A total of 88 pieces were accepted through the peer review process for showcasing in the 2020 ITAA Virtual Design Exhibition. There was a very enthusiastic response to the Call for Design Entries; 76 professional designs were submitted with 44% accepted; 40 graduate designs were submitted with 45% accepted; and 73 undergraduate designs were submitted with 50% accepted. Each abstract with associated images was reviewed by a double-blind jury and was evaluated on: (1) contextual review and concept; (2) aesthetic properties and visual impact; (3) process, technique, and execution; (4) cohesion; and (5) design contribution and innovation. Each undergraduate student entry was reviewed by two jurors, while professional and graduate student entries were reviewed by three jurors. Acceptance or rejection for the ITAA Design Exhibition was based on the jury’s scores in relation to these criteria. Further, a panel of industry experts reviewed submissions and award eligibility of entries.

**PAY IT FORWARD: CREATIVE DESIGN IN ACTION**

**ITAA DESIGN COMMITTEES**

**Catalog Editor:** Chanjuan Chen, University of North Texas  
**Vice President of Scholarship:** Elena Karpova, University of North Carolina at Greensboro

**Design Exhibition Committee**  
**Chairs:** Colleen Moretz, West Virginia University  
Mary Simpson, Western Michigan University

**Design Awards Committee**  
**Chair:** Sheri Dragoo, Baylor University

**Reviews of Design**

**First Review**  
**Co-Chairs:** Casey Stannard, Louisiana State University  
Laura Kane, Framingham State University

**ITAA Review Members:**  
Theresa Alexander, University of the Incarnate Word  
Insook Ahn, New Mexico State University  
Su Kyung An, Central Michigan University  
Rachel Anderson, Texas Tech University  
Laurie Apple, University of Arkansas  
Judy Aultman, SUNY Oneonta  
Angela Bacskokey, Virginia State University  
Sandy Bailey, Missouri State University  
Jeremy Bernardoni, Louisiana State University  
Melanie Carrico, University of North Carolina at Greensboro  
May Chae, Montclair State University  
Chanjuan Chen, University of North Texas  
Deborah Christiansen, Indiana University  
Amy Dorie, San Francisco State University
Second Review
Award Judges:

**Finley Moll** is an American fashion designer, businesswoman, and philanthropist who was born, raised and educated in Texas. After earning a degree from UNT in fashion design, she and business partner, Heather McNeill, met while working for a sportswear label in Dallas, and transitioned to build a startup business, Finley Shirts in 1995. As co-founder and Fashion Director, Finley focuses on feminine, crisp, tailored and fun designer shirts for women, sold through Neiman Marcus and numerous other fine fashion establishments. By continuing to design and manufacture in Dallas, the Finley Shirt is the standard for impeccable workmanship and unsurpassed quality control.

**Jane Sampson** is a designer and businesswoman who currently serves as CEO of Janeen Home, and as Director of Global Sourcing at RJaneen Designs, LLC. She was formerly Senior Production/Sourcing Manager for Design Source International, and Product Developer and Production Manager for Sharon Young. Jane earned her degree in 2007 from Texas Woman’s...
University, entering the design field as assistant designer and building her career in production management and sourcing. She has created two successful companies, RJaneen Designs, a luxury wedding and bridal resource with a creative, diverse and globally inclusive approach, and her new business, Janeen Home, founded in 2019, selling home related textile products to retailers including Hobby Lobby, HomeGoods, and other online companies.

Rebecca Ellis is a Dallas based creative designer and entrepreneur with over 35 years of diversified experience in design, manufacturing, and sales and marketing. She is the owner and head designer at Rebecca Ellis Crosses, a business startup in 1997 that has expanded from its origins of wire wrapped crosses made from discarded bailing wire from family pastures, wood, and leather embroidered styles, to globally sourced contemporary collections. The company launched at Cash and Carry at the Dallas Market Center and quickly expanded to market representation of multiple lines for the past 18 years. Rebecca earned her degree from Baylor University in apparel design and began her career designing custom bridal gowns and special occasion apparel and has continued to service exclusive clientele through her custom designs.

Creative Design Awards

Undergraduate:
ATEXINC Award for Excellence in Marketable Textile Design
“Wandering but Not Lost”, Jenna Critchlow; Mentor: Li-Fen Chang, University of North Texas

Claire Shaeffer Award for Outstanding Marketable Design
“Salvaging the Value of Textile Waste”, Irma D. Villanueva; Mentor: Saemee Lyu, California State Polytechnic University, Pomona

Optitex Technology Award - Undergraduate

“Nebulous”, Rachel Dugger, Kelly Grogan & Dani Hall; Mentor: Yingying Wu, Kansas State University

Graduate:
ATEXINC Award for Excellence in Marketable Textile Design
“Fish Fin Flowers”, Sunhyung Cho; Advisor: Ling Zhang, Iowa State University

French European Inc. Innovative Design Award
“Pathfinder”, Bingyue Wei; Advisor: Ling Zhang, Iowa State University

French European Inc. Innovative Design Award
“Shelter in Place Convertible Poncho”, Jessie Silbert; Advisor: Susan Sokolowski, University of Oregon

French European Inc. Innovative Design Award
“Fjord Sub Zero Impact Protective Wakeboarding Wetsuit”, Kyle Forsdick; Advisor: Susan Sokolowski, University of Oregon

ITAA Award for Creative and Innovative Employment of Techniques
“Flowing Lines on the Fabric”, Li Jiang; Advisors: Ling Zhang, Iowa State University and Su An, Central Michigan University

ITAA Award for Innovative Design Scholarship
“Hardwater Parka”, MC Smith; Advisor: Susan Sokolowski, University of Oregon

University of Fashion Sustainability Award
“Collision”, Lynda Xepoleas; Advisor: Denise Green, Cornell University

Optitex Technology Award - Graduate
“Twisted Plane”, Li Jiang; Advisors: Ling Zhang, Iowa State University and Su An, Central Michigan University
**CONCEPTUAL & EXPERIMENTAL, pages 10-22**

**Application of Virtual Reality Technology to Inspire Apparel Design**
Samirah Alotaibi, University of Nebraska-Lincoln
Advisor: Sandra Starkey

**Phosphene**
Grace Feely, Auburn University
Design Mentor: Young-A Lee

**Lipstick on His Collar**
Lauren Forstenhausler, Cornell University
Design Mentor: Fatma Baytar

**The Year of Magical Thinking: The Suddenness of Grief**
Nikola Janevski, West Virginia University
Advisor: Angela Uriyo

**No Borders**
Ruby Jones, Cornell University
Design Mentor: Fatma Baytar

**Growing a Baby Bump**
Kendra Lapolla, Kent State University; and Chanjuan Chen, University of North Texas

**Strange Fruit**
Sophia Luu, Iowa State University;
Design Mentor: Ling Zhang

**Fight or Flight**
Rebecca Nelson, Iowa State University
Design Mentor: Ling Zhang

**Chartreuse is the Ugliest Color**
Maren Ogg, Cornell University;
Preparation for the Storm
Parker Redfern, University of Wisconsin-Stout
Design Mentor: Jongeun Rhee

Falling Upward
Kelly Kay Reynolds, University of Wisconsin-Stout
Design Mentor: Jongeun Rhee

Hardwater Parka
MC Smith, University of Oregon
Advisor: Susan Sokolowski

FUNCTIONAL CLOTHING, pages 23-33

Jacket for Upper Body Immobility Using a Wrapping Process
Kate Annett-Hitchcock, North Carolina State University

