



## Winning works and finalists' profile

**EMBARGO:**

**29-Jan**

**CET 10:00**

**JST 18:00**

**This pack includes:**

- ❑ Main image of design works
- ❑ Additional images of design work
- ❑ Finalists' portraits & Profiles
- ❑ Description of design works

**How to use the pack in each region.**

- Contact key media / journalists, influencers to write/post about LDA2020 to create momentum online.
- Post images and description onto region's website as well as social media platform.

**TITLE:**

# Bio.Scales

**A modular, carbon sequestering air filtration system assembled from robotically 3D printed biopolymer scales.**



## □ Designer: Sutherlin Santo (USA)

Paul and Garrett Sutherlin Santo are designers from Downtown Los Angeles. Their work seeks to project a future where design's connection to nature and technology are symmetrical by exploring the relationship of emerging digital processes, ecologically engaged materials, and traditional craft.

## □ ABOUT THE WORK

More than half of the world's population is concentrated in urban environments; by 2050, the UN projects that number to reach nearly 70%. As those urban populations increase so will the concentration of pollution. Sutherlin Santo see the development of products that benefit the environment as a matter of immediate necessity.

Bio.Scales are a modular air filtration system designed to be reconfigurable and scalable with minimal maintenance. Using a custom algorithm that translates 2D images into 3D robotic toolpaths, Bio.Scales are printed to exacting aesthetic and structural specifications. Each compostable scale is made from a biopolymer material that extracts and stores carbon dioxide and other harmful compounds. Bio.Scales are intended to accumulate into an interlocking, hanging system or be arranged in an array on open surfaces like walls and columns. The modular components ensure versatility, increasing the product's lifespan and reducing waste.

Bio.Scales are a step away from inert products, toward materials that serve our growing environmental requirements. They can be customized and printed using commercially available equipment by consumers, bridging the gap between designer, technician, and craftsman. Bio.Scales foresee a time when consumers are allowed increased engagement with products and their inherent environmental and health impacts.

How does the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?

**Anticipate.**

Bio.Scales anticipate a near future in which ecologically engaged materials are imperative to help us reach an equilibrium with our environment, replacing the inert, polluting materials we've become accustomed to. This project foresees a time when the availability of 3D printers and desktop robotics allows consumer products to be custom designed, printed, and disposed of at home. The modular design increases the lifespan of the product by being reconfigurable; allowing Bio.Scales to adapt to different homes, and even changes in aesthetic preferences.

**Innovate.**

Design of the Bio.Scales system was concurrent with the development of the biodegradable polymer gel and digitally controlled extrusion process for precise 3D printing. This sophisticated material is a composite of varying performative (structural, filtration) and aesthetic (color, opacity, texture) qualities designed with the same level of control and intention as the product for which it is formulated. This level of control is achieved through the digital analysis and simulation workflow we designed to translate 2D image data into 3D toolpaths that control the robotic/CNC equipment. The physical material and digital information are synched into Bio.Scales' leading-edge process.

**Captivate.**

Bio.Scales represent a cultural shift that encourages a revitalized relationship between the production of materials, our health, and the environment. This shift comes with a richer value in the connection of aesthetics, personalization, and engagement with our natural world.

Most consumer products' lifecycles are delineated between design, fabrication, and the eventual consumer's use and disposal of that product. This process seeks to disrupt that cycle, creating a circular economy for a consumer product; consumers take ownership of Bio.Scales to a greater degree than most currently available products, determining their design, their fabrication, their use, and their eventual disposal.

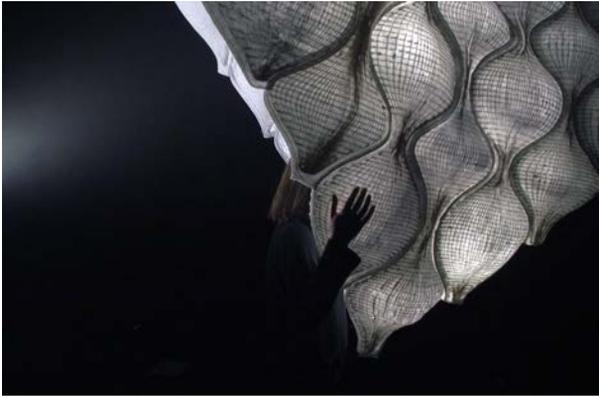


**TITLE:**

# Feltscape

---

A breathing felt cloud which interacts with people and space to enhance well-being.



## □ Designer: Théophile Peju & Salvatore Cicero

Théophile Peju (France), Salvatore Cicero (Italy) / Based in United Kingdom

Théophile Peju & Salvatore Cicero are architectural designers based in London. They graduated from the Bartlett School of Architecture - UCL, where they pursued research on textile composite materials. Their design approach, through hands-on experience, combines traditional craftsmanship and innovative robotic fabrication techniques.

