Britton Kroessler

2022 CV

Experience

Analytical + versatile, process-driven professional problem solver.
Specializes in technical + creative insight, prototyping, production, and logistics.

Technical Design Specialist
Night Vision Technology Solutions (NVTS)
Jamestown, Rhode Island ▪ 2020
Designed, produced, and troubleshooted a variety of specialized camera systems based on client needs. Products typically comprised of mid-power components and peripherals, as well as custom-designed ruggedized housings and hardware.

Facilities Manager
AS220 Industries
Providence, Rhode Island ▪ 2018 – 2020
Oversaw physical operations, maintenance, systems of safety, and established protocol for an interdisciplinary arts and fabrication workspaces while engaging members and being a part of a diverse creative community.

AS220 Industries is an arts non-profit in the center of Providence that provides access to resources and equipment for local artists and designers. We took part in a number of annual city-wide art events where we showcase our creative community and the resources they use.

Electrical Engineering + Design Consultant
Propel LLC
Providence, Rhode Island ▪ 2018 – 2020
Worked alongside the designers and textile fabricators at Propel LLC to explore the capabilities of their products, improve their design, and optimize their production based on rapidly evolving needs. Was required to learn and adapt to the working processes of an entirely unfamiliar field. The project we developed together won First Place in the Industrial Fabrics Foundation's 2020 Innovation awards.

Lab Technician
Paul Badger, Modern Device
Providence, Rhode Island ▪ 2014 – 2019
Developed, tested, and produced electronic kits for Artists, Designers and Makers. Testing new products typically involved designing and programming custom testing equipment in-house through various fabrication methods. Occasionally would be contracted by public art organizations and industrial design firms.

Teaching Assistant
Rhode Island School of Design (RISD)
Providence, Rhode Island ▪ 2016 – 2017
Taught alongside Program Director Dina Zaccagnini Vincent in the Graphic Design Certificate Program for Advanced Typography and Final Studio courses. Led critiques and reviewed student work, helped guide their processes, and assisted with technical expertise when appropriate.

In Advanced Typography the students had two type-based projects that explored both conventional and unconventional approaches to working typographically—one of which was my own addition to the curriculum. In Final Studio the students had to revisit work from previous courses, determine what needed to be redone based on the knowledge they gained through the course of the program, and add two new projects to their Final Portfolio.

Production Artist
Big Nazo Lab
Providence, Rhode Island ▪ 2016
Produced dynamic, unconventionally molds for thermoforming polystyrene foam, and processed for the construction of human-sized puppets. Molds had to be customizable to fit a variety of organic patterns and shapes. Designed a variety of lighting rigs to be incorporated into the puppets during performances. Deadlines were typically worked down to the wire before shipping.

Live puppetry and performance were one of my main influences for becoming an artist at a young age. I relished the opportunity to work with Big Nazo Labs and see my work travel across the world to perform.

Freelance
Self Employed ▪ 2011 – present
- Technical Design Solutions
- Prototyping
- Fabrication
- Signage
- Sculpture Production
- Electrical Engineering
- Branding
- Layout Design
- Publication Management

Education

Royal College of Art
London, UK ▪ 2022
MA Design Products

Rhode Island School of Design (RISD)
Department of Continuing Education
Providence, RI ▪ 2015
Graphic Design Certificate (Non-Degree)

The Museum School (SMFA) at Tufts University
Boston, MA | 2011
Bachelor of Fine Arts in Sculpture

Skills

Process
- Concept Development
- Design Research
- Critical Thinking
- Problem Solving
- Acutely Resourceful
- Exploratory Play

Artistic + Technical
- Excellent Hand-Eye Coordination
- Drawing
- Woodworking
- CAD + CAM
- Light Metalworking
- Machining + Turning
- Mold-making + Casting
- Electronics + Circuitry
- Microelectronics Handling
- E-Textile Handling
- Thermoforming
- 3D Printing
- Prototyping
- Conceptual Model Drafting
- Repair + Maintenance

Digital
- Adobe Creative Suite
- Fusion 360
- Arduino
- Blender

Logistical
- Project Management
- Publication Management
- BOM Compilation
- Database Construction
- Communications + Outreach
- Component Research

Professional
- Eloquent Writer
- Thorough Communicator
- Executive Decision-making
- Personnel Management
- Task Delegation

Exhibitions

Royal College of Art 2022 Graduate Exhibition
London, United Kingdom ▪ June 2022
Exhibition of Graduate work.

Support Systems at Milan Design Week
Milan, Italy ▪ June 2022
Student-produced exhitbition, part of the WE WILL DESIGN Exhibition at BASE Milano.

Royal College of Art WIP Exhibition 2022
London, United Kingdom ▪ January 2022
Annual mid-year show of student work.

Propel LLC R+D Exhibitions
- STP Forum for SBIR/STTR Transition (FST)
  UMass Lowell, USA ▪ April 2019
- Techtextil Frankfurt
  Frankfurt, Germany ▪ May 2019
- Siggraph
  Los Angeles, USA ▪ July 2019
- Defense and Security Equipment Intl.
  London, UK ▪ September 2019
- Consumer Electronic Show (CES)
  Las Vegas, USA ▪ January 2020

Exhibitions of Propel's SIU Garment, associated designs, and technologies.

Thermoform Maskmaking + 3D Poster
Providence, Rhode Island ▪ 2016, 2017, 2018
Thermoforming masks using 3D Printed facial features. A family-friendly activity run during AS220's annual FooFest, and the Providence Mini-Maker Faire.

Big Nazo Bio-Mech Animals
Sao Paulo, Brazil ▪ 2017
Randall's Island, New York ▪ 2017, 2018, 2019
Large-scale puppets commissioned by and performed at Electric Zoo music festival.

Publications

Too Many Designers (2MD)
London, United Kingdom ▪ January 2021
Publication of student work from the RCA Design Products programme that coincides with the annual Work In Progress exhibition.

After the Fog
London, United Kingdom ▪ June 2021
Publication of student process and creative experiences from the RCA Design Products programme. Coincides with the annual Degree exhibition.

Awards

Core 77 Design Awards Student Winner + Community Choice Prize
Sports + Recreation Category
Wiggel! ▪ 2022

Industrial Fabrics Foundation Award First Place
3D Smart Integrated Shirt, with Propel LLC
Providence, Rhode Island ▪ 2020

Extracurricular

Student Representative
Royal College of Art, Design Products Year 2
London, United Kingdom ▪ 2021 – 2022

Freewheelers Cycling Society, President
Royal College of Art
London, United Kingdom ▪ 2021 – 2022

Child Protection Training UK
Safe Working Practice Online Course
London, United Kingdom ▪ 2022

Wiggel!

2022

Wiggel is a flexible play system that uses silicone joints to create wiggly and bouncy structures and shapes. The flexibility introduces an element of problem solving and structural planning to make shapes that will stand on their own. Whereas other construction systems can be played with alone, Wiggel benefits more from collaborative play, where more hands and minds can make the ideation and building of complex structures easier. The system also includes modules that allow a new way to engage playfully with the environment by attaching to surfaces and furniture.

The modular toy/construction set market is largely dominated by systems with rigid parts (usually plastic or wood). A common, intuitive goal for systems such as Lego, K'nex, and Tinker Toys is to build something recognizable; a house, a rocket ship, a tower, a car, a boat, etc.

The rigidity of the parts affords predictability in assembly and handling. How could a non-rigid, flexible system challenge that play mode? What skills can be learned from having to focus on structural integrity and constantly building against gravity? Suppose that direction is abandoned entirely in favor of something eccentric, unpredictable, and downright silly– what sort of play-goals or educational prompts/outcomes could be derived from such a system?

Wiggel! Demo Reel

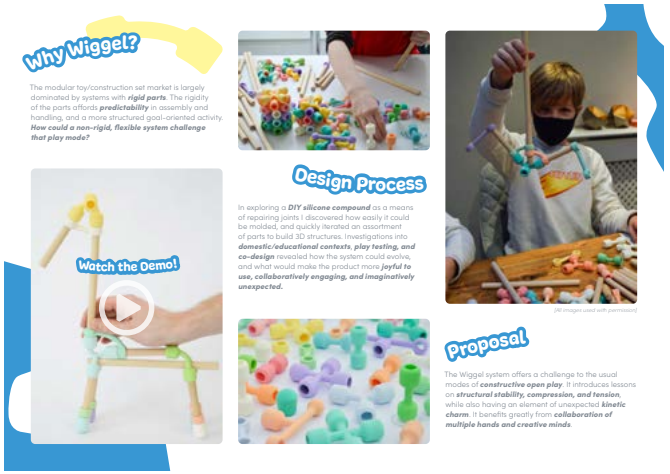
2022

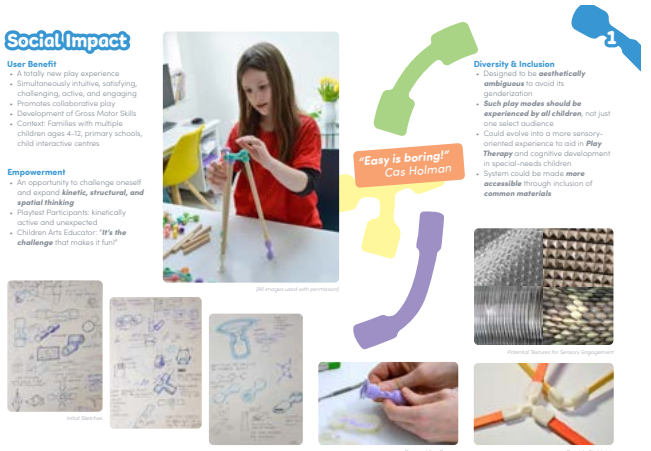
The Wiggel system offers a challenge to the usual modes of constructive open play. It introduces lessons on structural stability, compression, and tension, while also having an element of unexpected kinetic charm. It benefits greatly from collaboration of multiple hands and creative minds.

"In a time when kids are addicted to screens we appreciated how this product encourages self-led creativity to imagine dynamic structures... We think it is important as designers to think about inclusivity, we also appreciated how you championed the design process."

—Dr. Susan Sokolowski
Core77 2022 Sports & Recreation Jury Captain

Click to read the Development Journal





Wiggel! Development

2022

Wiggel was developed with play as the central focus, and how to have as much fun as possible with the Design Process. This sense of playfulness was imparted in user-engagement and helped communicate how much fun the Design Process can be to younger generations.

New Skills

- DIY Silicone Prototyping
- Public Outreach
- Playtesting
- Child Engagement
- Full-blown playful creative exploration

Key Lessons

- Working with children requires transparency, honesty, and flexibility.
- Children's needs come first.
- Expect the unexptected!
- The designing of a product can be just as fun as its output.

Wiggel! Playtesting

2022

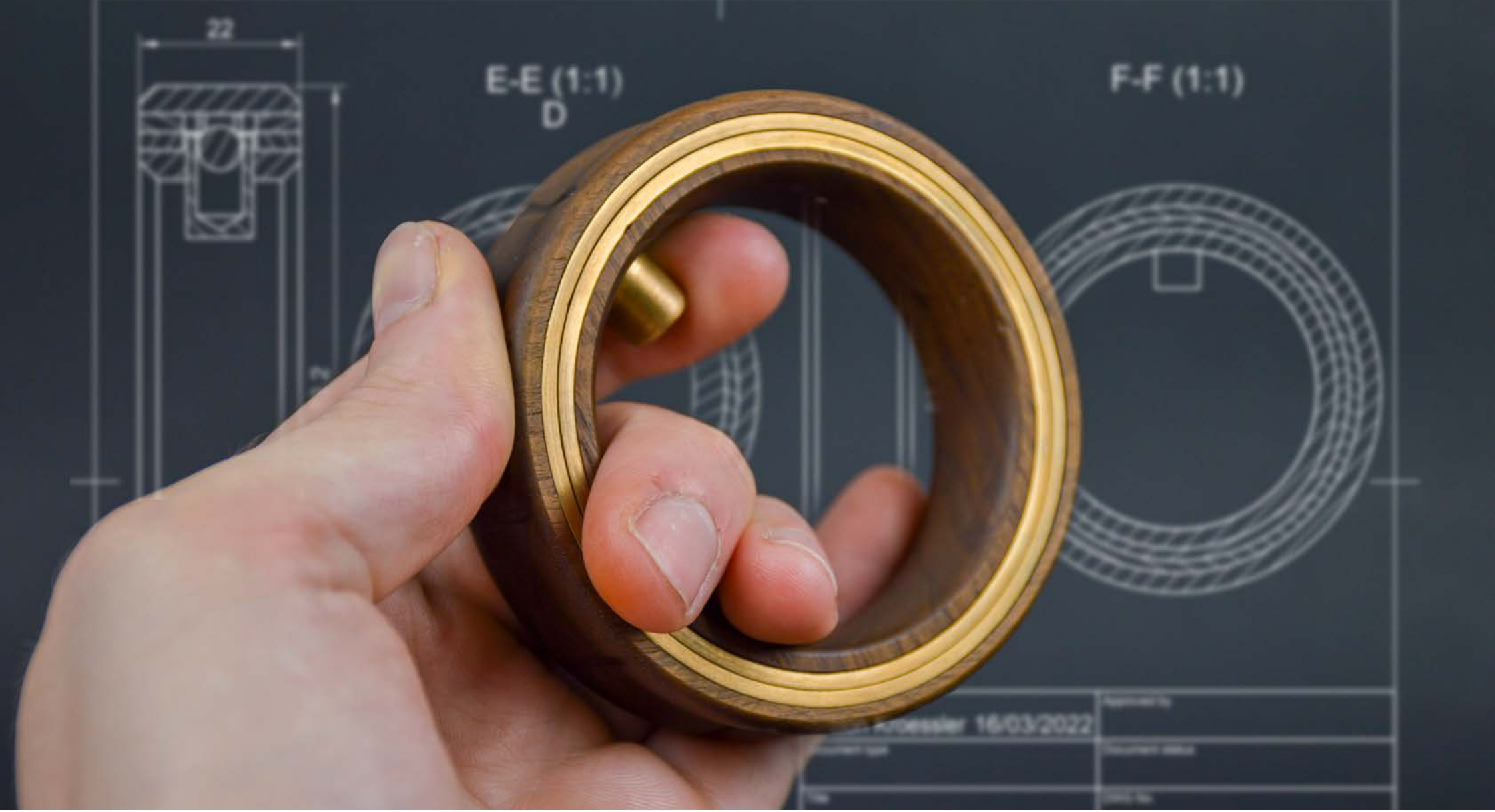
To help direct and finetune development of the Wiggel system I sat down with two families in my neighborhood to both teach their children about the process of design, and have them teach me things I had not yet considered about the system in its current state.

[Note: All photos used with permission]

Wiggel! Exhibitions

2022

Wiggel was on exhibit at BASE Milano WE WILL DESIGN exhibition during Milan Design Week 2022 as in a self-organized showing of RCA student work titled 'Support Systems'. It was also featured in the RCA2022 Graduate Exhibition.