Abbraccio (Hug)
Julia DeNey, Cornell University
Design Mentor: Denise Green

The Velox Rain Jacket Weatherproof Apparel for Women’s Wheelchair Racers
Sarah Klecker, University of Oregon
Advisor: Susan Sokolowski

Empowered to Beach
Addie K. Martindale, Georgia Southern University

Drengr: Women’s Compression Performance Apparel
Dawn Michaelson, Baylor University; and Sarah Gascon, Auburn University

Adaptive Casual Shoe for Ankle Foot Orthotic Users
Julie M. Orlando, Adriana Gorea, Katharine Orlando, and Michelle A. Lobo, University of Delaware

Sameness and Differentness while using a Wheelchair: A Custom Lab Coat to Fit in
Katya Roelse, University of Delaware

Functional Shawl Apron
Sherry Schofield, Florida State University

Shelter in Place Convertible Poncho
Jessie Silbert, University of Oregon
Advisor: Susan Sokolowski

Spire to Wear
Raquel Ventura-Lopez and Felicia Bello, University of Delaware
Design Mentor: Adriana Gorea

HISTORIC & CULTURAL REFERENCE, pages 34-45

Retaining Ethnic Identity in the Apparel Design of Modern Saudi Dress
Samirah Alotaibi, University of Nebraska-Lincoln
Advisor: Sandra Starkey

As My Name
Su Kyoung An, Central Michigan University; Hae Joo Lee, College for Creative Studies; and Hope May and Natalie Zainea, Central Michigan University

The Novel Pourpoint
Anne Bissonnette, University of Alberta

United in Love
Chanjuan Chen, University of North Texas

Fish Fin Flowers
Sunhyung Cho, Iowa State University
Amazonian Insects
Sara Cho, University of North Texas
Design Mentor: Li-Fen Chang

Wedding Jumpsuit
Katelyn Otto, Iowa State University
Design Mentors: Ellen McKinney and Sunhyung Cho

Drowned Maiden, A Sustainable and Contemporary Take on 16th Century Scottish Fashion
Cambria Sinclair, University of Wisconsin-Stout
Design Mentor: Jongeun Rhee

Untitled Incarnations of Art
Sarah Woods and Melanie Carrico, The University of North Carolina at Greensboro

READY-TO-WEAR, pages 54-64

Vanishing Ice
Chanjuan Chen, University of North Texas

Cape Dress: Interpreting a Historical Style through Modern Inspiration
Lillie DeVries, Iowa State University
Design Mentors: Ellen McKinney and Megan Romans

Nebulous
Rachel Dugger, Kelly Grogan, and Dani Hall, Kansas State University
Design Mentor: Yingying Wu

 Blitz
Lauren Forstenhausler, Cornell University
Design Mentor: Huiju Park

Pen Umbra
Lauren Forstenhausler and Audrey Perlman, Cornell University  
Design Mentor: Huiju Park

Wearing the Artistic Tradition of Dancheong and Nubi  
Hyun jung Ji, Dae-Kyung University; and Insook Ahn, New Mexico State University

Ice Wine Adaptive Down Parka  
Kristen D. Morris, Colorado State University

Bell Sleeve Meets Elegance: Two-piece Lace Garment  
Destinee Palimore, Iowa State University  
Design Mentor: Ellen McKinney

Alexis  
Arielle Simmons, Western Michigan University  
Design Mentor: Mary Simpson

Azure  
Qiyao Xiong, Iowa State University  
Design Mentors: Ellen McKinney and Sunhyung Cho

SURFACE DESIGN, pages 65-76

Grey Matter  
Heather Apgar, San Francisco State University  
Design Mentor: Amy Dorie

Po Mo  
Madelyn Bunn, Iowa State University  
Design Mentor: Ling Zhang

Weaving for Justice  
Kim Hahn and Evelyn Rossol, Kent State University

Cradle-to-Cradle Denim: Fringed Dress and Poncho Design  
Fatimah Hakeem, California State University, Northridge  
Advisor: Jongeun Kim

Blue Nights: The Complexity of Grief  
Nikola Janevski, West Virginia University  
Advisor: Angela Uriyo

Flowing Lines on The Fabric  
Li Jiang, Central Michigan University;  
Advisors: Ling Zhang, Iowa State University; and Su Kyoung An, Central Michigan University

Twisted Plane  
Li Jiang, Central Michigan University  
Advisors: Ling Zhang, Iowa State University; and Su Kyoung An, Central Michigan University

Mother  
Sophia Luu, Iowa State University  
Design Mentor: Ling Zhang

Sacred and Profane  
Della Reams, Miami University of Ohio; and Larry Rushing, Temple University

Pathfinder  
Bingyue Wei, Iowa State University  
Advisor: Ling Zhang

Yellowstone Impression  
Ling Zhang, Iowa State University

SUSTAINABILITY I, pages 76-85

The Boro Kimono  
Emily Krull, Auburn University  
Design Mentor: Young-A Lee
Three-In-One Gown  
Cassidy Burel, The University of North Carolina at Greensboro  
Design Mentor: Haeun (Grace) Bang

Be True  
Donna-Marie Cecere, Framingham State University

Cast On Cast Off II  
Li-Fen Anny Chang, University of North Texas

Repurposed Bustier Dress  
Sunhyung Cho, Iowa State University  
Advisor: Ellen McKinney

Three Times Saved: Repurposing Interior Textile Samples to Duvet Cover to Tailored Sleeveless Jacket  
Carol Engel-Enright, Colorado State University

On-Demand Swatcher Coat  
Chanmi Hwang, Washington State University

Memories  
Xuena Pu, Columbus College of Art & Design  
Design Mentor: Suzanne Cotton

Vivid Punk  
Victoria Sales, The University of North Carolina at Greensboro  
Design Mentor: Haeun (Grace) Bang

Gloaming Color Change Exploration in 3D Printed Garments  
Kawthar Alibrahim, University of Idaho  
Design Mentors: Chelsey Lewallen and Lori Wahl

Wandering but Not Lost  
Houndstooth Upcycle  
Jung Eun Lee, Virginia Tech

Reinventing the Windbreaker: Windbreaker Hanbok  
Saemee Lyu, California State Polytechnic University, Pomona

Wearing Many Hats: A Green Approach to Accessories Design  
Mona Maher, Texas Tech University  
Advisor: Rachel Anderson

Collision  
Lynda May Xepoleas, Cornell University  
Advisor: Denise N. Green

Spiraling into Design Inspiration  
Colleen Moretz, West Virginia University

Macchia Spiral Into Zero-Waste Times Two  
Colleen Moretz, West Virginia University; and Sandi Keiser, Mount Mary University

Farm to Fashion: Suri Alpaca with Spiral Patternmaking  
Mary Ruppert-Stroescu, Washington University in St. Louis; and Jeremy Bernardoni, Louisiana State University

Salvaging the Value of Textile Waste through Scratchboard Etching  
Irma D Villanueva, California State Polytechnic University, Pomona  
Design Mentor: Saemee Lyu

SUSTAINABILITY II, pages 87-96

Infinity  
Haeun (Grace) Bang, The University of North Carolina at Greensboro

SUSTAINABILITY II, pages 87-96
Jenna Critchlow, University of North Texas
Design Mentor: Li-Fen Chang

**BioCouture for Future Focused Fashion**
Janda van Dyk, Jordan Smith, Kirsten Thieman, and Lizeth Ramirez, Kent State University
Design Mentors: Margarita Benitez, Diane Davis-Sikora and Chris Blackwood