## □ ABOUT THE WORK

Feltscape is a breathing cloud made from felt and thermoplastic that captures noise and customizes interior acoustic and lighting qualities. It aims to develop a technical textile by combining thermoplastics with industrial felt, beginning with additive manufacturing as a process for creating composite materials.

The textile is reinforced by extruding fibers of polymer materials by using robotic additive manufacturing. Through the work, a new technique called 'push and print' has been developed. The combination of the fiber placement with the forming process is the novelty of this method. The robot places the filament by pushing the felt at the same time, freezing the fabric into a final shape. Furthermore, since this technique is moldless, bespoke double-curvature shapes can be easily achieved without the use of expensive and wasteful molds.

The composite is lightweight, self-supporting, and its performance-informed reinforcement pattern can be designed according to requirements like structural behavior or choreographed movement. This lightweight felt cloud can be easily installed and, due to the reinforcing pattern, can eventually change its shape. Feltscape exploits generative design and parametric tools to precisely adjust the object to the characteristics of different spaces and to user requirements.

How does the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?

### Anticipate.

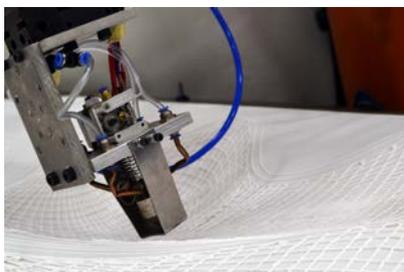
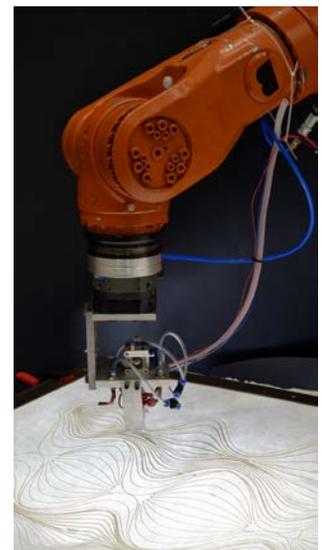
In modern society, quality of working environment is crucial for workers' well-being. A loud, noisy atmosphere impacts upon employees and has been linked to tiredness, lack of motivation, concentration, and a decrease in productivity. Moreover, poor acoustic qualities can also trigger stress and anxiety, which slowly but inevitably affects employees' physical and mental health. Stressed employees are vulnerable to high blood pressure, headaches, digestive disorders, ulcers, and hypertension. Feltscape aims to tackle this workplace stress by adjusting its shape and acoustic absorption properties with the use of sensors. When Feltscape detects a user's presence, it breathes to make their day more relaxing.

### Innovate.

Nowadays, additive manufacturing combined with computational design and materials engineering allows the fast production of bespoke artefacts that respond to specific needs. Felt is widely used in industry, where it often undergoes thermoforming processes with the use of a mold. Feltscape's innovation is the development of a moldless forming process for bespoke flexible shapes. This technique can be implemented for multiple scales and materials. By changing the thermoplastic filament, new behaviors can be achieved that are directly connected to the final performance required. Feltscape changes the way felt is formed and used in the field of product design, for example, acoustic absorption.

### Captivate.

Feltscape is a captivating organic object, seeming to be a cross between a high-tech device and a living organism. It's a breathing object that interacts with the environment that surrounds it and performs according to people's movements. Its behavior is responsive and aims to enhance human well-being. In a quiet empty place, the object is flat, gloomy, and asleep. Upon sensing a human presence, it wakes up, gently undulates, and slightly illuminates. Once surrounded by dynamic active workers, Feltscape breathes and shines, interacting as a relaxing feature.



**TITLE:**

# Flash Pak

---

**A smart survival apparatus that protects young students and helps them stay together in flash floods.**



**□ Designer: Yaokun Wu (China / Based in USA)**

Yaokun Wu is an industrial design student at Pratt Institute in Brooklyn, New York. He feels grateful for everything he has and wishes to use design to help people who need it most. He believes design is everywhere, but only that which brings people warmth will never be forgotten.

**□ ABOUT THE WORK**

Flash Pak is a smart inflatable PFD (Personal Flotation Device) designed specifically for groups of students whose schools are in regions where flash floods are prevalent. The Flash Pak is stored at schools with easy access for each student and would be distributed to students during an emergency evacuation. It is designed to be comfortable, fit close to the body, and be easy to put on and operate. The design utilizes key features including: an individual mesh-network device, a haptic navigation system, and a flotation device.