Ritual Interactions

2022

Living with Neurodivergence has made me more aware of how I respond both intentionally and reflexively to mental and emotional hardship. It is through specific grounding rituals that I am able to maintain a sense of balance.

When my mental state unraveled early 2022, I found comfort in the meditative motions of the lathe, and the impermanence of wood–creating unique precision pieces that fit and function exactly as I designed them to. Physical Making became my means of therapeutically recovering from personal crises, and these small interactions are reflections of the rituals that I used to heal.

Ritual Interactions: Machining

2022

Living with Neurodivergence has made me more aware of how I respond both intentionally and reflexively to mental and emotional hardship. It is through specific grounding rituals that I am able to maintain a sense of balance.

New Skills

- Manual Metal Turning
- Mechanics
- Neurodiverse User-Engagement
- Haptic Development
- Precision Workholder Design

Key Lessons

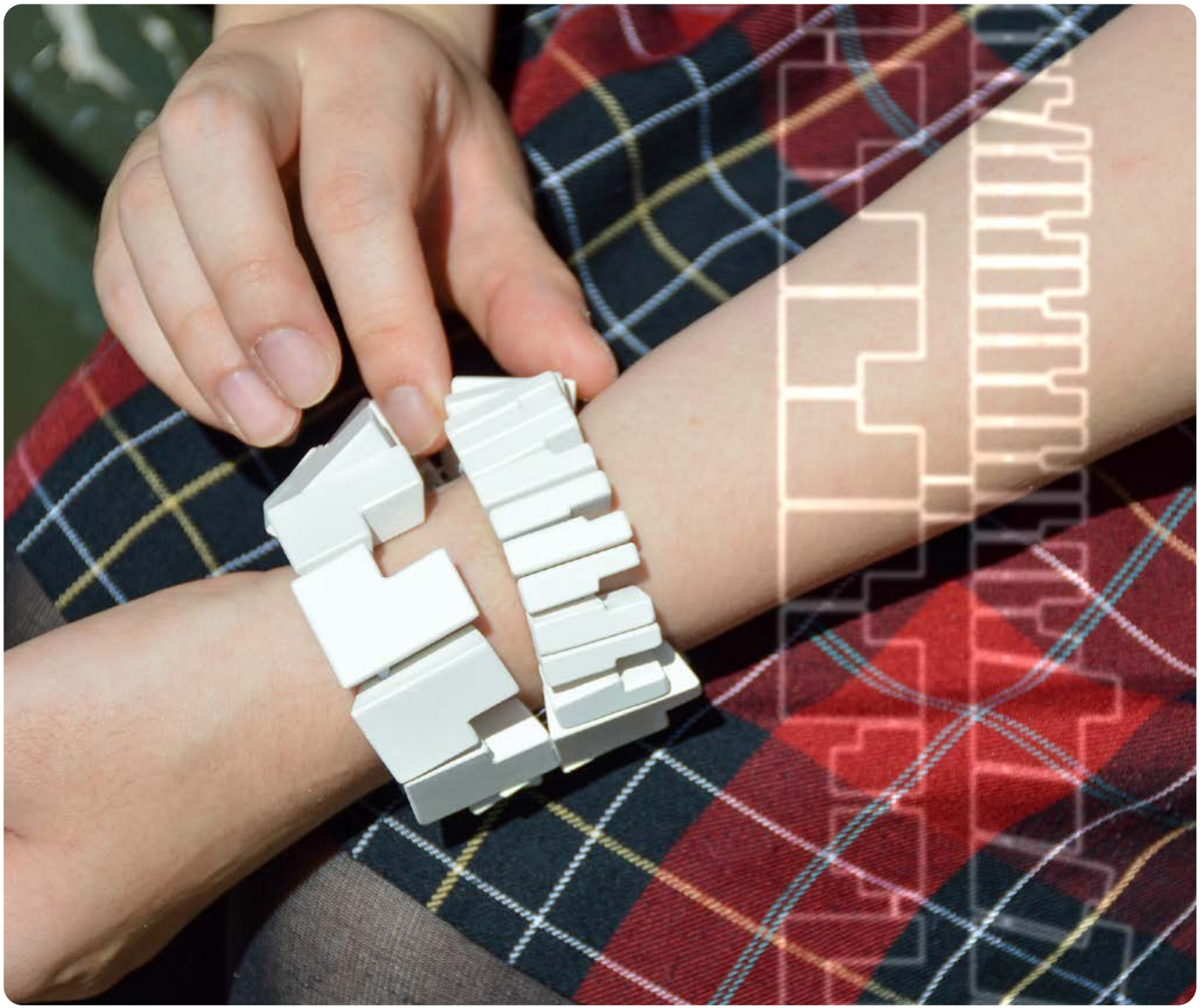
- Dedicating one's focus on creative engagement can lead the way out of mental/emotional strife.
- Pay attention to internalized processes, so that they may be turned outward.
- An object's functions and non-functions should be identifiably part of its visual language.

Ritual Interactions: Machining

2022

Each interaction centered around a satisfying haptic sensory element. Smooth transitions to a sharp *click,* consistent, repeatable. They are all designed to be comfortable and satisfying to use, and hold. The wood and metal provide both visual and tactile contrast from one-another.

After user testing, the form-factor became smaller, more discrete, and easier to carry. The same mechanism fit within a smaller housing and used the spring from a ballpoint pen, ensuring the sound was suitable for work environments such as schools or offices.



Ritual Interactions: Walking

2022

'J's ritual is centered around exploring her neighborhood on foot, and returning to familiar places. She will frequently listen to music on repeat, which helps gauge how long has been walking for. 'J' described recent circumstances to me that has made her more cautious about walking outside as frequently, and they have not had the emotional energy to overcome wanting to stroll as they previously did to decompress.

"It gives me a sense of control, knowing that I have been here before." 'J' explained how important familiarity was to maintaining their mental balance; walking familiar routes was a form of meditation for them. She had a particular fondness for wood and fabric, stating how the familiarity of the material is comforting.

Click to play on Vimeo

Ritual Interactions: Walking

2022

'J's interactions are centered on familiarity through location, and familiarity through material. A bracelet of the buildings along her favourite walking route allow her fingers to move through the familiar space when her body cannot. A small wooden loop with soft curves and a band of fabric to mimic the continuous walking of a familiar path, with fabrics of different density and textures to associate with different spaces and feelings.

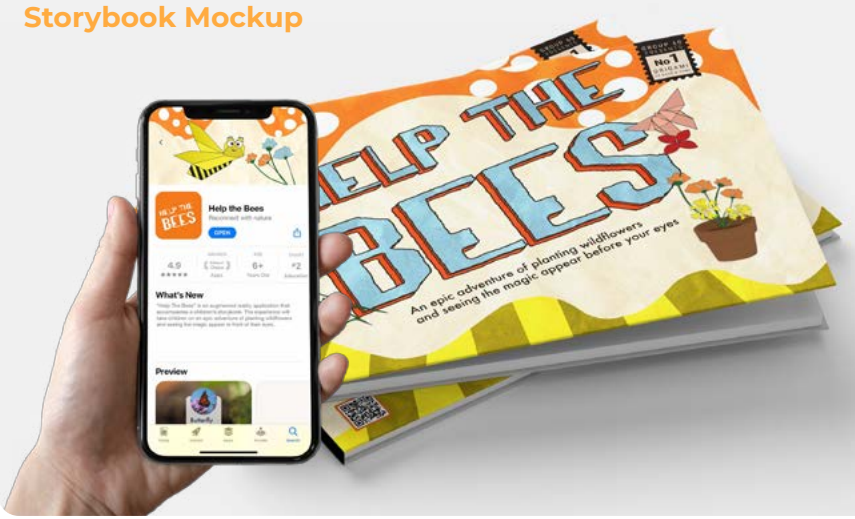
New Skills

- Neurodiverse User-Engagement
- Precision Workholder Design
- Emotional Design

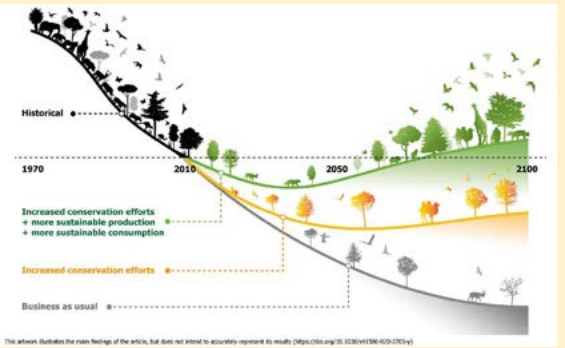
Key Lessons

- Designing for a specific person can potentially have a profound impact on their wellbeing.
- Designing experiences for people requires genuinely listening to their needs so they can be genuinely responded to.

Storybook Mockup



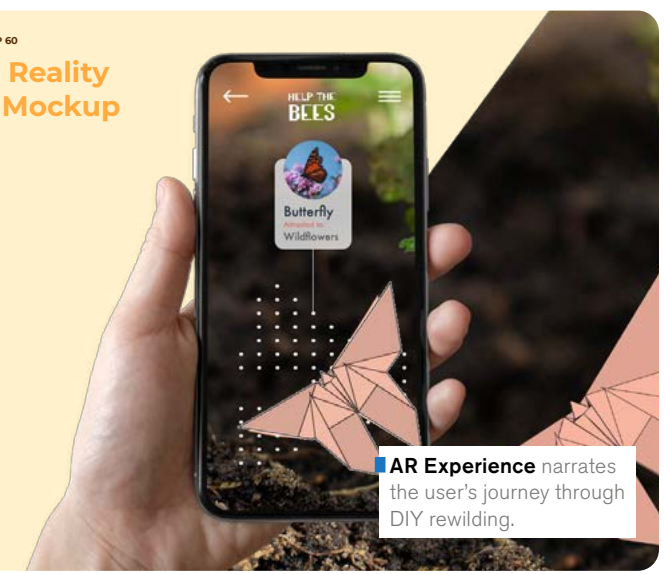
Biodiversity - Tackling a Global Issue Locally



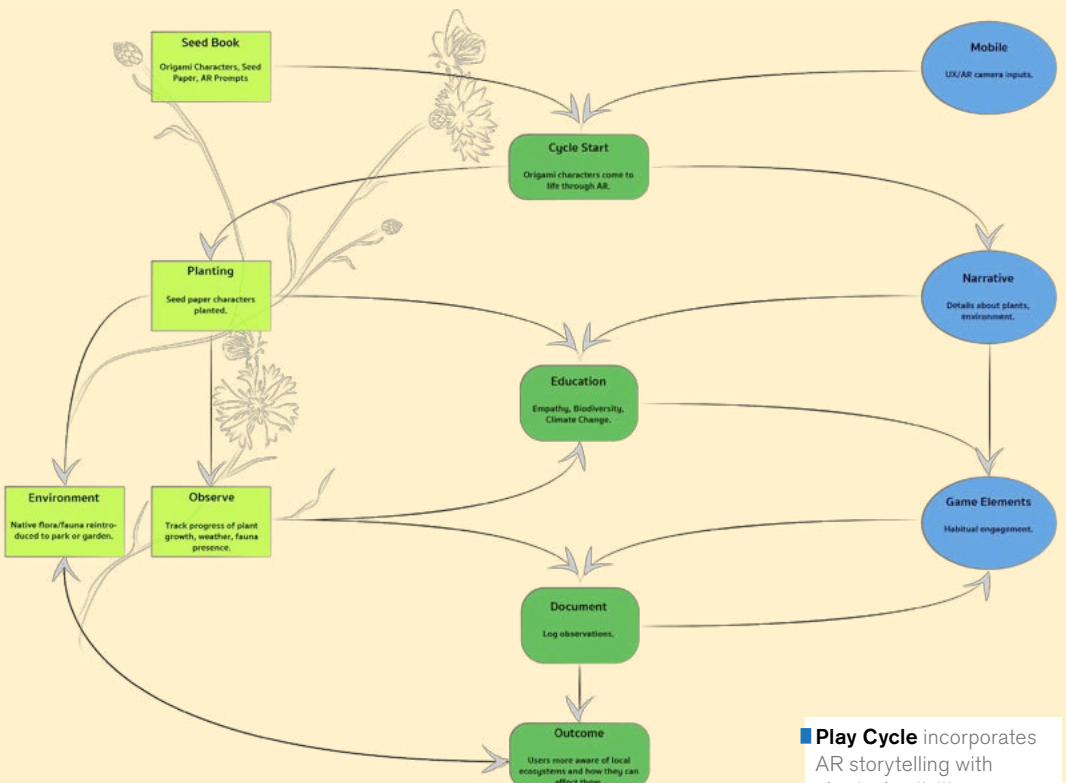
'Bending the Curve' - Global biodiversity of potential futures

UK insects & wildflowers

Augmented Reality Application Mockup



AR Experience narrates the user's journey through DIY rewilding.



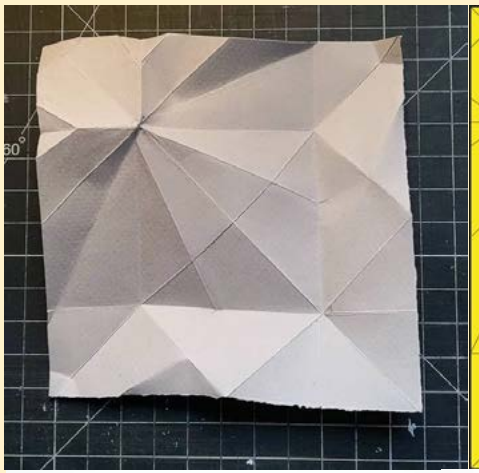
Play Cycle incorporates AR storytelling with physical activities.

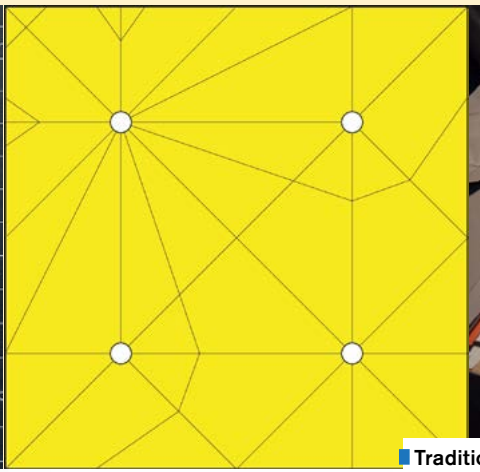
Help the Bees

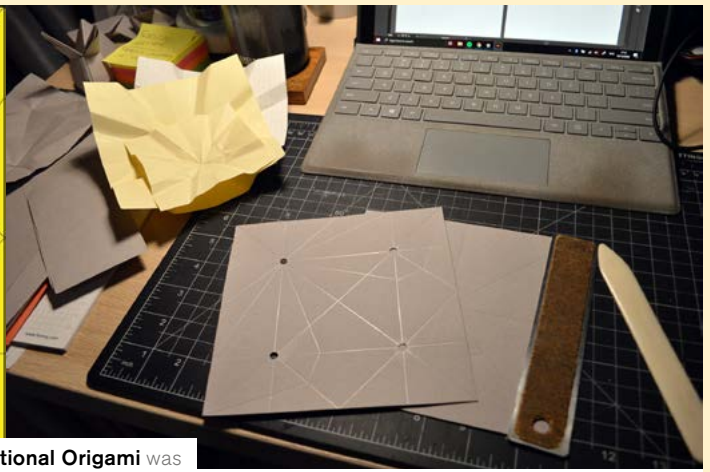
RCA Grand Challenge 2020

The Royal College of Art hosts a school-wide challenge in which students are put in interdisciplinary groups and design towards a particular theme and sub-theme. 2020's Grand Challenge focused around Safety, and our group was tasked with designing for Truth. We wanted to address how children can be engaged to preserving the natural environments around them through education and play.