**Fjord Sub Zero Impact Protective Wakeboarding Wetsuit**
Kyle Forsdick, University of Oregon
Advisor: Susan Sokolowski

**Sorbet Sunrise**
Karis Foster, Appalachian State University

**Vegan Tea Leather Cocktail Dress for Sustainable Fashion Industry**
Shu-Hwa Lin, Savanah Adler, Ailee Antipala, Savana N. Lendrum, and Maddison R. Zadina, University of Hawai`i at Manoa

**Send Me All the Flowers**
Krissi Riewe, Kent State University

Jordan Smith, Janda van Dyk, Kirsten Thieman, and Lizeth Ramirez, Kent State University
Design Mentors: Margarita Benitez, Diane Davis-Sikora and Chris Blackwood

**Infinite Vitality: 3D Printed Hooded Sweatshirt**
Lushan Sun and Tianyu Cui, The Hong Kong Polytechnic University; and Veena Chattaraman, Auburn University
Conceptual & Experimental

ITAA 20
This project was a part of a larger study that evaluated the incorporation of technology in apparel design classrooms. VR technology provides a means to explore a variety of simulated experiences including art, travel, and cultural interactions. VR for this project enabled an experience similar to an educational field trip through the use of a computer, specifically, utilizing design apps to create a simulated environment that inspires apparel design. A journal, sketchbook, and photographs were ongoing course requirements and assisted in the documentation and reflection of the garment design and construction processes. The VR technology provided the opportunity to explore new experiences without leaving the classroom and this was personally helpful for design inspiration for this outfit. The outcome, a unisex ensemble, explored contrasts and combined femininity with masculinity, symmetrical with asymmetrical lines, and heritage with modernity.
Phosphene

Phosphene, creating a manifestation of the designer’s self-image, represents an alternative version of the self. The inspiration was derived from Dame Barbara Mary Quant’s popular 1960s’ shift dresses with high contrast colors with bold design details. This look was also influenced by Hirohiko Araki, the artist who creates an entity that is a manifestation of his characters life energy. The cohesiveness of this look is conveyed with vibrant complementary colors, organic shapes of the patches, and visualization of retro-futurism and playfulness in the design. Phosphene creates a character of human being through the unique pieces that come together harmoniously. Each piece can be worn as separates to add a statement for the wearer. The consistent placement of red patches peeking through the cut-outs of the complementary turquoise textile of each piece meshes together harmoniously as one piece. This look portrays human beings wearing arts to present themselves.

Grace Feely; Design Mentor: Young-A Lee | Auburn University
The lipstick wearer is unapologetic and ensures her presence is known. She marks her territory with her prominent pout, leaving a smudgy trail of evidence wherever she goes. Her path of destruction colors coffee cups, cutlery, clothes, her face, and loved ones. Lipstick on His Collar celebrates a sense of powerful femininity through imagery of lipstick. Block printed lipstick print textile showcases themes of social camouflage as we use makeup to alter our appearance and blend in to be attractive to potential mates and the individuality we express when choosing a lipstick and leaving our mark. The styling of the look blends vintage and modern aesthetics with the silhouettes and choice of trim and reflects themes of underwear as outerwear through pieces that can be styled either way.
The lilac coat was inspired by the book The Year of Magical Thinking by Joan Didion, in which she documents the grief she felt after the sudden loss of her husband. Two things are common to grief. First, it is sudden and creates disorder in the structure and order of life and second, it comes and goes in waves. To capture this, we created the front of the coat using straight lines in the design which symbolizes life before grief. The back we made it like a swing coat to get multiple folds like waves and in addition, we used 4 layers of crinkled black organza to give the illusion of waves.
No Borders

No Borders was inspired by an exhibition about immigration, and the hidden struggle that immigrants face when traveling and acclimating to their new land. Throughout the exhibit, water was a fundamental symbol that represented the journey to one's new land and the source of survival upon arrival. To create this coat, I used flat patternmaking techniques. I measured my fit model, and translated her measurements into dimensions on the coat. Along with my shell patterns, I created lining patterns. Then, I cut all the fabric by hand, and sewed the majority of it on the sewing machine. I chose wool coating fabric for the shell, and silk charmeuse for the lining. To finish the hem and sleeve cuffs and secure the front plackets, I used the catch stitch hand sewing method. It was quite a long, yet rewarding, process that involved very tedious matching of pattern pieces to execute correctly.
Growing a Baby Bump

“I don't want my clothes to declare that I'm a mom; just that I'm a woman.” There can be conflicting desires between dress and identity during pregnancy. The purpose of this design installation is to reveal some of these pressures through the female experience, while also aiming to honor this important change. We sought to answer the question: how could design be used to better understand and illustrate a community of expecting mothers' experiences with their changing appearance? Reflections from these women set out to exemplify the influence of fashion on contemporary femininity when growing a baby bump. This installation adds to previous work from others who raise awareness about community experiences. Through this work, we aim to encourage and support others looking to explore similar design approaches.
Strange Fruit

The purpose of Strange Fruit was to create an ensemble bringing awareness to sexual violence as a weapon of war through a digitally engineered print design and the use of a militaristic silhouette. The most inspiring photo for the designer was Middel’s photograph of a papaya with a machete. It is symbolic of a woman’s womb attacked by sexual violence. In relation to war, the designer was intrigued by service medals with their bright colors and linear design. A service medal decoration was created by the designer in Adobe Illustrator using the rectangle tool. Rectangles were created proportionately to the dimensions of realistic service medals and the aesthetic desired by the designer. Both papaya photo and service medals were engineered on the front and back bodice. Zig zag embroidery stitches were applied on some of the service medals to emphasize the colors and texture.
Fight or Flight

Fight or Flight is a conceptual handbag accessory with the purpose of promoting both suicide and mental health awareness in a remarkable and unique way. Several visual properties were used to create such an impact including the embossed suicide awareness hotline number, the outline of faces on each color blocked panel, and the handles of the piece are equally as impact. The inspiration behind the handle element was to portray life, frozen in time. This aspect was executed by using real, live flowers and solidifying them in resin - literally freezing them in time. Fight or Flight is a visually impactful, unique, and sentimental handbag accessory that is meant to evoke an emotional conversation in regard to mental health. The combination of aesthetic and visual elements makes for an interesting and complimentary piece that can elevate and add meaning to any wardrobe.
At its core, this piece reflects how modulation of the body and its related functionality produces superhuman forms of beauty; it repurposes the relationships between social structure, functionality, beauty, and pleasure. Focusing on lesbian+ SM communities (largely of the late twentieth century) and multiple dynamics of physical disability, this project is at heart a critical exploration of my childhood association of physical disability and being a gay woman with the incontestable loss of pleasure. It addresses a fundamentally stereotype-based fear that inhibits imagination regarding one’s potential for happiness that can related inhibit the pursuit of happiness because elements of the body are incompatible with the traditional formula purported to generate happiness. This study displays how pleasure and physical beauty, and everything that is formulaically prescribed to the body, transform fluidly for functional utility; it celebrates what can happen when the formula is no longer functional.