Imagine the piercing sounds of an emergency warning system interrupting a classroom of students. The students run out the door unsure of where to go to reach safety. There is a risk of getting lost or left behind in the commotion. Parents and teachers are worried about the safety of their children.

As the emergency unfolds, students are guided to safety through haptic cues synchronized with LED lights that indicate the direction to safety. In the case of getting caught in high water, each device inflates to create an individual floatation device; however, several Flash Paks can also be strapped together to create a raft. The mesh-network unit allows the students to connect and add nodes to an emergency communication system.

How dose the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?

**Anticipate.**

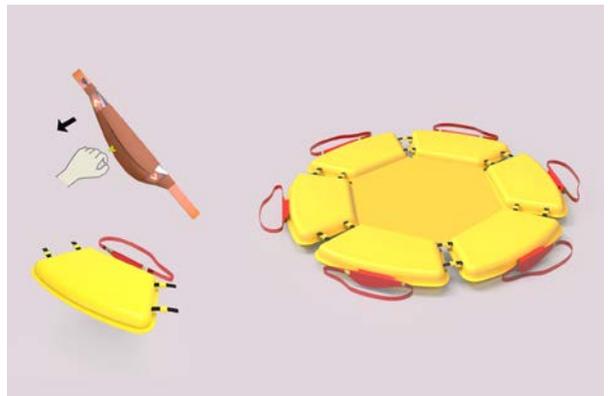
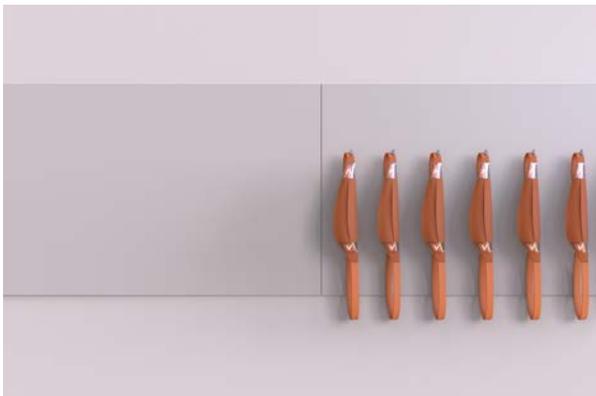
Extreme weather events are increasing, due to climate change and global warming causing some cities to face heavy rainfalls and flash floods. We need new tools to respond to critical situations that are happening more frequently, especially in areas of Southern and Eastern China, India, Bangladesh, etc.

**Innovate.**

Flash Pak is designed to be there when needed, to use haptic signaling and geo-location to help students navigate to safety and for school officials and parents to locate their children. Flash Pak is a building block in building a larger flotation device. The mesh-network units become part of a much larger emergency communication system that would be activated during a weather emergency, in the event that other systems fail.

**Captivate.**

Flash Pak is focused on saving the lives of children in extreme conditions and is light weight with smart functionality. The students would receive training on the use of the system in order to be prepared during an emergency. These drills could be fun and offer an opportunity to teach team building skills. Teachers would distribute Flash Pak vests and help guide the students to safety.



**TITLE:**

# Lick

A portable body cleaner for humans with a unique cat's tongue surface.



## □ Designer: Irina Samoilova (Russia)

Irina Samoilova is a product & furniture designer. She is currently studying for a master's degree at Moscow State Stroganov Academy of Design and Applied Art in the furniture design department. Before starting a new design, she first studies animal shapes and how such forms already work in nature.

## □ ABOUT THE WORK

Lick is a portable body cleaner that helps people who do not have the opportunity or access to bathe or shower. It has a shell in which the main mechanism and containers with liquid are hidden. The soft body inside the shell is the tongue which rotates. It's soft, resilient, and can take the form to which it is pressed. This way you can thoroughly clean areas such as between your fingers or armpits. The most exciting thing is the texture of the rotating tongue. The tongue has villi, as on a cat's tongue which perfectly capture liquid and impurities on the skin. The villi on the roller will help wash even a surface with hair.

Lick will help take care of bedridden patients. Also, it is small and easy to carry in a bag, so you can take it on a trip, on a hike or even use it in uncomfortable temperature and humidity.

How dose the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?

### **Anticipate.**

With increasing rate of ageing population worldwide there will be more people who will be bedridden, Lick will assist caregivers in taking care of their patients. Also, its small, carry-friendly size allows it to be easily stowed in bags, to be taken on trips where it's hard to bathe or shower. Lick allows you to stay clean anywhere even just use it in uncomfortable temperature and humidity.

### **Innovate.**

Lick is like a multifunctional mini bathroom at your fingertips. The portable body cleaner has villi like a cat's tongue that rolls and captures clean water from a container. It then strokes across the skin cleaning it and returns the dirty water to another container. Also, an ionizer is installed inside, so that you do not have to use soap.