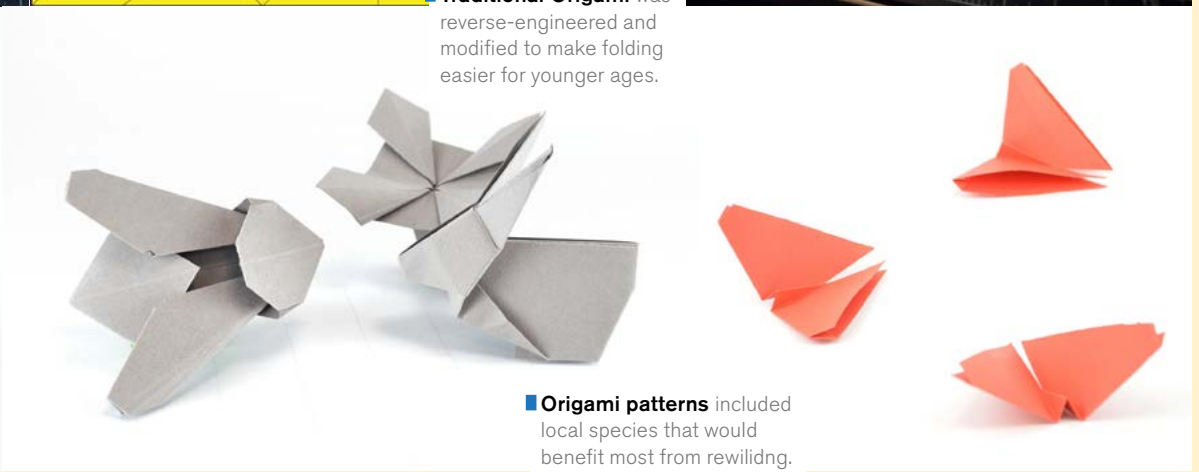
Prototyping







Traditional Origami was reverse-engineered and modified to make folding easier for younger ages.



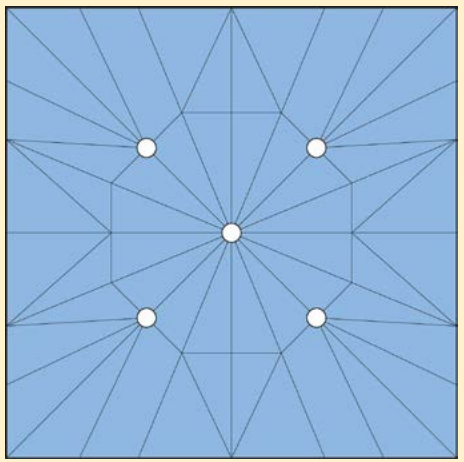
Origami patterns included local species that would benefit most from rewilidng.

Help the Bees: Papercraft

RCA Grand Challenge 2020

Help the Bees is an interactive storybook accompanied by an AR application that will take children, aged 6-11, on an epic adventure of planting wildflowers and seeing the magic appear in front of their eyes through their own efforts. Traditional Origami patterns were reverse-engineered to accommodate for thicker paper, and making the folding process easier for children on the younger end of the spectrum.

Seed Paper Origami



Click to Play

While not traditional origami practice, scoring and die-cutting the heavier seed paper will allow for easier folding, and clearer directions to the folder.

Cornflowers

Help the Bees: Papercraft

RCA Grand Challenge 2020

The thickness of seedpaper made folding more difficult, however by pre-scoring the fold lines and die-cutting critical intersections the final form was able to come together much more easily, and provided a visual and mechanical aid.

New Skills

- Conceptual Wireframe Workflow
- Papercraft Engineering/Design
- Digital App Conception

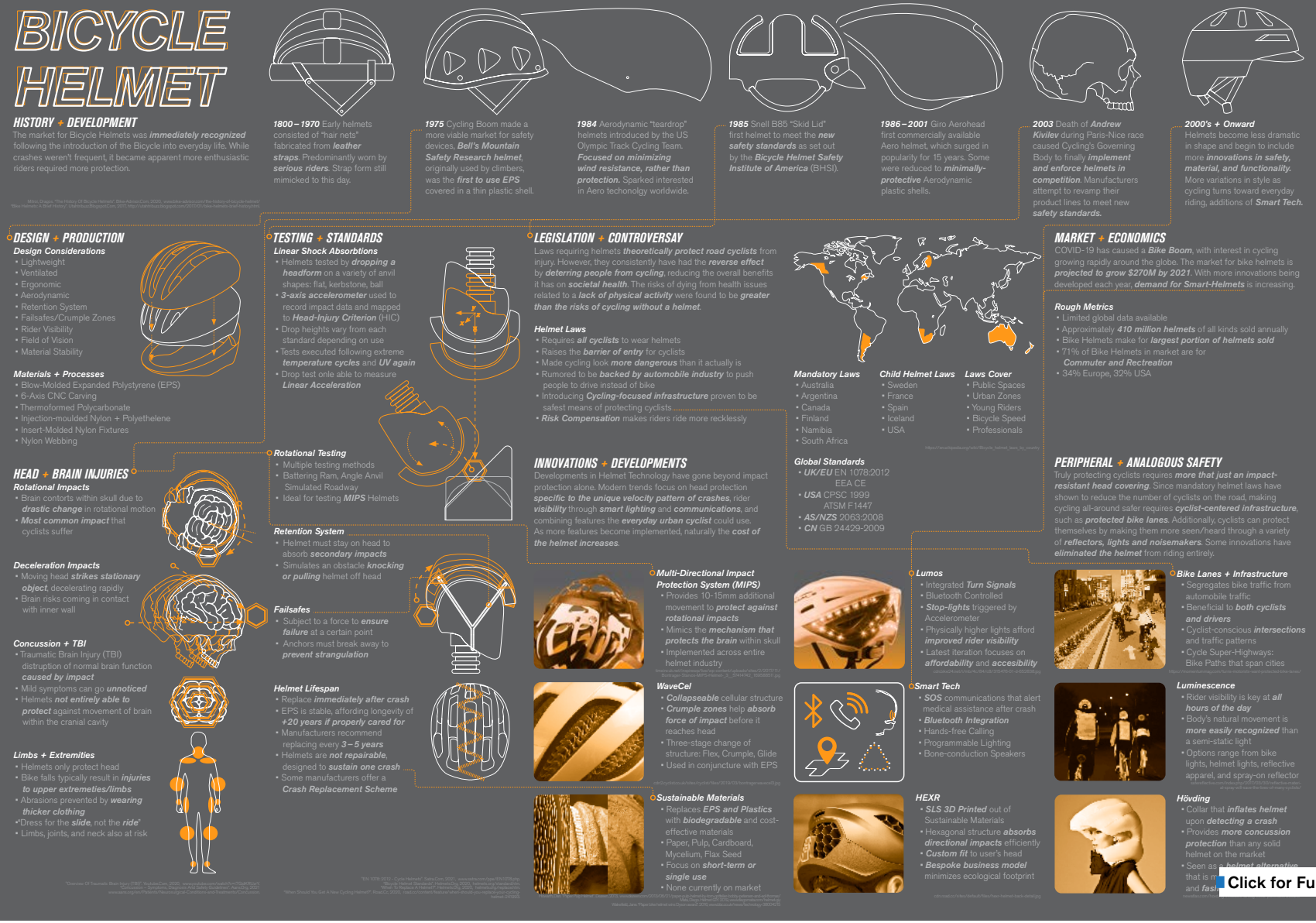
Key Lessons

- Designing with a diverse creative team affords a better breadth of potential ideas but occasionally requires compromise.
- I waste no time when it comes to physical iteration.
- When presented with an open-ended brief, the pathway to a Design solution is never straightforward.

Helmet Autopsy

2021

My Helmet autopsy revealed only the basics of how a helmet is produced. It did not include any of the contemporary manufacturing processes, such as insert molding and internal reinforcing, or have any of the latest safety features or Smart-Integrated Devices.



Click for Full Resolution Image

Helmet Research Constellation

2021

My research explored the history of helmet design and the contexts that drove their evolution and introduction into cycling culture. Some of the most critical innovations in helmet design protect against rotational impacts, and improve rider visibility and communication with other road users.

By and large, helmets have been made the same way for the past thirty years: an EPS liner with a retention system and thermoformed protective shell. Investigations into manufacturing revealed the complexity of the tooling and infrastructure specific to EPS in helmets, which I thought was well within my experience to explore subtractively.

EPS pivotal to certain industries as observed at Billingsgate Fish Market

Once in the ecosystem EPS stays for decades if not removed.

Source: Medium, Why Styrofoam should be banned all over the World

Non-EPS solutions exist such as WaveCel and Koroyd.

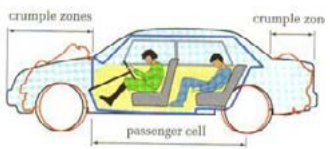
Source: Bontranger WaveCel

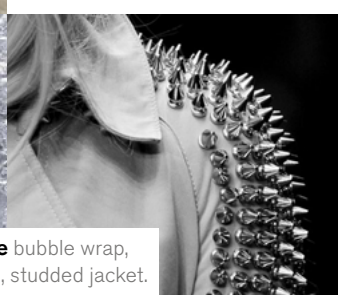
What processes could be used to produce a new impact liner?

Source: Helmet Production and Processes

How to eliminate EPS from helmets without sacrificing level of impact protection?

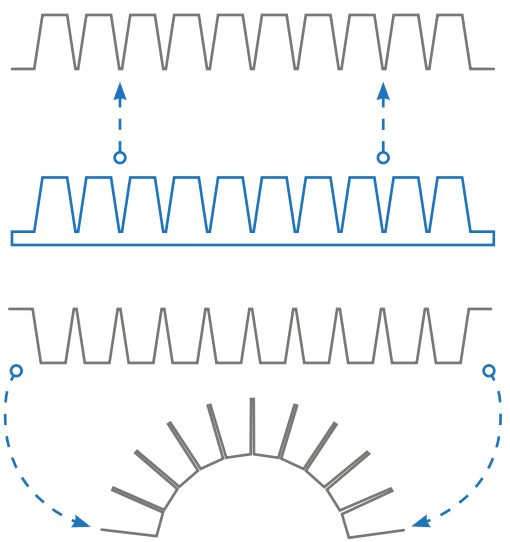
"Difficult to avoid EPS and still provide a competitive product. The industry is hesitant to change."
—Bilal Raja
Lead Designer, LUMOS





Functions like bubble wrap, crumple zones, studded jacket.

Looks like plastic cups, egg tray, seed tray, furniture risers.



Thermoforming is used to create the outer shell of a helmet, could it also be used to make an impact liner?

Image Sources:
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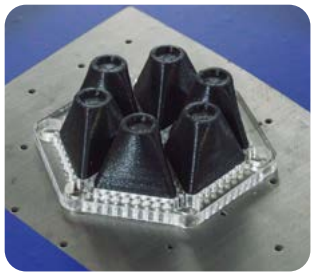
http://www.hellothemushroom.com/2012/01/07/inspiration-studded-jackets/

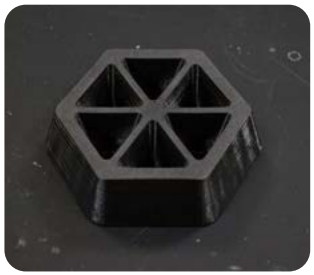
EPS-Free Helmet

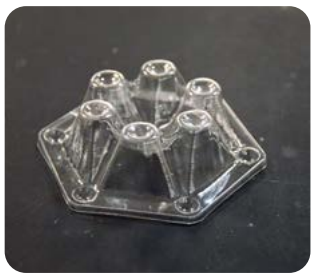
2021

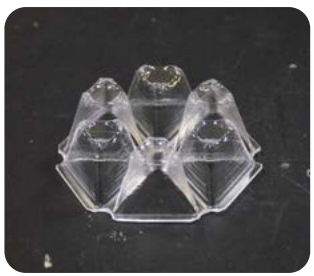
I've lost count of the number of times a helmet has saved my life. According to a study by US-based organization People for Bikes, COVID-19 has brought about a global Cycling Boom, increasing ridership roughly threefold in the United States, which is also reflected around the world by App-Based riding data provided by Strava.

To explore helmets—or more specifically, impact—subtractively I wanted to remove Expanded Polystyrene Foam (EPS) from the equation. EPS is used across innumerable industries for its low-cost, light weight, and high and high R-value (its cost per insular capabilities). At the end of its life, however, it becomes an environmental hazard as it breaks down and disperses throughout the ecosystem.



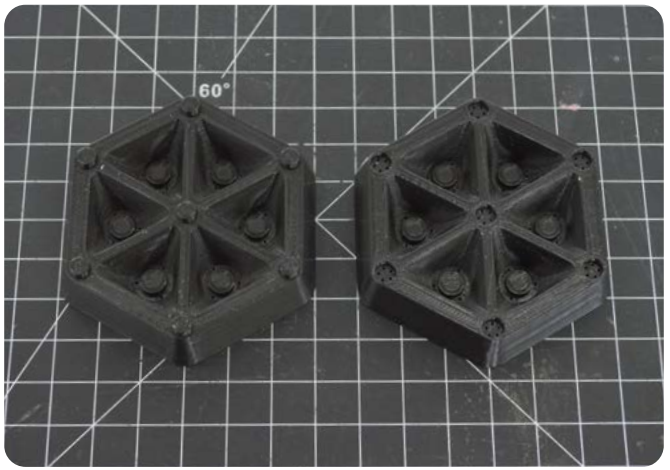




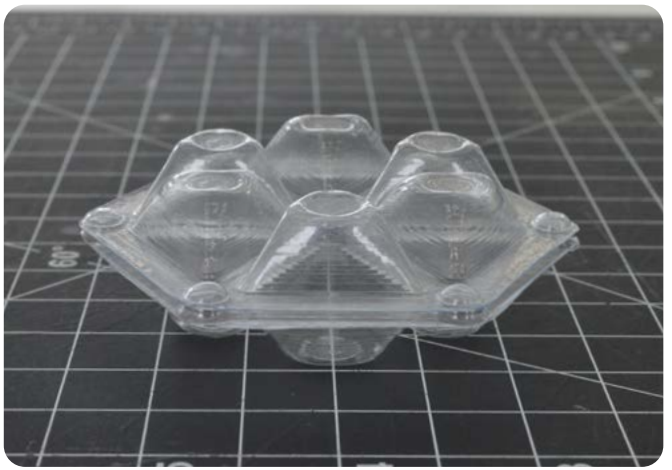


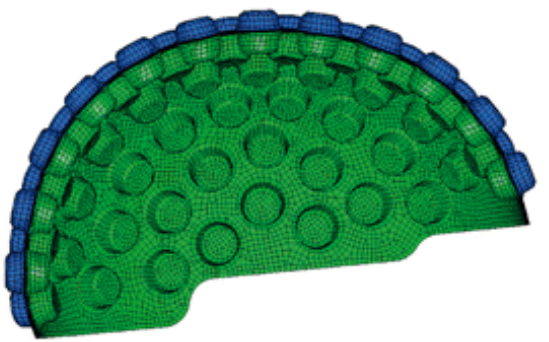
Iteration v0.1 ultimately failed on the thermoformer, as the positive mold form created too much webbing between the cells.