Chartreuse is the Ugliest Color
Preparation for the Storm was conceived through exploration and observation of the energy potential of thunderstorms. The design physicalizes the point at which a storm has not yet reached its fullest expression of energy but is waiting in anticipation. Flat patternmaking, draping, and other sculptural techniques all played a role in the construction of the garments to create an outfit that emulates a feeling similar to the scent of a future rain shower. By incorporating atypical garment functionality, the outfit can transform in accordance to the environmental phenomena. The turning of a valve to release compressed air and pulling of a cord to adjust garment drape are the two methods utilized for physicalizing the idea of energy release. Preparation for the Storm was constructed around the notion that a thunderstorm’s energy release could be utilized as both a visual curiosity and a functional tool.
Falling Upward

The purpose of the Falling Upward dress was to share my first-ever hot air ballooning flight. The challenge of the design was to communicate emotions felt during the flight, which I could not even precisely describe verbally. After examining the history and anatomy of hot air balloons, I had a vision to incorporate their volume and sculptural elements into the outfit, as well as my personal emotions. A collage technique was utilized to sketch design ideations. Photos of the balloon were cut into different sections along the balloon’s panels. The panels were rearranged to represent the balance of a hot air balloon, while highlighting the flowy nature of flight. Silk fabrics were hand-dyed to communicate various emotions during flight. Horsehair braids were twisted to create shapes and volume. With this outfit, viewers can experience what the designer experienced and see what the designer saw, without having to be there.
Ice fishermen face cold temperatures, blustery winds and cannot produce enough heat metabolically to stay warm due to their stationary position. As such, thermoregulatory comfort is essential to fisherman so they can stay out on the ice and enjoy their sport. Ice fishing also requires a substantial amount of gear and gadgets to be carried. For example, it is essential to have a shelter if one is planning to spend an extensive amount of time out on the ice. Current ice fishing shelters, however, are so big and bulky, they often have to be carried onto the ice via sled. The Hardwater Parka is a hybrid outerwear product constructed to address both of these issues. It not only keeps the fisherman warm; it also provides a modular wind shelter that can be carried in unison. The jacket keeps the fisherman warm while simultaneously providing an easily carried modular wind shelter.
Functional Clothing
Lack of upper body mobility is experienced by many people and can be a temporary or permanent state. People who cannot lift or turn their torso, shoulders and arms have a range of difficulties in donning, doffing and securing clothing. An historical patent inspired my work and informed my design process. The purpose of this creative work was to develop a garment for someone who lacks mobility in their upper body, by removing the necessity of lifting the arms to put them into traditional sleeves. Instead, the garment wraps around the person. The process was guided by the principles of universal design. The contribution to the field is to show that normative processes for garment pattern and construction development can be challenged to provide improved functionality and maintain aesthetic quality. In addition, it shows that historical work can teach and lead us to new developments for the good of society.
Functionality and fashion do not need to be separate ideas. By recognizing both the aesthetic, expressive, and functional needs of children with Autism Spectrum Disorder and Sensory Processing Disorders children will be able to feel more confident and less isolated when surrounded by peers. Compression can feel like a hug and have a calming effect on children who are overstimulated, much like a weight blanket. Often times compression weighted vests are bulky, make a child stand out, and can make it hard to play fully. Fashion has the opportunity and platform to empower children of different abilities to be exactly who they are by addressing their functional needs in a conscience way that also expresses their personality. Fashion gets to be an escape, or happy place, as well as a platform to create allies, understanding, and unity.
The Velox Rain Jacket Weatherproof Apparel for Women’s Wheelchair Racers

The Velox Rain Jacket is designed to the specifications of elite women’s wheelchair racing athletes. Based on athlete feedback, it takes into account mobility and ergonomics to create a jacket to protect racers from the elements.
The tween years for girls can be both an exciting and intimidating time in which significant body changes occur and appearance becomes more important. This makes attaining clothing that they feel confident in challenging as so much of girls’ clothing emphasizing these now developing sexualized body parts (Goodin, Van Denburg, Murnen, & Smolak, 2011; Wood, 1994). This can bring about attention from others that they are not emotionally ready to receive especially with swimwear. Empowered to Beach explores the needs and desire of tween girl’s swimwear through a user-centered design approach. Utilizing the previously identified five stages (Watkins & Dunn, 2015) a swimsuit was developed that incorporated functional and aesthetic design to create an age-appropriate empowering swimsuit that fosters confidence and independence.
A collaborative project investigated women collegiate athletes' perceptions of compression garments and then develop a performance compression top for testing for any performance enhancing factors. Various prototypes were completed and wear testing with a fit model athlete. Final prototype consisted of three compression fabrics constructed the flat locked seams for durability and an integrated posture strapped sports bra. Kinematic testing result in garment showing performance enhancing benefits for throwing athlete. Wear trial feedback indicated the prototype symbolically fulfilled their athletic identity and showed improved overall fit, comfort, and mobility.
The purpose of this creative exploration was to design casual shoes that allow for easy donning and doffing for an adult ankle foot orthotic (AFO) user and to create a do-it-yourself manual to meet the accessibility, expressive, and aesthetic needs of the user. A semi-modular, top entry design was created to accommodate the width of multiple styles of AFOs for different users. The design featured a fixed toe box and upper segments that separate from the toe box for entry and wrap and secure to the toe box for closure. Durable outdoor canvas material was chosen for the shoe upper and was selected from a fabric store chain to ensure access and options for design patterns and colors. Wear testing revealed that the shoe was able to be donned and doffed quickly and easily, and methods of fabrication are accessible for individuals in the community by following the DIY manual.
Sameness and Differentness while using a Wheelchair: A Custom Lab Coat to Fit in

The purpose of this design is to create a lab coat for a wheelchair-user that meets professional and individual needs. I followed the Inclusive Design Framework to guide my designing. This framework describes five steps to effectively design products to satisfy multiple consumers regardless of their physical ability. The framework is designed for eventual mass production of a design and although this lab coat is meant for a single-user, because it is a uniform, this design can apply to many professionals who use a wheelchair.

I completed the first three steps that included determining needs and preferences, generating design ideas, and creating a prototype. The intention is to continue through to the last two steps that include industry evaluation and implementation. I also looked to the research of Strickfaden, Johnson & Tullio-Pow who wrote, People with disabilities want clothing that allows them to blend in and appear the same in order to represent themselves as capable while at the same time marking differences in experiences they have triumphed over. This lab coat design has the dual challenge of balancing the user’s desire to simultaneously be the same and different.
The designer was approached by a non-profit organization to develop a pattern for a scarf with multiple pockets that would be worn by individuals in skilled nursing facilities to assist in organizing their personal items and providing hand warmth. The organization hopes to supply the pattern to charitable groups throughout the country so that the 1.35 million people in the United States living in these facilities can have their needs met. Upon accepting their challenge, my goal was to create a garment that not only met the needs of storage and hand warmth, but provided so much more for the individual, while at the same time extending my research on apparel embedded with functionality that greatly enhances the end product. The finished seven-pocket, multi-layer, customizable shawl apron provides a highly functional garment with fabrication methods that can be completed by even the most novice sewer at a very reasonable cost.
Shelter in Place Convertible Poncho

The Shelter in Place Convertible Poncho was designed for a fictional future scenario where the heroes live in a dystopian society in which a corporation rose to power by consolidating the entire population into one workforce. The lifestyles of the citizens are restricted. They are not allowed to leave the corporate centers and all recreational activities are eliminated. “The Runners as they call themselves, revolt and sneak out to take part in illegal activities. The product inspired by hunting blinds and made out of scavenged garbage was designed to avoid detection and capture by the corporate powers police force as well as provide shelter, coverage and protection. Although created for a fictional group of people, this product is relevant in a world where Covid-19 exists and homelessness affects so many in our community. The shelter that converts to a jacket is a concept that should be explored for those not having the luxury of sheltering at home.
The challenges brought up by COVID-19 lifestyle restrictions highlighted the importance of specificity to addressing the user needs when designing functional apparel for wearable technologies. The aim of this project was to create a look that is fashionable, visually cohesive, multifunctional, comfortable, and incorporates a wearable biometric device. Spire Health Tag technology was studied in detail by one of the team members, and she had specific user experience with this new health and fitness tracking device. An improved technology wearing system was created using a tailored to the device’s shape and size pocket and a detachable toggle strap, and a 3-piece ensemble was made and tested by each member of the team. This design proposal elevates the core function of clothing as protection and expressive fashion, into a beneficial and accessible tool for well-being technologies too.
Retaining Ethnic Identity in the Apparel Design of Modern Saudi Dress

