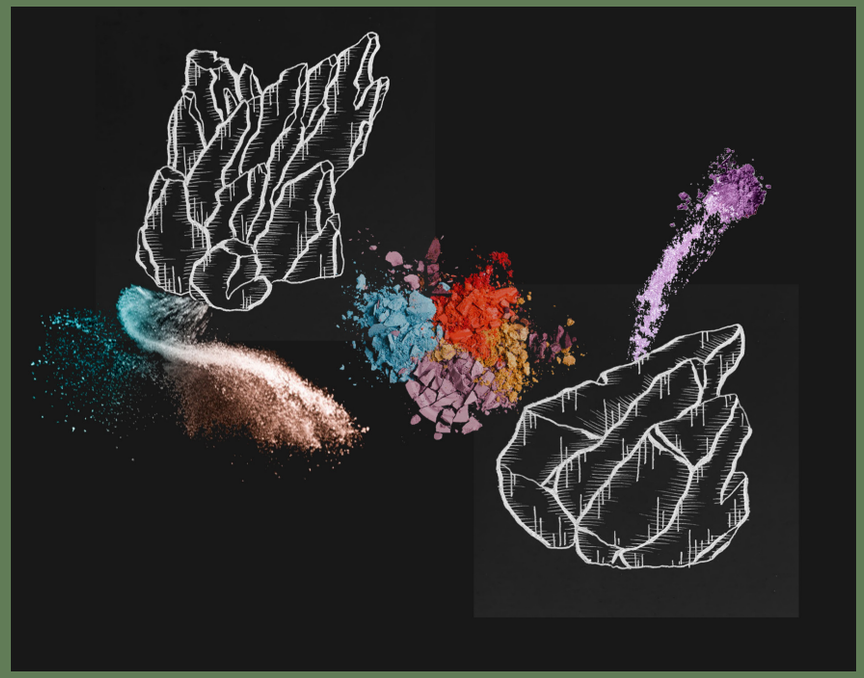
Compine is a collection of easily giftable household objects made from a biodegradable pine needle composite accompanied by textile designs inspired by the complex structures of pinecones. Compine aims to bring nature into people's homes and highlight the demand for society to become more sustainable. There are many common household objects that are often thrown away into landfill sites, the Compine collection offers a biodegradable material to consumers allowing them to compost their waste after the life-cycle of their product is over.

The Compine collection also includes textile designs for tea towels with easily recognisable pinecone patterns bringing the collection together. The intention of Compine is to reconnect humans with nature in an appealing way while allowing the users to explore sustainable living.



Faith Wilson | Through the Lense

An Insite to the Life Cycle of a Chick Embryo is an installation which is intended to educate young people and Students in a more fascinating way instead of academically, to showcase a more in-depth perception of science through nature and art. It should allow the subject to be viewed from a different perspective, combining art and science together as one strengthening the relationship between both matters. The purpose is to help conceptualize the growth of a chick embryos and visually highlight at each stage what changes are occurring, allowing the user to see the formation of a chick embryo in an interactive and more appealing way.



Keira Ritchie | Natural Plant-Based Synthetic Mica

There are many issues surrounding natural mineral mica as a material with many ethical problems being attached to it also. Natural mica is used in many everyday objects such as make up and cosmetics, toothpaste, paint and kitchen worktops in order to give them a shimmery appearance.

There are many health concerns surrounding the use of natural mica as it can often contain harmful minerals such as arsenic and mercury which should not come into contact with the human body. Many people are unaware that natural mica is also sourced unethically with many children in Asia being used in dangerous conditions to mine it. They can often become trapped or killed in the mines by falling rocksor die from cancer due to inhaling the dust. The main objective of my project is to raise awareness of the dangers of natural mica and to help put a stop to the unethical mining by creating my own alternative, natural solution that is made from plant based materials that have been manipulated to have a shimmery appearance which will be safer to use for all.

The materials used include my own agar that I created from boiling down seaweed to be used as a bonding agent as well as cellulose that I extracted from various plant leaves to create the shimmering appearance in synthetic mica.

Although I have not created a finalised synthetic mica solution just yet, my process is still ongoing and I am continuing to conduct experiments with the intention of perfecting a synthetic mica made ethically from 100% natural, plant-based materials.

Robert Harper | Interpolated Noise

An audio-visual exploration of the mind. Abstract synthesised sound and digitally created visuals are born from the data extracted from the human brain. The experience is harsh and grating, with imperfections and artefacts from each step of the process affecting the outcome. As data is converted, crushed, turned analog and synthesised into noise it takes on a brutally alien and glitched form. This harsh sound is accompanied by visuals of sharp, angular geometry created by mapping coordinates and dimensions of the display to the exact same brain data.

This exhibit piece explores the soundscape of the human mind with the current outcome reflecting the electroencephalograph data extracted from someone listening to pop music. Like some sort of over engineered translator, it maps the data from the processing brain and creates uniquely intense music, unlike anything heard before. Powered by Processing and a custom -built DAC – Data to Audio Converter– featuring an Arduino and micro-analog synthesiser, the project was run in a garage and projected large scale in the dark for full immersion into the distorted experience.

Interpolated Noise gives the brain a voice, despite how grating and discordant it may sound.

Conceived from discussions with Dr Ros Langston + Dr Chris Henstridge.

A big thank you to the Botanic Gardens, University of Dundee, for being a refuge in these difficult times in helping the students and staff engage in many aspects of Visual Thinking in a wonderful space. Thanks especially to Kevin Frediani who facilitated the use of this resource and to and Neil Paterson for his inputs. Also, a massive thank you to all of the scientists that volunteered their time and knowledge to help the students for this module.

Alison Dicker
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