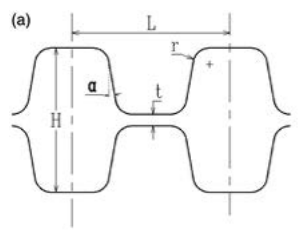
Iteration v0.2 used a negative mold, and it formed almost perfectly, however the draw depth of the material was too far.



Iteration v0.3 halved the draw depth, but doubled the liner. The halves are designed to snap together like clamshell packaging.







Dual-cell approach as detailed in Prof. Tso Liang Teng's paper on conical cellular helmet liners.

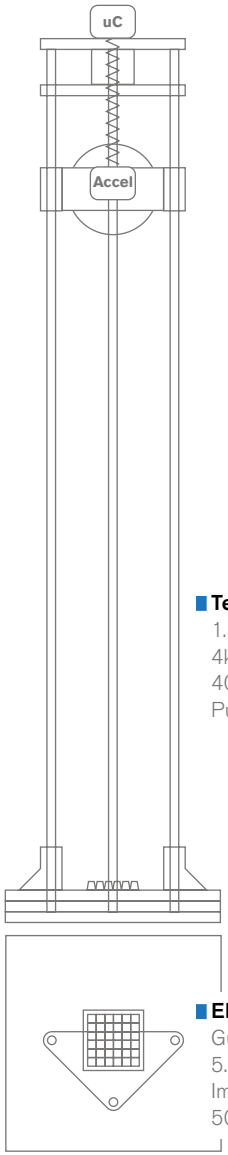
Tso Liang Teng — Hsiuping University of Science and Technology
Assessment of a bicycle helmet liner with semi-spherical cones (2013)

Impact Cell: Prototyping

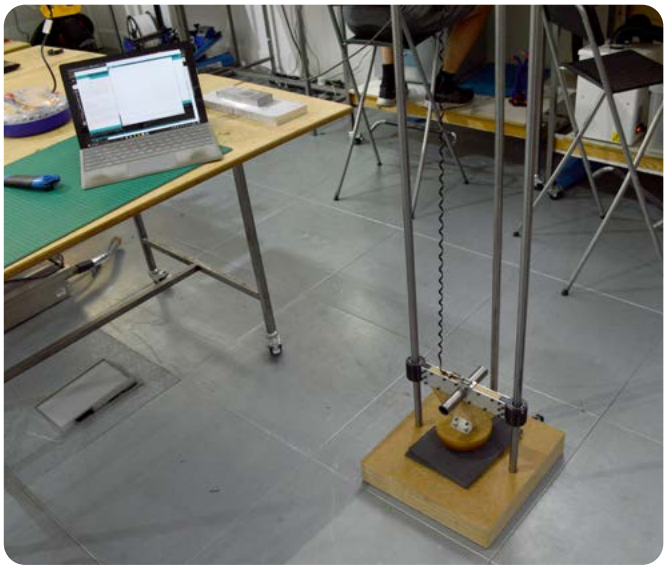
2021

The construction of my liner concept was informed by past polyhedral thermoforming work of the triangular folding net, and a paper on Conical Impact Liners by Prof. Tso Liang Teng of the Hsiuping University of Science and Technology Department of Engineering. Key factors in the development were material draw depth, rigidity, and impact resistance. All cells were thermoformed out of PETG.

While Prof. Teng's paper provided valuable metrics that detailed the superior impact absorption of a conical liner it did not provide a means of production.

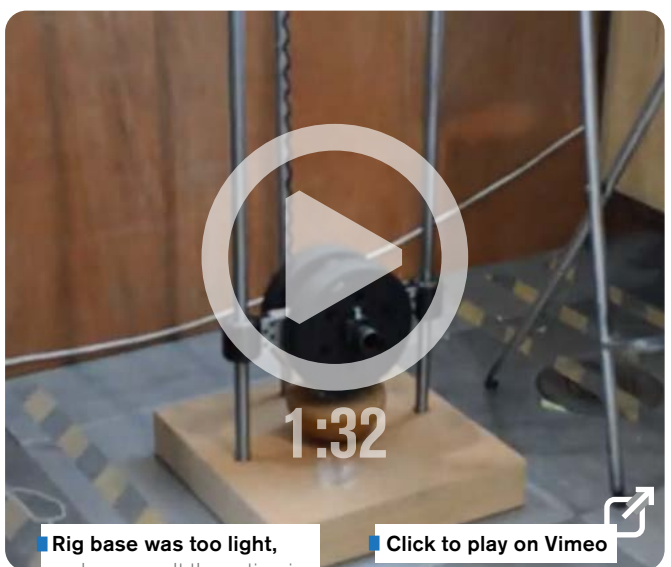


20mm Linear Bearings
Provided consistent, frictionless vertical motion.



Technical Specs
1.5m Drop Distance
4kg Load
400G Accelerometer
Push-button Test Control

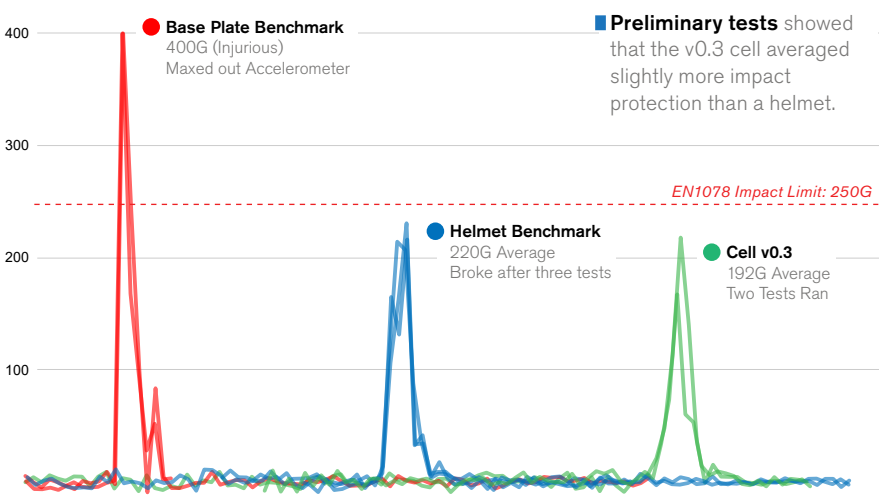
EN1078 Standards
Guided Freefall
5.42 – 5.52m/s Velocity
Impact Criteria: <250G
500kg Monolithic Base



Rig base was too light, and as a result the entire rig would bounce depending on where it was tested.

Click to play on Vimeo

Drop Test Results



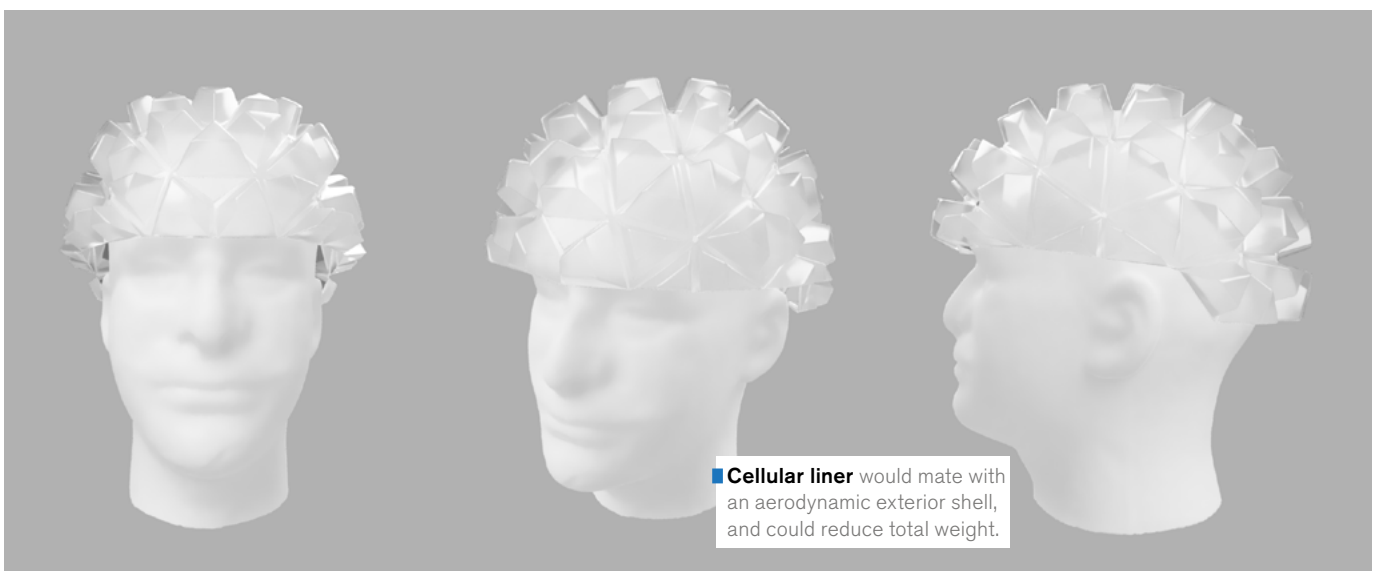
Preliminary tests showed that the v0.3 cell averaged slightly more impact protection than a helmet.

Drop Test Rig

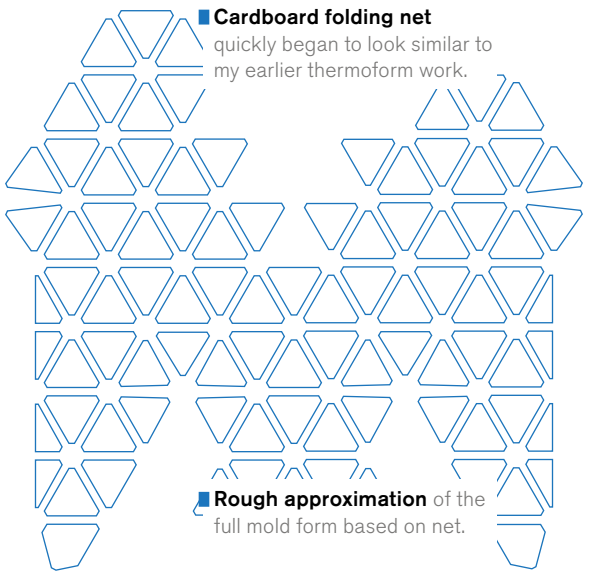
2021

It was advised by my tutors that I construct a means of validating my ideas through physical testing. This, I felt, was right within my skill set and started drafting something I could reasonably construct within the EN1078 helmet certification. My drop test rig has a drop-distance of just over 1.5 meters and uses a high-range accelerometer to measure impact.

The biggest flaw of the rig in its current state is that the base is not heavy enough, and has a tendency to bounce when cycled under the full 5kg load. Due to resource constraints I would not be able to produce, store, and manage the recommended 500kg monolithic steel or concrete base as outlined in the EN1078 specifications. Another workaround is almost certainly possible, however.



Cellular liner would mate with an aerodynamic exterior shell, and could reduce total weight.



Cardboard folding net quickly began to look similar to my earlier thermoform work.

Rough approximation of the full mold form based on net.

Impact Cell Helmet Liner

2021

Above is a rough approximation of what a thermoformed liner might look like without a typical aerodynamic shell found on nearly all bicycle helmets. The helmet itself would feel, look, and function as an ordinary bicycle helmet, though perhaps with an allusion to its liner construction on the exterior shell.

New Skills

- Product Autopsy
- Designing/Testing to Standards
- Physics Engineering
- Complex Folding Structures
- High-speed Data Collection
- Thermoforming Engineering

Key Lessons

- In Design Research nothing is small.
- There is a heavily blurred line between Product Design and Engineering.
- Design research can start with a local context and expand to any scale or direction.

Artificer Dice

2020

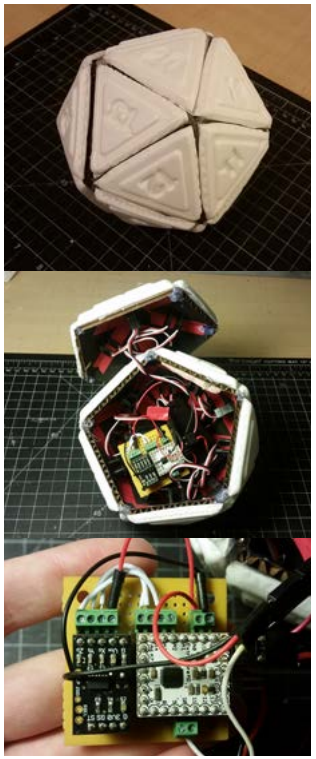
Artificer Dice are polyhedral die that feature light animations used in tabletop games that require a twenty-sided die (d20). By tossing the die either to themselves or another player, light and sound will animate to signify their “roll”. Initially conceived as a means of elevating the significance of the twenty-sided die in D20 systems for newer players I was pleased to discover its ability to take the game away from the tabletop to a more casual setting, allow for more emphatic acting out of a scene, and bring another level of immersion and ritual to player experience. Future iterations will include various themes, sound effects, and integration with wireless devices.

Artificer Dice: Demo Reel

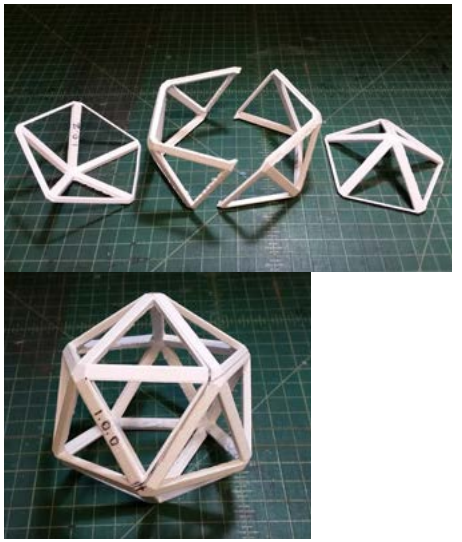
2020

Artificer Dice are polyhedral die that feature light animations used in tabletop games that require a twenty-sided die (d20). By tossing the die either to themselves or another player, light and sound will animate to signify their "roll".