The purpose of this research is to explore ways to develop new apparel designs for Saudi Arabian women that bridge the gap between outdated historic styles and modern, fashion-forward approaches to dressing. The FEA model provided an appropriate framework for analyzing the culture of the Saudi female as the intended consumer. It was used to contextualize the characteristics of Saudi ethnic dress for women, and to describe the characteristic aesthetic appearance of ethnic embroidery in the Hijaz region of western Saudi Arabia. The target consumer is the core of the FEA model. For this study, the target consumer is Saudi woman aged 25-35 years old, making her a contemporary woman who appreciates and respects historical and cultural values and expects these elements to be a part of her current clothing choices. This design was developed to demonstrate creative and innovative ways to incorporate ancient techniques in a contemporary design and to change how we view the current existing fashion paradigm. Specifically, from outdated, rigid designs to support consumers demand for a more unique, fashion trend products that inculcate craft culture.
The purpose of this wearable art piece was created to commemorate the 100th anniversary of the 19th Amendment (granting women in the U.S. the constitutional right to vote) and to draw attention to the long (approximately 70 years) struggle for this reform. The Universal Laser ILS 12.150D model was utilized to cut out all pattern pieces for this design. The silhouette of this garment was inspired by the overalls, which were designed for working men to provide much more comfortable design after World War I. As the design scholars, this design was developed to honor the efforts and sacrifices of these 100 activists and reformers who worked for women's rights over 100 years ago and to publicly announce these people's names, so that we are more appreciate of the long struggle of countless persons which bequeathed to us today a more just and equitable society.
The Novel Pourpoint

A fourteenth-century pourpoint from the Musée des Tissus in Lyon, France, that is said to have been worn by Charles de Blois (1319-1364) serves as a source of inspiration for a woman's garment designed with function, aesthetics, and environmental considerations in mind. Vaguely reminiscent of today's puffer jacket, de Blois's pourpoint was worn even closer to the body to emphasize an athletic build. Its tailored sleeves are curved at the elbow and reach high under the arms. Their extension into the bodice section may be quite unique and done with range of motion in mind. The Novel Pourpoint is made of discarded parts of a secondhand, cotton quilted blanket recovered with silk charmeuse. It is a body-delineating garment meant for an active lifestyle. A portion of the sleeves that are cut high extends into the bodice. The pattern is designed with range of motion and efficient use of fabric.
The purpose of this design was to explore the potential of modular design for wearable art in order to inspire individuals to work together to achieve peace and unity. In response to social inequality and racial discrimination, this design was inspired by the existence of the United Nations (UN) organization and the aim of its members to foster cooperation and maintain world peace and security. Taking inspiration from the UN logo and an image of people clasping hands, a human body-shaped module was created to represent social equality. The laser cut modules from a blue suede fabric were then joined together through the slots on the sides to create the top. The color blue symbolizes this unity and peace. The skirt is in multiple colors to represent the rainbow of races and cultures around the world.
This design is intended to represent the shift of design emphases in women's costume history in the 20th century using digitally printed fabric and experimental patternmaking techniques. To incorporate historical design emphases into a contemporary garment, this ensemble consists of four body emphases: bust, hip, shoulder, and leg. The design emphasis for the bust and hip area was represented in a corset. This design is also to visualize femininity through the flower images of fish fins, which symbolizes a variety of design concepts such as rhythm, movement and continuity. Although the imagery of the printing pattern appears to be flowers, the flower motives are actually made up of images of fish fins. The outcome is an aesthetic clothing that represents how feminine design elements have changed and the femininity is visually interpreted through the flower motives.
City of Angels Graffiti Jacket & Tee

City of Angels Graffiti Jacket and Tee is an artistic outcome combining street art, namely graffiti, photography, stenciling, poetry, digital printing technology, and the 1980's influences in women's apparel. This design combines a technologically aided design process with culture and historical references as its aesthetic foundation. It is a work grounded in research, that of American urban expression, and art. It is intended to reflect the human race's urge to communicate ideas and identity, and the spontaneous nature of artists everywhere.
La Source is the visual story the designer felt compelled to conjure among the multitude of concepts woman embodies and metaphors she symbolizes; a woman as a source of life and death and her body as a passage through the endless interactions and dynamics between life and death. The life-death dichotomy was achieved by various design principles; red and black were chosen as the main colors to reflect the various symbolic meanings (e.g., blood, life, and death); the textual contrast emphasized the dichotomy; and the combination of fixed forms and free shapes heightened the ambivalent feeling of the co-existence of life and death within a woman's body. The dynamics generated from the life-death interactions were represented with the linear elements carefully planned, symbolizing the path all humans takes to the end of their life; and the irregular drapery created with no pre-planning or rules, symbolizing the vicissitude of life.
Unbound is one of the creative outcomes of a research project that explores the social notions of “woman” and the construct of women’s bodies in western civilization throughout history. The project aims to visually represent the concepts, some ambivalent (e.g., life/birth vs. death, salvation vs. damnation, earth vs. sea) and some paradoxical (i.e., a woman is a regenerator but not a creator), that a women's bodies symbolize. Through the design of Unbound, the designer aimed to represent the ambivalent symbolization of the female body and feminine sexuality. What has been an erotic object of men's sexual desire and a symbol of physical/psychological entrapment has been reimagined from a woman's point of view. Made by a woman designer, Unbound is intended to remind women that they have always owned their bodies and sexuality, despite the social norms that have entrapped them within their own bodies.
The present design represents a collaboration between a metal sculptor and an apparel designer. The designers wanted to create a piece that highlighted the skills of each. The fashions and economic changes of the Second Industrial Revolution were chosen as a source of inspiration for the design. The final design was inspired by fashion from the early 1900s and features a corset-style bodice and gored trumpet skirt. Ruffled mesh was utilized to further emphasize the frivolity of fashion and importance of lace at this time. A high-necked yoke was also added as a nod to early 1900’s modesty. The design was made from a cotton twill that was rust dyed using iron grates to create a unique pattern. Finally, the cast iron bows were added to the bodice and neck to further emphasize the importance of industry in this time period.

Iron and Rust in the Belle Epoch
I wanted to create a bustier that followed the silhouette of a Spanish Farthingale, while also experimenting with several pleating techniques. For inspiration, I incorporated information that I obtained from lectures given by the curator of Fashion Collection at the university on how designers in the past have utilized striped fabrics in their own work. I also utilized inspiration from my other classes, Fashion History and Theatrical Costume Design. Both of these courses look at historical clothing, but with their own focus of research. Fashion History seeks to learn techniques and analyze where fashion has been and where it is going. Theatrical Costume Design seeks to replicate those same techniques and fashions as a storytelling tool in theater. These courses inspire me to look at the history of fashion and create detailed and beautiful designs like this one.
Inspired by a traditional Latin American ghost story, this piece is a new take on a classic groom's look for the monstrous character El Cucuy. It is a full-length morning coat, with large tiered gathered sleeves, and an embroidered turtleneck shirt. The design explores the character through exaggerated proportions and patterns reminiscent of traditional Latin American motifs. The traditional story remains at the core of the design, through the embroidery, which was developed and designed by the artist. The skulls remind the viewer of the victims of the monster, and the decorative details give the overall design an eerie elegance.