### **Captivate.**

Lick has an organic form inspired by nature. The most exciting aspect is the texture of the rotating tongue, which is soft and resilient, and can take the form to which it is pressed. This way you can thoroughly clean areas such as between your fingers or armpits.



**TITLE:**

# Open Source Communities

---

A project exploring the future of smart sustainable communities in developing countries using open-source home plans.



## □ BellTower (Kenya)

(John Brian Kamau, Joyce Wairimu Gachiri, Ian Githegi Kamau, Esther Wanjiku Kamau and Arvin Booker Kamau)

BellTower was established in 2014 with the vision of using open source systems and technologies to solve problems. They came together to create a team with skills in Risk Management, Information Technology, Design, Project Management and Strategy to build an open-source community model for personal, corporate and industrial needs.

## □ ABOUT THE WORK

The initial plan is to address challenges often found in developing communities; a lack of affordable housing, combined with the poor nutrition of residents due to high rates of unemployment. The plan is to start with a design that provides ways of replicating sustainable food, housing, energy and a healthy society using open-source blueprints.

Although still in the concept phase, pre-existing, open-source assets will be utilized to provide the basic home designs, to which other open-source designs will be introduced to incorporate all related living infrastructure needed to realize community connectivity, agriculture, health and well-being. For example, furniture designs, aquaponics greenhouse designs, hydronic stoves, solar photovoltaic systems, and bio digesters are all planned to be incorporated. All these designs are energy efficient, environmentally friendly (sustainably designed, built of green or recycled materials) and comfortable for family life. For connectivity open-source hardware and cloud software platforms would be implemented.

**How dose the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?**

**Anticipate.**

The provision of housing that makes home life easier to maintain is a common goal globally. These open-source plans would provide a cost-effective and efficient way of creating a sustainable and simple society.

**Innovate.**

A smart city means a smart, cost-effective, and efficient community. It allows for the proper combination of all open-source hardware and software solutions to automate everyday tasks, save time and money, and propose ways of improvement quickly.

**Captivate.**

The open-source plans may be incorporated into existing buildings and homes to provide multiple solutions to problems that societies face globally, and their open-source nature also allows them to be used in the planning of new homes and communities.



**TITLE:**

# Pursewit

---

An accessible sewing machine that incorporates sewing skills to assist in income generation for the visually impaired.



**□ Designer: Aqsa Ajmal (Pakistan)**

Aqsa Ajmal, Industrial Designer, graduated from National University of Sciences and Technology. She is steered by her belief in design as a problem-solving tool, devising relationships between ideas and reality. Through her tangible interaction and firsthand experiments in design, she looks forward to improving connections between people and products.

**□ ABOUT THE WORK**

In Pakistan approximately 45% of the working population works in the textile industry. However, the visually impaired can sometimes face additional obstacles when seeking employment in this industry even though Pakistan has a rich culture and history of sewing. It can become more difficult to take advantage of opportunities and can sometimes get in the way of realizing one's full potential. Pursewit provides an easier way to incorporate sewing skills into income generation, with increased reliance upon touch and other senses to make use of the machine more intuitive. The thread path is much more simplified and streamlined; the user follows a straight, outlined path from the spool pin to the machine's arm and through a loop, then down to the needle. The machine provides feedback at each step to ensure the process is completed.

**How does the work make the world a better place considering 3 judging criteria (Anticipate. Innovate. Captivate.)?**

**Anticipate.**

2.5% of the Pakistani population are visually impaired and creating additional income streams for this segment of society could positively affect their personal life and contribute to GDP growth. This initiative could affect communities at large. Involvement at a general level may lead to increased awareness at a political level, spurring financial support for the project and help in its advancement. The government is investing in projects like these to create more employment opportunities. Non-profit organizations are supportive of projects like these and invest in them. International grants and funds can be used to buy these machines and install them in sewing centers.

**Innovate.**

Pursewit is a sewing machine designed to create additional employment opportunities for the visually impaired. Keeping in mind future advancements, incorporating technology into a sewing machine designed for the visually impaired can assist with performing all the actions via sensory references and audio feedback. Assistive technology can help provide new social networks to both visually impaired and sighted people. The project aims to provide for the visually impaired, bolstering self-reliance and independence.

**Captivate.**

Pursewit incorporates heightened sensory awareness (like touch or hearing) into design, simplifying sewing machine use. Each component of the product is recycled and reused which will reduce environmental impact. The product aims for a circular economy and has benefits such as reducing environmental burden, improving the security of the supply of raw materials, stimulating innovation, and creating job opportunities.