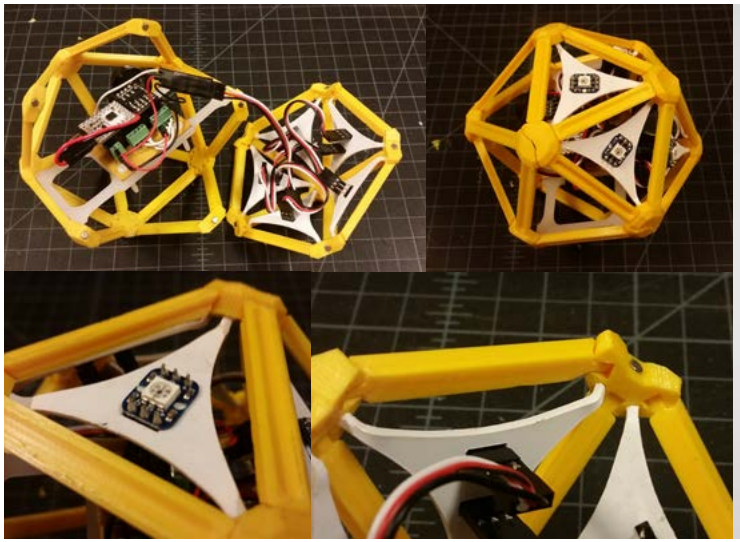
"It really looks like a powerful magical device!"
—Jean Simonet
Pixels Dice, Lead Designer



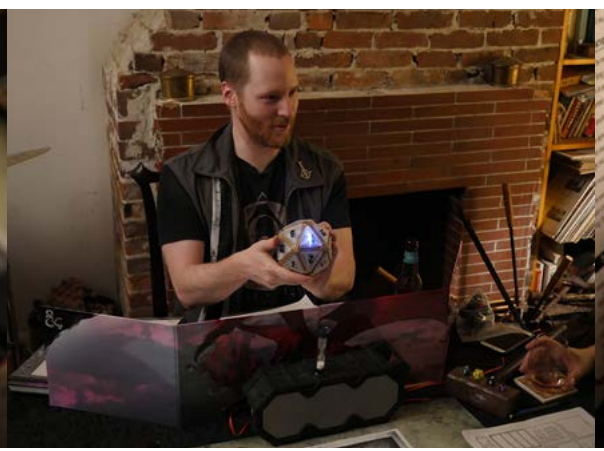
Prototype v0.0
Cardboard and Polyethylene Foam, no internal fixtures. Minimal electronics including only an Arduino and Accelerometer.

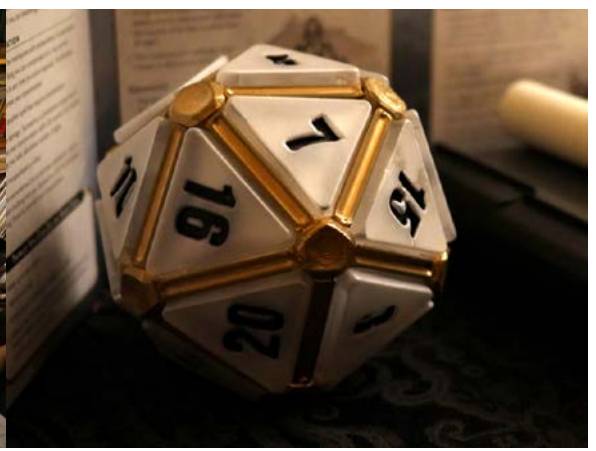


Prototype v1.0
Explored how the Icosahedron Frame could be broken up into injection-moldable parts.



Prototype v1.2.0
"Mortise and Tenon" design utilized edges and vertices that snapped together. Included internal mounts for electronics and LED's.





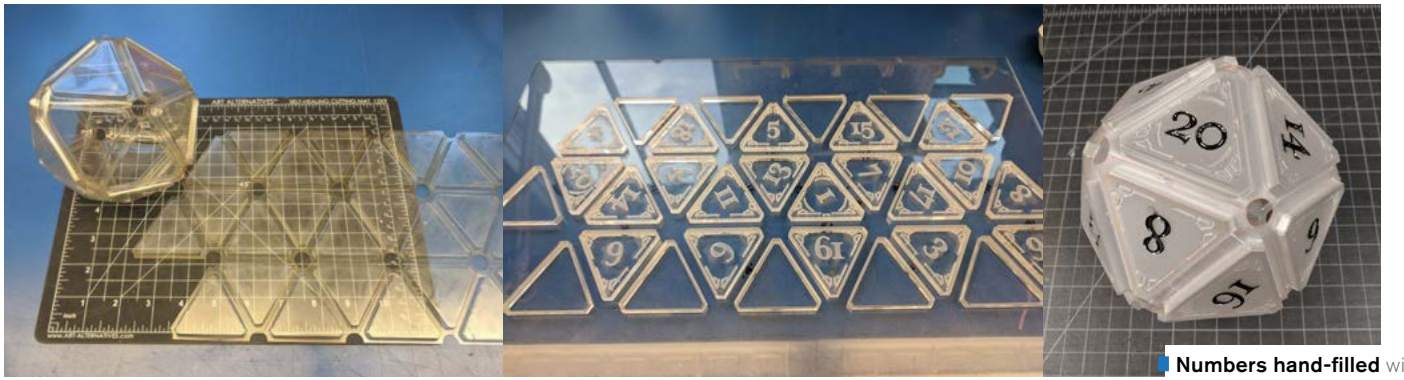
Behind the DM Screen
The Artificer Dice in its natural habitat, ready to become the catalyst for adventure.

Artificer Dice: Prototyping

2020

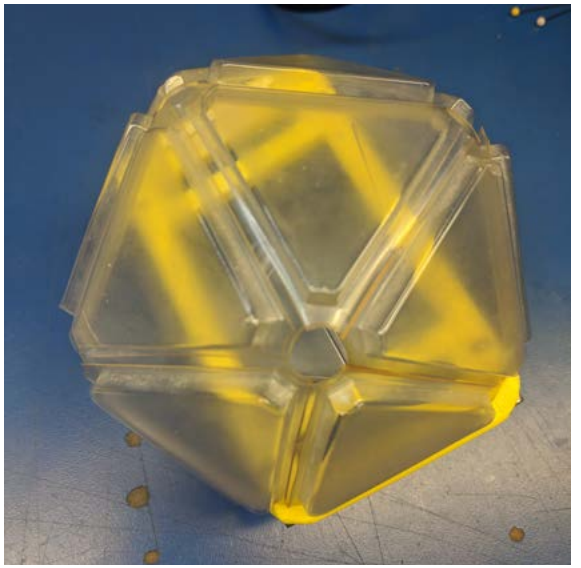
Due to the difficult shape of the Icosahedron I wanted to figure out how I could produce the form in multiple injection-moldable pieces—ultimately settling on a "mortise and tenon" construction akin to the K'nex I used as a kid. While not perfect, they allowed me to get closer to what a fully realized product would look like.

The first playtest with friends revealed the whole object needed to lighter and more structurally sound, as many of its faces failed to stay in place while handling.



Folding Net developed to create form out of single piece of material with faces that nested together.

Numbers hand-filled with specialized glass paint with a medical-grade micro-pipette.



Transitional Hardpoints
Allowed the internal mounts for the electronics to integrate with exoskelatal structure.

Prototype v2.0
Folding net developed to create form out of single piece of material.

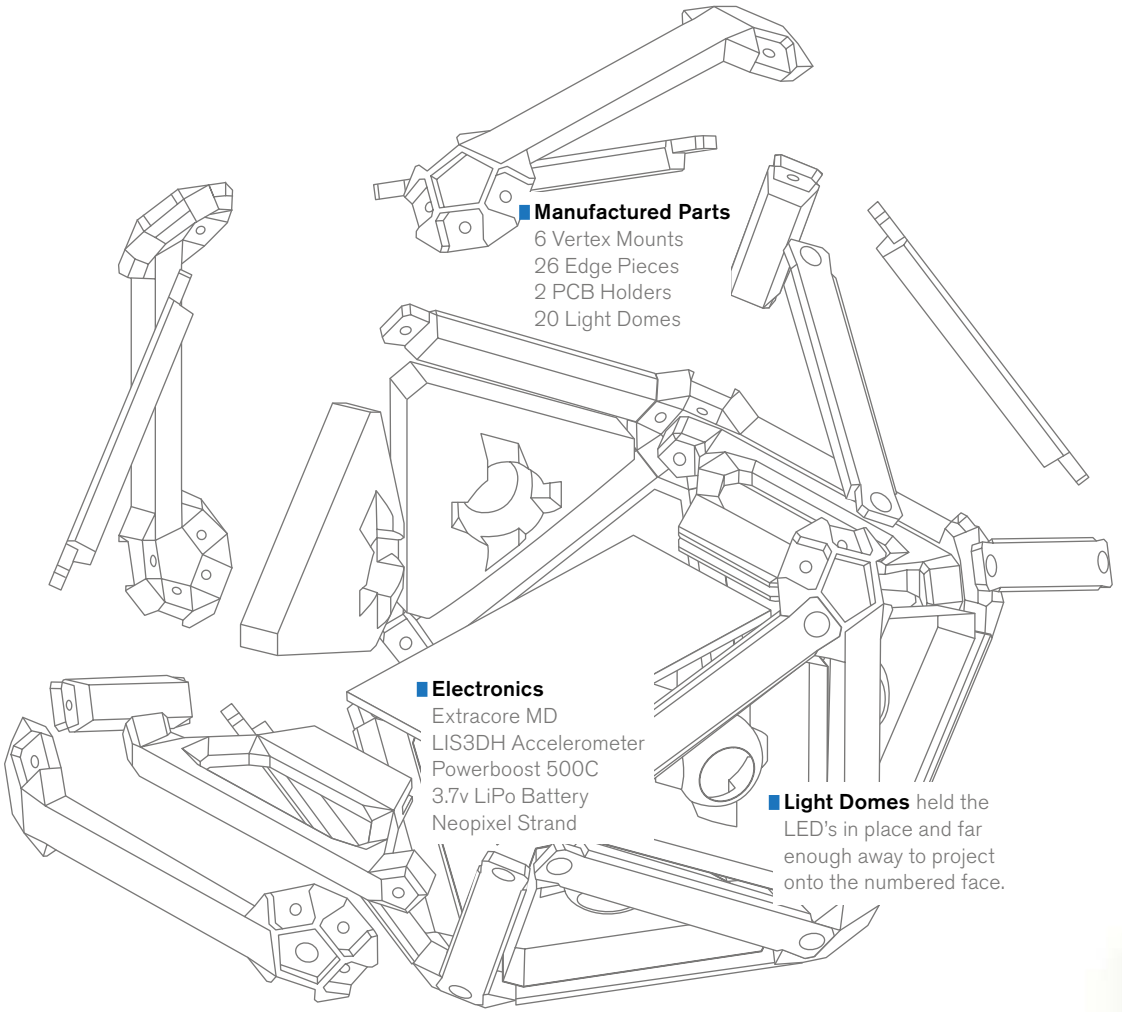
Lights Out Testing the lighting revealed that isolating each LED with an opaque material would make each roll result more clear.

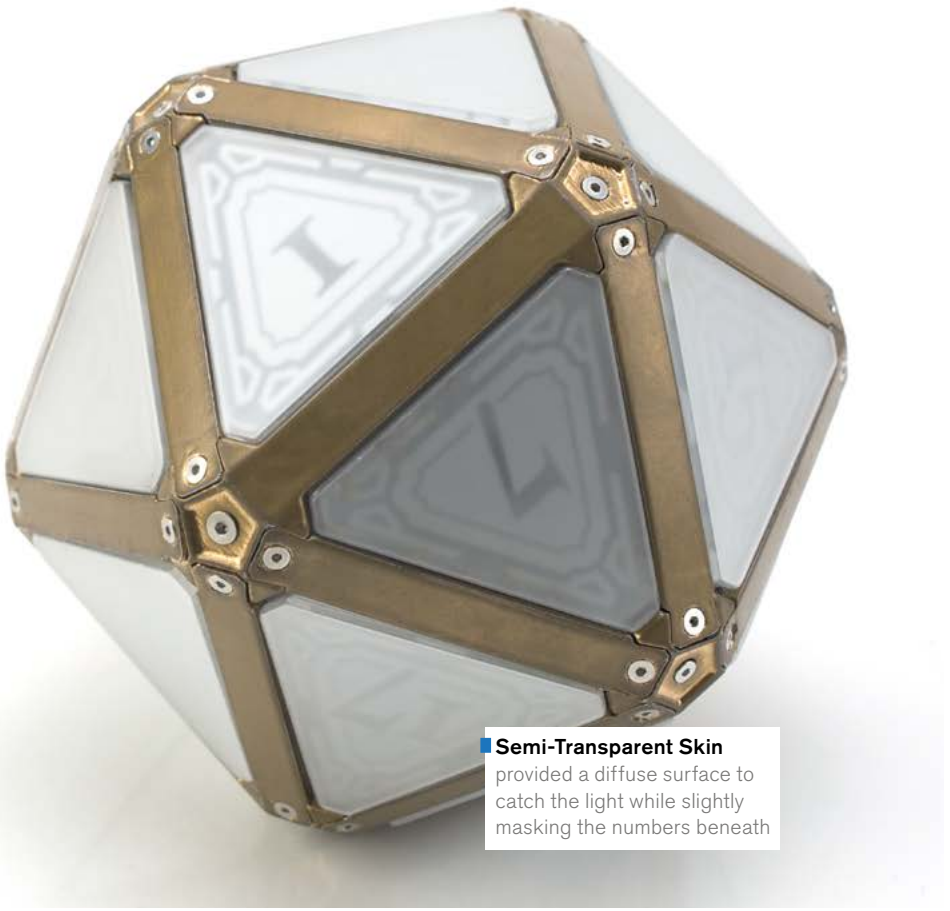
Three Generations
Two years, dozens of lessons learned, countless hours.

Artificer Dice: Prototyping

2020

Thermoforming was integral to the production, as I had discovered how to make a folding shape with molded faces that nested together—fully enclosing the Icosahedron. This provided an obvious avenue to design and produce an exoskeleton that could provide external structure and carry visual themes to really sell the idea that this is an arcane device.