El Cucuy

Simone White; Design Mentor: Denise Green | Cornell University
Patternmaking & Couture Techniques

ITAA 20
Evening Star employed advanced draping and patternmaking skills to create a strapless dress through delicate midnight blue fabric (100% silk charmeuse). This garment demonstrates a high level of skill in construction techniques, most notably corsetry and couture finishes. Evening Star takes influence from a romantic bygone era, utilizing historical elements such as steel boning which adds to its elaborate and theatrical elements. The original design features a handmade petticoat specifically made for the dress that adds drama and captures sensual aspects such as the rustling of the satin as it drags across the floor.

Jasmine Ambrosio; Design Mentor: Sunhyung Cho | Iowa State University
Agency through Symbolic Communication: Employing Spiral Pattern Principles

The color white was chosen to echo the timely importance of today’s struggles for equality. Congresswomen at the 2020 State of the Union address chose to wear the white suit as a symbol of solidarity (Lang, 2020). The duplicity of white as purity and simultaneously as parity and unity illustrate the significance of color in dress (Wahl, 2018). The visual impact of line in the drape plays a significant role in the spiral effect of the suit, as seamed pleats maintain continuity, symmetry and carry the eye around the body in continuous movement.
This outfit represents a unique way to achieve multiple sizes within zero waste garments without using traditional grading methods. Instead, the pattern shapes remain constant across the size range while different garment sizes are achieved by varying the width of narrow trims inserted at strategic points. This works builds on my previous research focusing on zero waste pattern cutting. This design illustrates a method for sizing zero waste garments that is not found in current literature. Working in Browzwear VStitcher, I drafted a zero-waste skirt that uses two geometric shapes, a right triangle and a right trapezoid, repeated four times each. Strips of white eyelet trim were inserted between the shapes for all sizes. The accompanying blouse is also made with inserted strips, only the strips are made from self-fabric instead of contrasting trim.

Melanie Carrico | The University of North Carolina at Greensboro
Inspired by the Amazonian rainforest and the insects within, this dress explores the changes of the rainforest from day to night. The iridescent fabric (Silk Taffeta) reflects these many changes. The dress could look turquoise, red, purple, or blue depending on the time of day and the angle in which it is viewed. The surface work using spray painted silk leaves represents the Leaf-mimic Katydid, which are insects known to mimic leaves and camouflage into their environment. They could also be the literal representation of the rainforest. The placement of the corded spaghetti and the leaves represents the long, curvy shape of the Amazon river within the trees of the rainforest. The coiled areas could also be the literal representation of the giant Amazonian centipede. To represent movement of these critters, the spaghetti goes over the right shoulder for a freeform effect. This dress could have more than one meaning.
This bridal wear piece was inspired by the zero-waste patternmaking concept (Gwilt, 2013; Rissanen, 2008, 2016). I drew inspiration from geometry and fitting different shapes into one large square. I drew inspiration for colors and textile manipulation from nature, specifically from flowers. The purpose of this design was to create a wedding ensemble for a bride to wear on their wedding day that used the entirety of the length of fabric, building upon previous work that used the entirety of the length of fabric in a formal wear design (McKinney & Bennet, 2015). I strived to create a jumpsuit that achieved this for a bride that would be more comfortable wearing pants rather than a dress. Through the development of this design, I wanted to achieve a pattern that did not produce any fallout, and create a jumpsuit with zero side seams.
The Drowned Maiden dress is part of a five-look collection that tells the story of an old Scottish folklore. This collection draws historical and cultural references from the mid-1500s in Scotland. Scottish textiles and traditional garments are mixed with modern designs and fabrics to illustrate the perseverance of the Scottish people and culture. This garment incorporates sustainable methods into its creation with waste conscious patterning and cutting, sustainable fabric choices, and zero-waste utilization of scrap fabric. The ruffles on this dress were made by piecing together fabric scraps that were then distressed by hand with a wire brush. Scraps were also used in the creation of the handmade fabric covered buttons, and handmade rouleau loops, both on the back and cuff of the dress. The bustier in this outfit features gathered cups, boning with hand-made satin casings, and a bridge and band with ribbon trim and distressed edges.
I drew inspiration from Amanda Guest’s minimalist artwork using thread embedded in linen paper. One side of her work is a slightly wrinkled piece of linen and the other side has vertical threads embedded in the linen in a way that they seemed to be pulled. I drew inspiration from its simple light design and its asymmetrical composition. The silhouette of the garment is asymmetrical with the large boxy pleats on one side and the more fitted collared shirt on the other. The color choice of white for the pleats and blue for the shirt dress was purposeful in balancing the boxy and more svelte shapes of the garment. The contrasting sides and lines also allude to the inspirational embedded threads and plain page of the untitled work by Amanda Guest. Overall the work that I created gives a sense of spontaneity and uncertainty, while also being simple.
Ready-to-Wear

ITAA 20
While designers can use the modular concept to create original garments, one concern of modular design is the durability of modular pieces following use. As most modular garments were made out of fabric, the interlocking system of the modules could be worn out after frequently connecting/disconnecting. Thus, the designer searched for solutions beyond using textiles for modules and adopted a 3D printing technique to increase the module’s durability. The inspiration for this design originated from an image of artic ice broken off from a nearby glacier and melting in the heating ocean. Using a hand bleach approach on a denim fabric and the modular design concept, the designer aimed to highlight both the sublime beauty and the shifting condition of the planet. The methodology of using 3D prints as modules that connected with denim fabric through 3D printed buttons was a new way of incorporating technology into modular designs.
Cape Dress: Interpreting a Historical Style through Modern Inspiration

The purpose is to show the juxtaposition of London's new edgier generations and the traditions of the older generation wrapped into one. The traditions and inspirations in this collection include The Vaults, whose mission is to collaborate and conspire, embracing artists from all walks of life to come together and inspire others. The Vaults incorporate the edgy and traditional generations. This design piece also incorporates this through the traditional cape, because the royalty in Britain often used capes as a fashion piece. In the 1950s, designers reimagined the cape completely, eschewing functionality by abbreviating the length to the chest and closing the front. It was seen as a fashion statement, with an emphasis on shape, fabric, and seamless lines. The design also brings in the edginess of the new generation through patent and leather, which is very prominent in London's current streetwear.
The Nebulous collection centers around reclaimed comfort, versatility, convertibility, and sustainability. As a Lifestyle Collection, Nebulous targeted at twenty to thirty years old females Urban Athlete, who engage in outdoor activities and are willing to pay extra for high-quality products. Thus, this collection emphasizes oversized but feminine designs, the use of ultra-comfortable and sustainable fabrics, and the use of digital technologies. The presented look was designed in Adobe Suite first, and then patterned and virtually fitted in Optitex. The designers also designed the plaids and digitally printed fabric. It consists of a loose-fitting linen/cotton blend tank top with pocket and belt details and a pair of cotton corduroy cargo pants. Additionally, the pocket and the belt can convert into a carrying bag. Ultimately, this collection allowed the designers to not only design an innovative collection for a chosen market but also mastered new apparel design and pre-production technologies.
This look derives its inspiration from football, namely from the padding used to protect athletes while playing the sport. When creating an activewear garment, it came naturally that I found inspiration in football as it is one of the most uniquely American sports. However, since football is extremely masculine in nature, I wanted to create a look that reimagined football padding in a uniquely feminine way. My look expresses the duality between masculinity and femininity through the lens of football. The title, Blitz, stems from the football play. In a blitz, more than the usual number of defensive players rush the opposing team’s quarterback in attempt to disrupt pass attempts from the opposing offense. Both my look and the football play are disruptions from the normal. I see women as the disrupters in my look as they are portraying something traditionally masculine in a uniquely feminine way.
The name of the piece, pen-umbra, is coined from its parallels to the anatomy of a shadow. The umbra is the dark, inner region of a shadow and the penumbra is the partially shaded outer region. By referencing both of these components through hyphenation, our title encapsulates the duality of darkness (fears), light (moving away from those fears), and the curious, intermediate area between the two. As such, we wanted to play with what Kawakubo describes as the gathering of shadows, while re-envisioning an ensemble that is simultaneously clean, functional, and marketable.

Pen Umbra
This aim of this design is to apply traditional Korean design elements to modern clothing, expand on the traditional design form, and promote Korean culture and K-Fashion. Design elements from Dancheong, Tongyeong Nubi, Hanbok Git, Dongjeong, and Hyungbae were incorporated in this design. A jacquard fabric, reminiscent of Dancheong patterns and colors of Korean traditional architecture, were used along with a lining made from Tonyeong quilt. Due to its distinct design and fabric, the garment can be worn reversibly, depending on the wearer. In an effort to modernize the garment, we selected the Dongjeong’s color, texture, and fabric to match the rest of the garment. The silhouette from the Hanbok Durumagi, a winter outerwear with fur lining, and the female Hanbok’s oval silhouette were incorporated into the design of the garment.

Wearing the Artistic Tradition of Dancheong and Nubi
Ice Wine: Adaptive Down Parka, is a modifiable winter coat that mirrors performance features and aesthetics of non-adaptative outerwear yet ensures independence through easy dressing. Ice Wine features a zip-off lower portion that can go from fitting a person in a seated position to a knee-length parka suitable for people in a standing position. The adaptive lower is designed to not bunch at the waist, back, and sides. The easy-dress features in this parka include a magnetic close zipper and invisible zippers on the outer sleeves that make it easier for caregivers to assist in dressing. These features ensure that access to outerwear is not a barrier to participation in cold weather activities for people with mobility limitations. The fabric was quilted by the designer using 600-fill power goose down, providing warmth without the weight. The designer developed this design using flat patternmaking and industrial sewing techniques.
I was challenged to create a collection of my choice. Through my research, I found that see-through, ruffle/gathers, and cutouts were some of the trends of Spring 2020. In my line I wanted to create pieces that had a designer look to them but with moderate prices. One of the looks I created was this two-piece ensemble that incorporated my design goals and the trends of Spring 2020. This piece included the trends of see-through fabrics, gathers, and cutouts. The entire piece has lace throughout it. The lace is see-through but not too see-through. This garment gives the wearer elegance while still showing skin. The two-piece shows sophistication and women’s vulnerability. The lace is placed in a specific spot so it’s equal on both sides of the front skirt. The silhouette is tight and shows off curves. The bell sleeves add volume and fun to the whole garment.
Inspired by the vibrant blue color palette of the Mediterranean Sea surrounding Greece, Alexis, highlights the textural stitching pattern known as trapunto. This Italian word, meaning “to embroider”, is historically known as stuffed quilting, whitework quilting, or corded quilting. This labor-intensive design has an all-over quilted stitch base that fits in between another set of stitches created by twin needles. The placement for the stitching pattern was measured out on the 2-dimensional fabric and then stitched before the sleeves and collar pieces were cut. Planning where the lines would cross and the amount of space between the lines allowed the designer more control of the final line placement. It took some troubleshooting to get the desired effect. Samples were made before moving onto the fashion fabric. The designer learned that the distance between the stitching is critical. If sewn too close together, the threads will tangle.
The intent to create this design, Azure, was to offer a sportswear jacket with a loose-fitting silhouette, blue tones, Asian-inspired prints, as well as decorative trims that provide a comfortable touch in superior quality with fine details for the market that gravitates towards the young designers. I was challenged to create a garment that can be worn by all genders and various body shapes which requires a flexible fit, especially around the shoulders and waist. Azure adds to knowledge on manipulating patterns with a unisex fit and exploring color and prints combinations. Even though I took inspirations from collections of other sportswear brands, the fabric and trim choice, overall silhouette, as well as design details were all generated originally from the exotic cultures and arts I have observed and the mixture of retro aesthetics.
Surface Design
Grey Matter is an impactful design that incorporates multiple mediums of artwork to encourage individuality and authenticity in consumer apparel purchases. It experiments with surface design and clean silhouettes to emulate tattoo art. The concept of strength and vulnerability in the self-expression of tattoo art should not be limited to skin as its only canvas. Nor should design be limited by gendered silhouettes. Therefore, Grey Matter provides an elevated outerwear look that transcends gender boundaries by combining tattoo art techniques and androgynous fit with bourgeois tailoring. The look draws inspiration from a rich history of tattoo art and personal passions in tattooing dark art, while referencing features of tattoo artists aprons. By employing a variety of texture, line, and surface design, the look portrays perceptions of tattooing in a modern-day world. Grey Matter will encourage viewers to reshape consumption habits by seeking refined and genderless clothing that embodies art pieces.
Po Mo

The design Po Mo was inspired by post modernism and was presented as a rejection of modernism. The main concept of Po Mo was a combined idea of post modernism and actual topography maps. Religion affects society with post modernism, and it is irrelevant to many people in today's society. The garment silhouette of Po Mo was actually inspired by a typical chapel's floorplan, and the inclusion of that detail in the design emphasizes the freedom post modernism had on designs. The fabric that was chosen for digital textile printing is a cotton twill that has a distinctive twill weave. The blue river areas on the print feature hand beading with blue and clear beads. The prints contain a number of lines and are accented by the chain embroidery stitching using black embroidery thread to enhance the contrast of the lines to the background and emphasize the directions of the lines.
Weaving for Justice is a two-piece, 1970s inspired look, designed to honor those who were killed and injured in a horrific event that happened on mid-west university Campus. The crop top and bell bottom pants have a hand woven, triaxial surface design. The strips of fabric which make up the weave include two sets of color gradients inspired by the 70s, yellow to purple and teal to red colors trending at the time. The black and white strips contain the names of the individuals who were killed and injured on that ominous day, along with a quote from the Scranton Commission calling the event unnecessary, unwarranted, and inexcusable (Lewis & Hensley, 2020).
There are only a limited number of examples of sustainable fashion practices utilizing creative manipulative techniques that can enhance a product’s quality in consideration of functional, expressive, and aesthetic aspects (FEA) to revitalize the discarded clothing and reduce waste. The purpose of The Cradle-to-Cradle Denim Design was to revitalize discarded clothing by adding value through upcycling while producing a sustainable novel design made with secondhand denim. According to McDonough and Braungart (2013), upcycling motivates designers to design and utilize secondhand products. This idea of sustainability is based on a cradle-to-cradle approach instead of cradle-to-grave. The structural reconstruction method involved applying creative surface design techniques. This design provides an example of applying a scientific framework in developing used clothing by upcycling men’s used pairs of jeans as contributions to enhancing sustainable design practices.
Blue Nights: The Complexity of Grief