Artificer Dice: Construction

2020

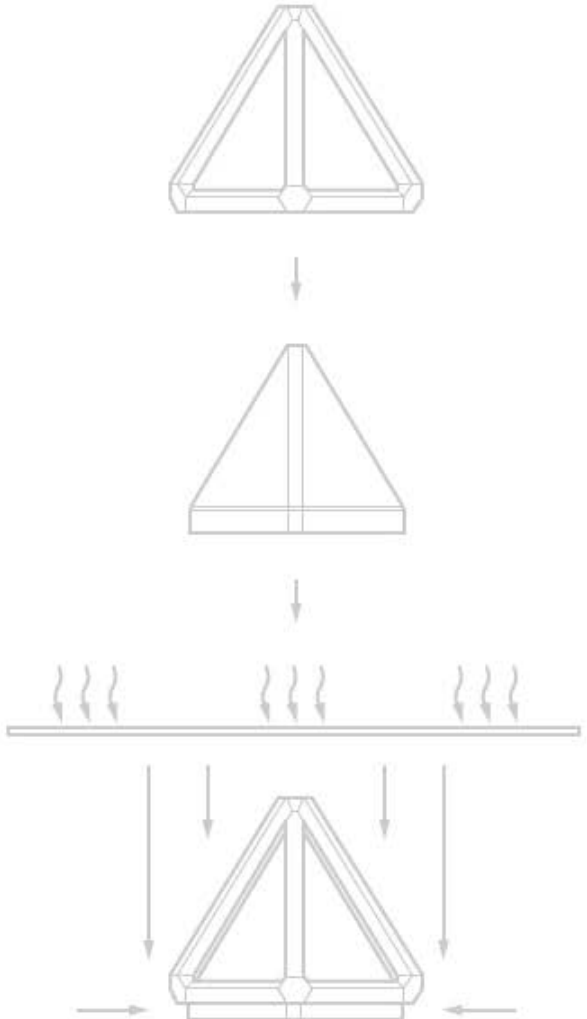
All of the components were designed with injection-molding in mind, and are held together with screws—a solution I hope to minimize in the next round of development. I would also like to move to flexible PCB's to decrease the overall weight and allow for more internal space for additional modules such as a speaker, sound board and Bluetooth.

New Skills

- Complex Assemblies
- Advanced Electronics
- Advanced Thermoforming
- Lighting Pattern Programming
- BOM Management

Key Lessons

- Sometimes Design is a series of surprises waiting to be discovered.
- Document prototypes as they are finished, then pull recover the most successful parts and reuse them in the next iteration.
- The backend production of a project makes the frontend more efficient.



Semi-Transparent Skin
provided a diffuse surface to catch the light while slightly masking the numbers beneath

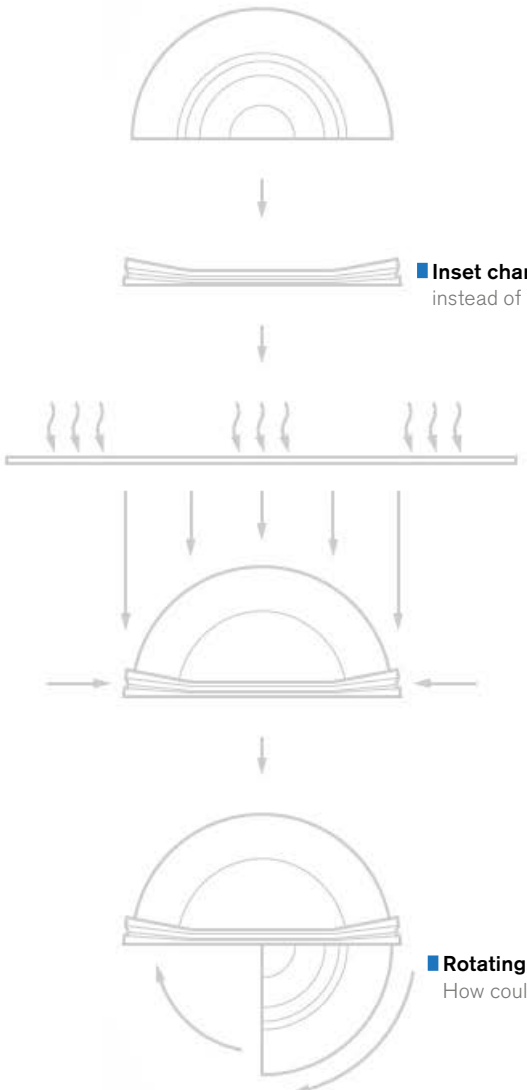
Insert Molding Study: Tetrahedron

2020

In exploring fabrication of vacuum-formed shapes, I stumbled upon the method of inserting deliberately over-molded components that are designed to hold their place in the mold substrate. My studies started with basic geometric forms, then worked up to a proof of concept for a potential product fabricated solely in this manner.

The Tetrahedron is the simplest of regular polygons, and was the subject of my first study. A simple base was made from a partially-truncated polygon, then a separate frame extruded from its edges. Both parts were 3D Printed and formed out of polystyrene.

While the object does not serve any immediate purpose it was the basis of my further explorations and revealed much about the process as a whole. The part is lightweight and has added structural rigidity from the 3D Print. Formed out of a clear substrate like PETG may result in an interesting light diffuser for a larger polyhedral composition.



Inset channel grabs material instead of over-molded edge.

Rotating de-molding action
How could it be automated?

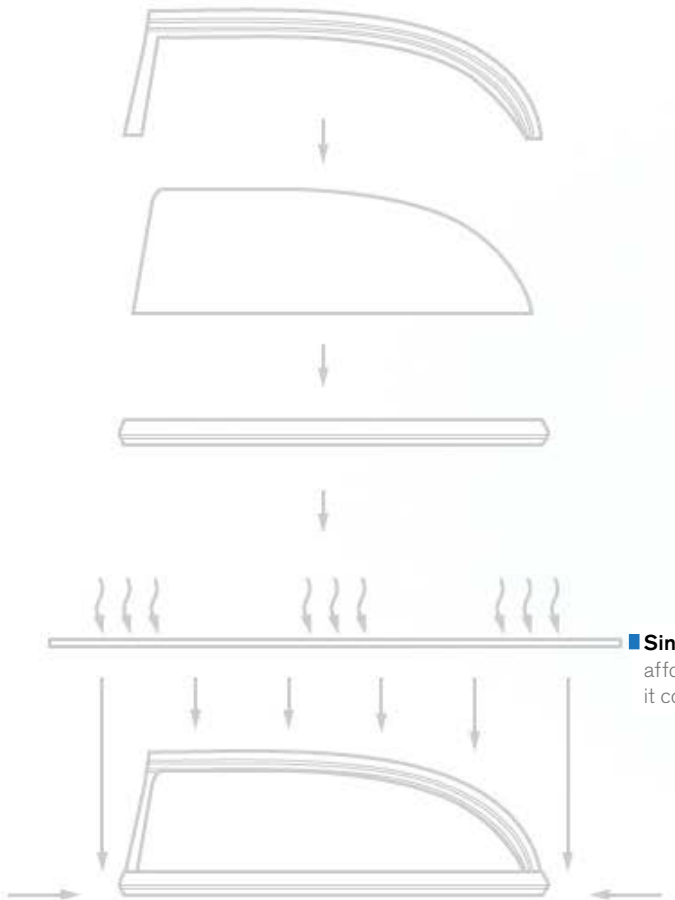
Insert Molding Study: Axial

2020

Working away from conventional shapes, I explored forms that require rotational or twisting actions in order to de-mold. A toroid with its pivitol axis at the center made for the perfect object to explore the action, and a similar frame out of its circumference was designed to pull the mold substrate in.

Smoothness of action was key to the piece working as conceived, so extra precautions were taken to coat the black mold form in a smooth durable that would hold up to the heat of the vacuum forming process.

The de-molding action is smooth and produces a clean top surface on the formed styrene part. I envisioned this as a wall sconce, which may exceed the limitations of this fabrication process—but the de-molding action could be replicated to fit a variety of industrial processes.



Single-sheet construction affords watertightness as soon as it comes off the thermoformer.

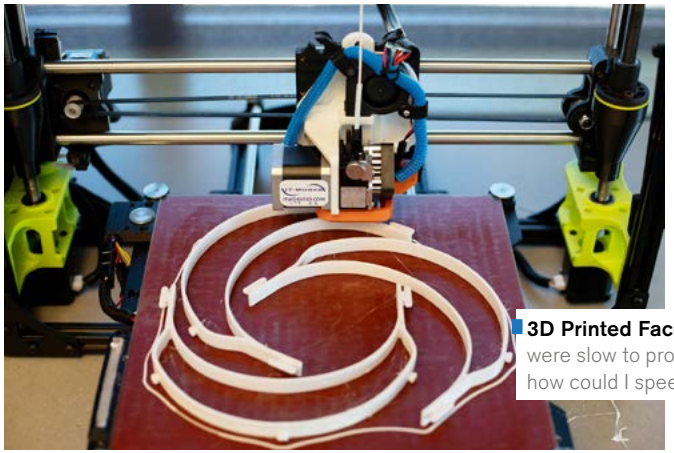
Insert Molding Study: Boat

2020

Exploring practical uses for this working method I considered objects that would require structural rigidity, light weight, and be easily replicated with injection molded parts. A small boat was the simplest object I thought of.

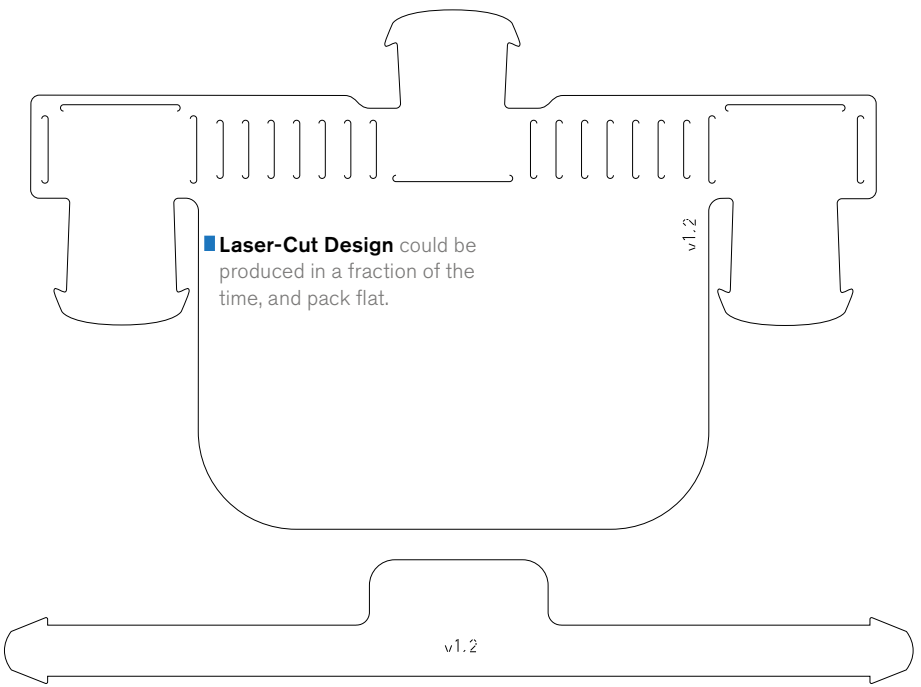
The gunwales, stern and keel were designed without overhangs like the previous pieces so they could be easily reproduced any number of ways, and the hull mold form was given similar treatment to the Axial study to achieve a smooth mold surface.

Apart from being immediately watertight all parts are held together by the pressure of the mold substrate alone with virtually no play. Scaling this method could result in the rapid production of small seaworthy vessels.



3D Printed Face Shields were slow to produce, how could I speed it up?

Source: Lifesaving Face Shields for Health Care Workers are Newest 3D-Printing Project at UCSF



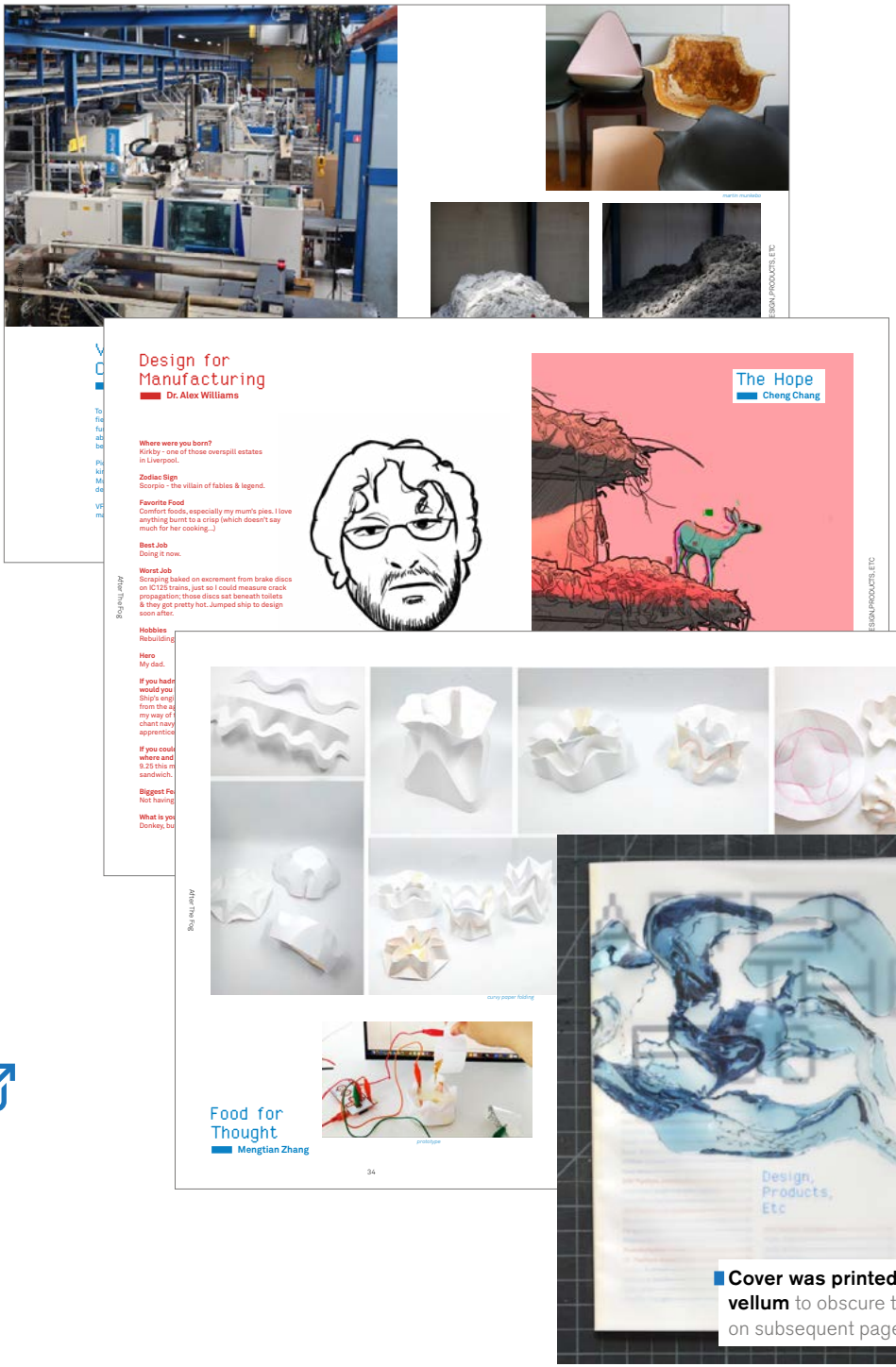
Laser-Cut Design could be produced in a fraction of the time, and pack flat.

Ear flaps folded up to protect wearer and provided comfort.

Laser-Cut Face Shield

2020

Using a roll of Medical-Grade Polycarbonate, I explored ways to cut, bend, and fold that could make a comfortable and adjustable face shield. After uploading my design on Social Media it gained the attention of a number of my friends in the medical field, and met with Dr. Jinen Thakkar of Kent Hospital to get a sense of how it could be improved. The shield can be cleaned and reused as long as needed, was lightweight, fog-resistant, and surprisingly comfortable. It has three folds, two above the ears to prevent chafing against the sharp edge of the Polycarbonate, and one at the forehead to allow for ventilation and prevent fogging. Approximately 250 were produced with the material I had, and was planning to outsource production to a local Die-Cutter, however suitable material became scarce, and could not be sourced.



Click to read on Issuu

Publications

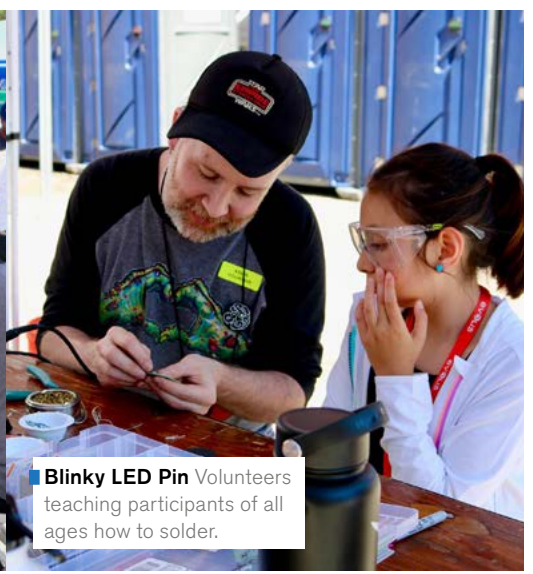
2021

There were a number of past student-led publications that did not have a team to produce them in the 2020/21 academic year in the RCA Design Products programme. I offered my Layout Design and Management skills to make them happen. *2MD* was hosted as an online publication, and *After the Fog* was printed and shipped to students and their families all over the world.

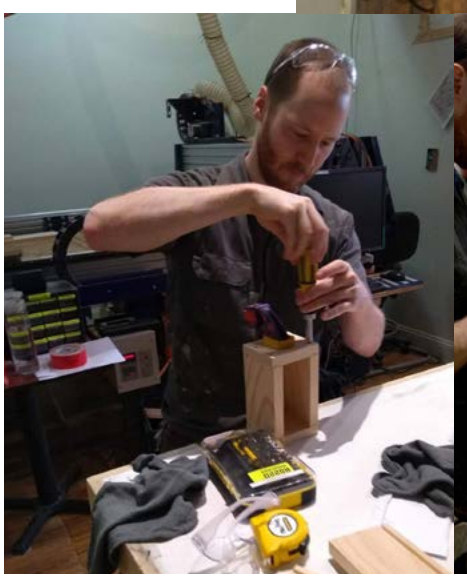
Cover was printed on vellum to obscure the text on subsequent pages.

3D Printing Demo to showcase a newly acquired Dual-Extrusion printer and the objects it makes.

Beginner Woodworking taught students how to build a basic box with fundamental joinery techniques.



Blinky LED Pin Volunteers teaching participants of all ages how to solder.



Workshops + Events

2016–2020

Through AS220 Industries I had regular opportunities to showcase our resources through public workshops and citywide art events, often aided by a handful of volunteers. These included Electronics, 3D Printing, Woodworking, and Thermoforming. As Facilities Manager I was in charge of orchestrating the setup, breakdown, and organization, and operation of public events in which our equipment was brought offsite.

Participants assembled masks out of 3D printed facial features and cardboard templates.

Maskmaking

2016–2018

Thermoformed masks were part of past events hosted by AS220 Industries, however when were donated a new 3D Printer and Formech 300XQ I took the initiative to reintroduce the activity to our public events with 3D Printed Facial Features rather than flat cardboard ones. They were an instant success, and became a mainstay of our event programming for several years.

Multimedia assemblage used as the basis for an illustration that was silkscreened on to flocked styrene.

Silkscreened poster was colored by participants before being formed on the thermoformer.

3D Poster

With Keri King — 2018

Working with the Artist in Residence, Keri King, we designed a poster mold form out of toy parts, and used that as the basis for an illustration that was then screen-printed onto flocked styrene. Participants then colored the poster before it was molded on the thermoformer. Overall, this was far more entertaining than the masks of previous years.

Bolt Coffee
2019 + 2020

The Nitro Bar
2018 + 2019

Blank Space Collection
2018

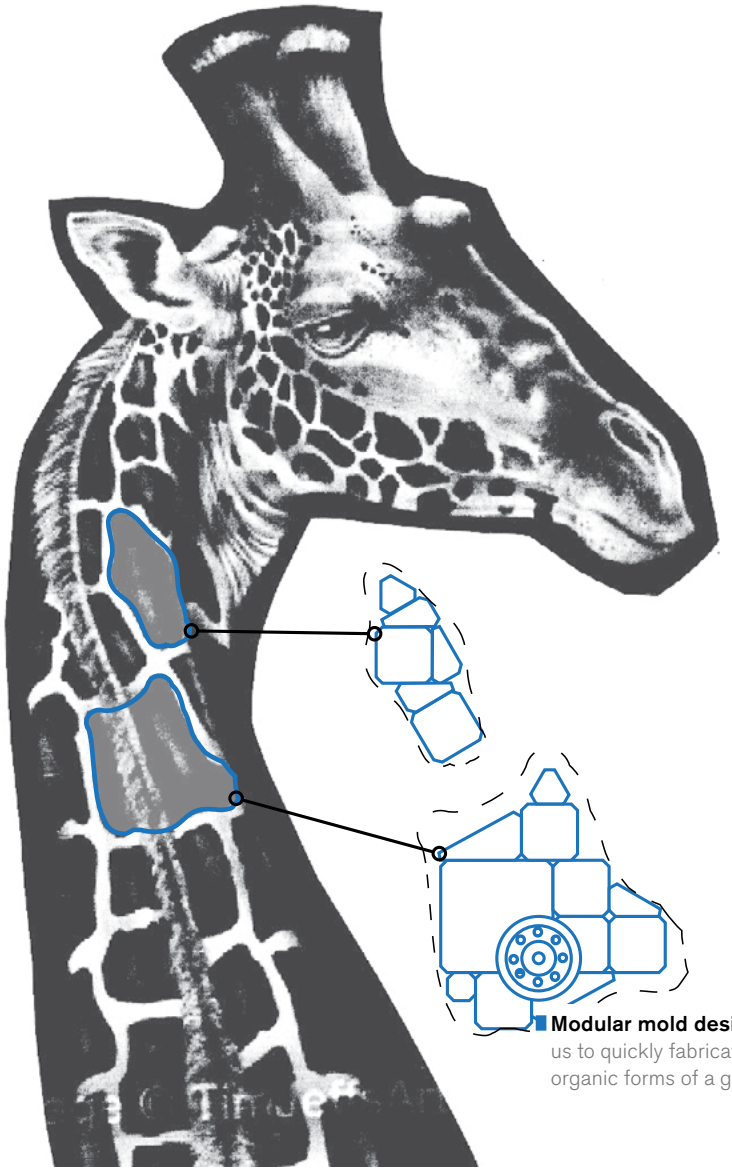
Free Play Bar Arcade
2018

Jamison King
2018

Signage

2018 – 2020

One of my more frequent freelancing projects was signage design and production for local businesses in and around Providence, Rhode Island. Signs were often exterior, though ended up with the odd occasion to create an interior lighted sign.



Modular mold design allowed us to quickly fabricate the unique organic forms of a giraffe's spots.

Polyethylene Foam formed and cooled quickly, affording rapid production of a variety of shapes.

Production ran until their debut performance at Electric Zoo Music Festival in Sao Paolo, Brazil.

Big Nazo: Electric Zoo

With Big Nazo — 2017

I met Erminio Pinque, Artistic Director of Big Nazo, right before he took on a project to produce a trio of Bio-Mechanical Animal Puppets that were to debut at Electric Zoo 2017. Having recently acquainted myself with the new thermoformer and accompanied Polyethylene Foam he was interested to know what it could do. After a demonstration and a chat, Erminio hired me as Production Artist to design and produce parts for his vision.

I had a significant hand in the design and fabrication of most of the detail components, and assisted with the production—which was fast-paced, rigorous, and pushed to the last minute before the puppets shipped to Sao Paolo for their debut performance.

Big Nazo: Electric Zoo

With Big Nazo — 2017

The Giraffe performer used stilts and crutches to simulate the lumbering of a bio-mechanical zoo animal. The head of the giraffe would loom and swing over the crowd.

Hidden crutches in the forearms afforded the performer better overall stability.

Jumping stilts gave the monkeys a spring in their step, and more vibrant dance moves.

Big Nazo: Electric Zoo

With Big Nazo — 2017

The monkeys were outfitted with jumping stilts to make their movements more animated and vibrant. The lower build gave the performers much more flexibility and dynamism.

Daily Observations

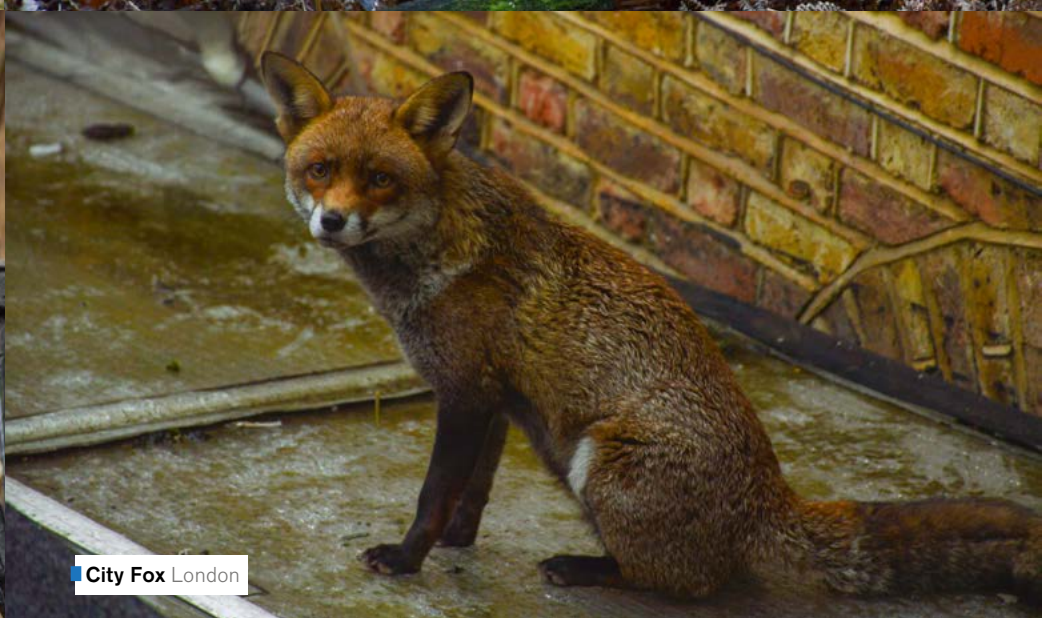
Ongoing

I look for patterns and evidence of clever thinking, unique interactions, innovative functions, processes, systems, and amusing juxtapositions and failures. Mechanisms that improve the way we interact with artifacts and the world around us, and were given close attention to fluidity of use. Sharp contrasts in form and texture, especially of the natural kind, are of particular interest to me.

American Painted Turtle Raymond, Maine

Grey Squirrel Richmond, London

Tower Raven London



City Fox London

Natural Observations

Ongoing

Historically impatient and occasionally dependent on thorough order (two of my many faults), Wildlife Photography became a means of forcing myself to take pause and exist intuitively in the chaotic moment, and develop my sense of aesthetic knowledge.

Maintaining footing through the muck, being as quiet and slow as possible, keeping the camera gear protected, paying attention to your surroundings, steadying your breath, considering lighting, angle of approach, and composition, all while trying to keep the subject in-focus. I was able to adapt the same breathing and stabilization techniques I learned from Marksmanship to photography, bringing a semblance of familiar order to a chaotic, unpredictable environment.

Active Indoor play needs space and a means of shaping the environment to your own imagination.

Source: Buzzfeed, How The Nugget Couch Became Supreme Drops For Moms

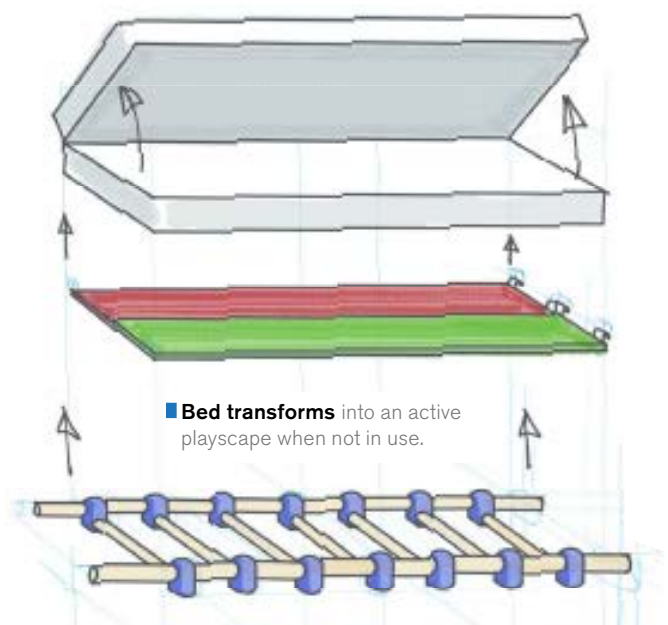
Source: Montikids, Indoor Gross Motor and Climbing Toys for Montessori Homes

What is the Future of Play in Urban Communities when access to public spaces is restricted?

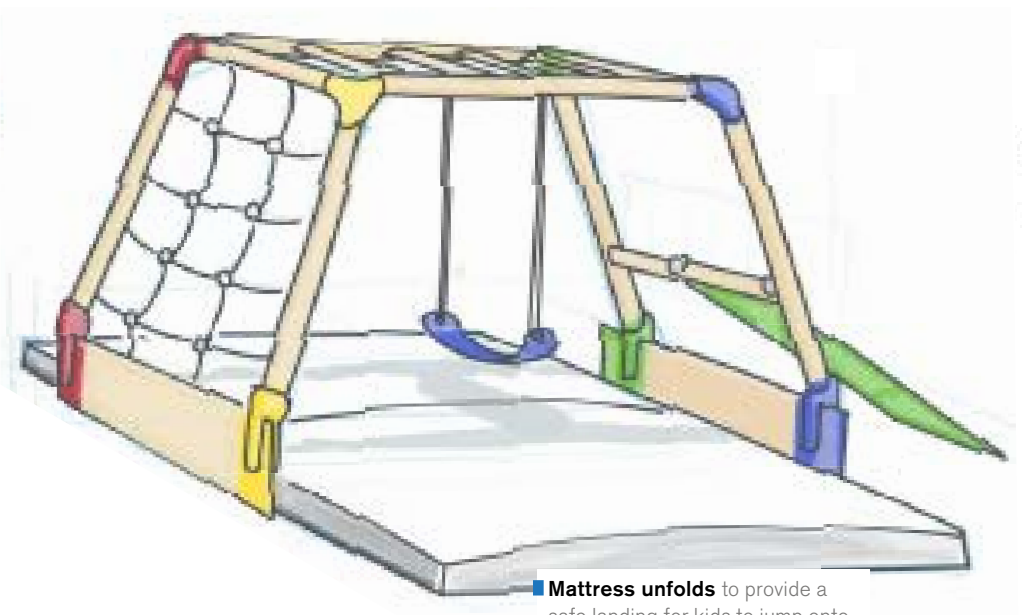
Source: Mountain Method Kids Bouldering Crash Pad

Risk Assessment factors into how a child's sense of danger develops, and allows more varied physical activities and playscapes.

Source: Anjiplay, Cas Holman



Bed transforms into an active playscape when not in use.



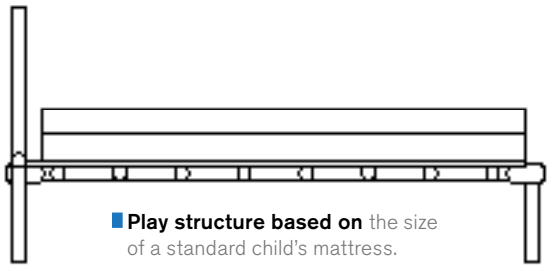
Mattress unfolds to provide a safe landing for kids to jump onto.

Passive Space Active Play

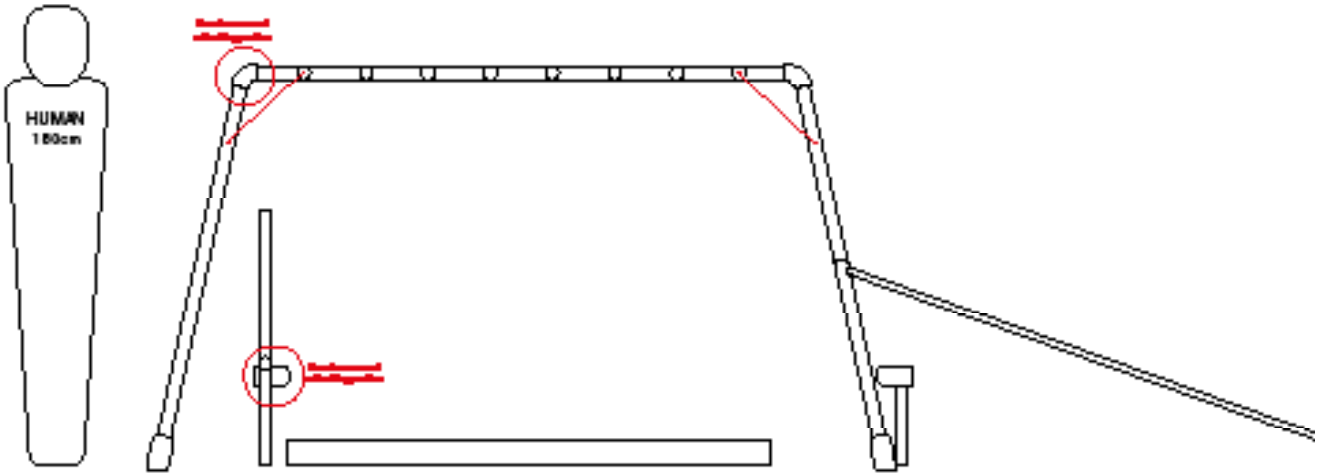
2020 – Ongoing

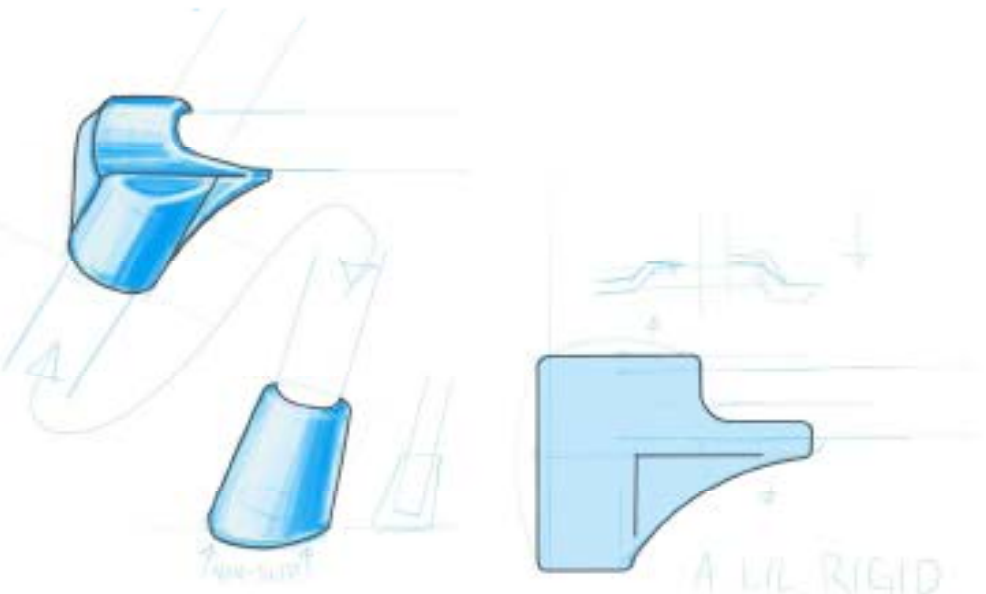
The Pandemic, and more extreme weather events brought on by Climate Change will keep children indoors for longer periods, cutting off a much needed outlet of physical activity. How can essential physical play be done indoors, with limited space? It wasn't until I looked at my bed while working at my desk that the idea struck me...

A child is only in their bed for a portion of the day, why couldn't that space be used as a play area when they can't play outside or at a playground?



Play structure based on the size of a standard child's mattress.



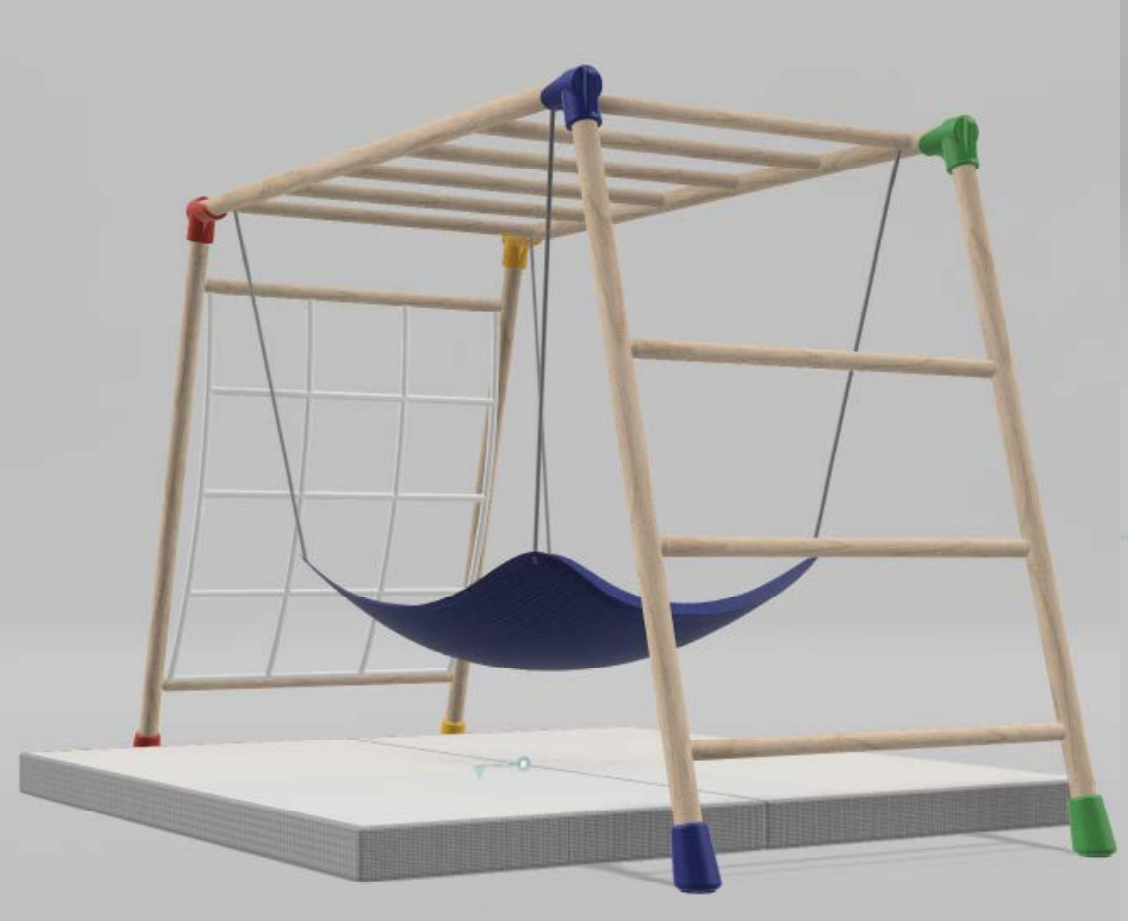


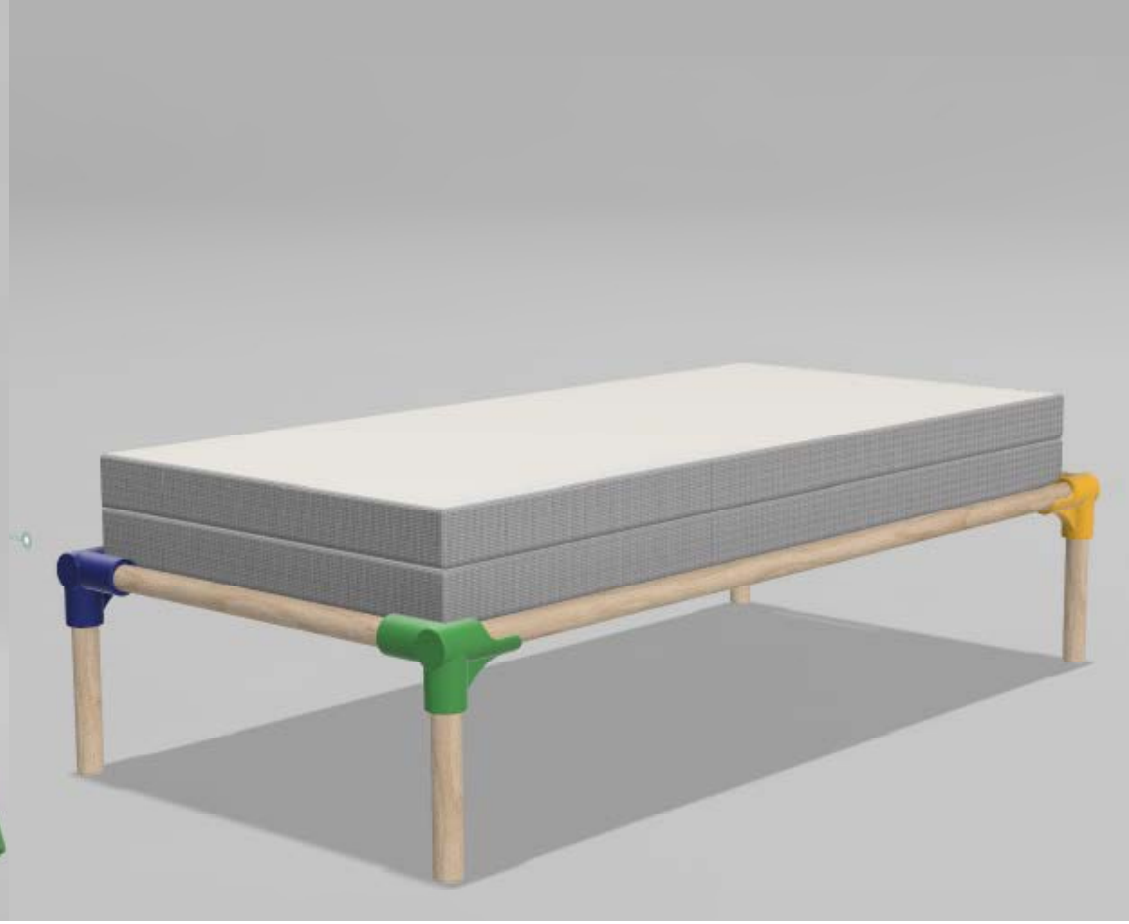
Additional modules such as a swing or hammock could be added through simple hooks to hang off of the play structure.

Passive Space Active Play

2020 – Ongoing

The whole structure is based around a standard child-sized mattress. Key factors in its further development are safety, structural stability, ease of use, and FUN! The open-ended nature of play could lead to the development of additional modules and thematic elements to tailor the play structure to whatever the child desires.





"Would encourage cleanliness, 'You need to clean the floor if you want the playground.'"
—Nick + Charlie (3 y.o.)

"Not high enough!"
—Allison + Milo (6 y.o.)

"Like camping in your room; making a nest!"
—Kristen + Scarlett (7 y.o.)

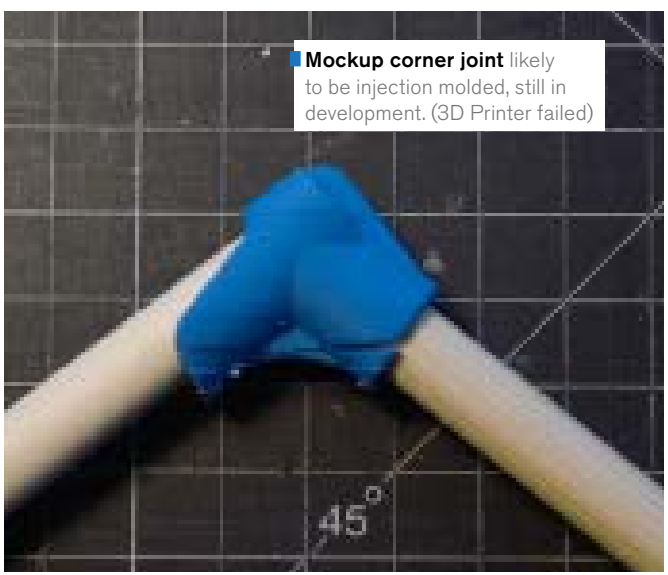
"I would climb up and be a pirate, the mattress would be the water!"
—Kimi + Oona (3 y.o.)

"All play worth playing has a little bit of a dangerous element. It's a little mini adventure for them."
—Kaela + Gus (3 y.o.)

Passive Space Active Play

2020 – Ongoing

Once the idea was cohesive enough I presented it to a number of my friends with children ages 3-7. I asked about how they have been handling play over the past year of the pandemic, and they offered insight in how active play has adapted for indoor spaces. When their child was present they would excitedly tell me how they would interact with the play set, opening an entire realm of playful creative exploration.



Mockup corner joint likely to be injection molded, still in development. (3D Printer failed)