The Complexity of Grief is a coat that was inspired by the book Blue Nights by Joan Didion. The book is focused on the loss of Didion's only child, Quintana Ro. Didion remembers the stephanotis flowers her daughter wore on her wedding day, and the gaura and Lily of the Nile flowers that grew in their home in California. The typical color associated with mourning is black, however, Didion uses the color of blue nights to convey the feeling of melancholy, nostalgia, memories, and time passing. We created a design with these flowers and used cyanotype printing technique to print it onto 40x60 denim canvases. We then constructed an oversized, A-line shaped coat with a cut-on oversized collar and one-piece facing that is attached at the top left loose afterward.
Inspired by Geometric-Op Art and the concept of perception, the goals of creating this design research were to a) utilize fabric color and textures to express the visual effect of optical illusions, and b) determine the feasibility of creating Op Art motifs with textiles and garment patterns for making creative silhouettes. The first step was creating motif patterns for laser cutting and digital textile print. The second step of the design process was textile manipulation, which mainly combined inspirational images and the created motif in the first step with the researched fabric modification methods to transform two-dimensional planar patterns into three-dimensional stereoscopic texture effects. The third step was implementation. The design demonstrated a successful design process, showing a transformation from motif creation to textile digital printing inspired by Op Art, as well as fabric manipulation and silhouette creative experiments.
Inspired by Geometric-Op Art and the concept of perception, the goals of creating this design research were to a) utilize fabric color and textures to express the visual effect of optical illusions, and b) determine the feasibility of creating Op Art motifs with textiles and garment patterns for making creative silhouettes. The first step was creating motif patterns for laser cutting and digital textile print. The second step of the design process was textile manipulation, which mainly combined inspirational images and the created motif in the first step with the researched fabric modification methods to transform two-dimensional planar patterns into three-dimensional stereoscopic texture effects. The third step was implementation. The design demonstrated a successful design process, showing a transformation from motif creation to textile digital printing inspired by Op Art, as well as fabric manipulation and silhouette creative experiments.
The purpose of Mother was to exemplify the memory of the designer’s deceased mother and characteristics of traditional Japanese dress. Engineered prints, digitally printed fabric, beading, and embroidery bridge innovation and tradition in a kimono-esque, avant-garde ensemble. A black ground was utilized, as it is the color of formal Japanese mofuku, or mourning clothing, and blue, reds, and whites exemplified the depicted artifacts belonging to the designer’s mother. Mother was draped as a variant of a long, basic skirt and sleeveless bodice. The ensemble drew stylistic elements from the Japanese kimono by reiterating an overlapping center front and wide fold-over collar, and displaying layered shoulder panels. The layering was guided by the importance of layered, colored panels in the Heian era of Japan. The bodice and skirt patterns were then digitized and exported to Lectra Modaris software to modify the patterns, and later digitally printed on the polyester sateen.
Fine art painting provides inspiration for my fabric and fashion designs. The Sacred is represented by the abstract angel over the heart space. The Profane is symbolized by the same motif reversed, a flame over the area of a woman's greatest power and femininity. Devotion is communicated using the artwork of the beloved and transforming it into a dress that conveys the creativity of both partners - the male inspired by femininity and the female by love. Spirit is expressed by the abundance of handwork performed to embellish and energize the dress. Celebrating color and exploring its expression in texture, pattern, and form, this design integrates 2D textile design with 3D fashion design. A balance of old and new practices - hand painting, digital printing, draping, and sewing by hand and machine are featured in this one-of-a-kind dress.
Although universities are traditionally considered low stress environments, in recent years, a large number of academics are impacted by mental health issues like depression and anxiety (Levecque, et al., 2017; Shanafelt et al., 2009). Considering the upward trend in depression exists in graduate students, as an apparel designer and recovering depressive female scholar, the designer explored and experimented with how textile and apparel design could serve as a method for therapy depression and how she could demonstrate the aesthetic of fine art through textile and apparel design to create an interesting and complex visual form of wearable art. Thus, the purposes of creating this piece of wearable art were to: (a) explore the role of textile and apparel design for self-management in depression, and (b) combine digital textile printing and surface manipulations to create a piece of wearable art by experimenting with the concept and colors of Barnett Newman’s work.
Yellowstone Impression was intended to integrate traditional handcraft techniques and innovative laser cutting technology to illustrate the connection between craftsmanship, technology, fabric expression, and the grandeur of nature. The colorways and silhouette of the needle felting were inspired by the Mammoth Hot Springs and overall beautiful landscape of Yellowstone National Park (YNP). The outline shapes of each layer of travertine terraces were traced in AI from photos. Merino wool fibers in turquoise, light blue, and green colors were laid out and needle felted on the natural color felt, and were then laser cut into a variety of terrace shapes. On the wearer’s left side, the designer needle felted an irregularly shaped circle to mimic the springs of Mammoth Hot Springs using a variety colors of wool fibers. Matched colors of seed beads were hand sewn on the felted circle to represent the hundreds of animals, and birds documented at YNP.
Sustainability I
As sustainable fashion is becoming the new normal within the apparel industry, I wanted to create a design that married traditional technique and style with innovation. The Boro Kimono is designed to showcase the concept of zero waste fashion, encompassing the elements of historical Japanese Boro mending and is elevated with unique transformable elements. The cohesiveness of this design is conveyed through the use of 100% recycled denim and cotton materials throughout the entirety of this garment. The patchwork denim outer jacket and patchwork cotton lining bring together the traditional Japanese influences and techniques, while the addition of elements such as silver safety pins and grommets add a level of modernity and innovation to the design. Sustainable fashion and Boro mending centralize around the concept of repurposing old materials while bringing a new garment to life containing history and intricate craftsmanship, and this denim kimono showcases all of these elements.
The purpose of this design is to create sustainable garments and achieve a high-quality look by upcycling used t-shirts. I explore how to take worn t-shirts, which have diminished in value as garments, and use the materials to create entirely new and valuable pieces. This design is constructed using old t-shirts with holes and stains, and I cut t-shirts into strips. To create the houndstooth check for the jacket, four navy and four white yarns were used interchangeably and were handwoven in a twill weave. For the skirt, I used two yarns for each color of red, navy, and white repeatedly, which were woven in a plain weave. Over-consumption and over-production of fashion products have resulted in environmental issues of waste and pollution. This project was developed to inspire consumers and designers to reconsider the used garments they often throw away without consideration for reusing, reforming, and upcycling the materials.
The windbreaker is one of the biggest activewear markets with increasing annual sales due to increasing outdoor activities from climate changes. Due to the windbreaker’s popularity, innovations in design elements to improve its functionality are readily explored. While the windbreaker provides practical functionalities for outdoor activities such as wind and water resistance, there exist environmental concerns such as the utilization of chemicals for the synthetic fibers. Solutions for environmentally friendly use of materials have not been extensively explored. This paper proposes an upcycled windbreaker design to satisfy both sustainability and functionality.

The first objective is to create a sustainable garment using recycled materials to minimize negative environmental impacts while satisfying consumer needs regarding garment performance. The second objective is to combine styles and functionalities from both Eastern and the Western garment design elements to create an innovative East-West fusion for a global application.
Wearing Many Hats: A Green Approach to Accessories Design

In apparel industry, pollution is created through different phases of apparel lifecycle, including producing fabric from raw fiber, manufacturing apparel from fabric, and disposing of used apparel. Designers must wear many hats if they are to help reduce the pollution. In this project, researcher aims to develop a sustainable, functional, wearable, and artistic hat as a proposed green product, and in the process, to draw attention to environmental concerns and endangered species. This product is the outcome of integrating multiple considerations and techniques (including sourcing and selection of natural materials and felting) to portray the endangered environment and produce a wearable hat with minimal negative environmental effects. Increased use of natural fibers sourced from plants by the apparel industry could help reduce air pollution, absorb carbon dioxide, and release more oxygen. In addition, the use of felting techniques and natural dyes can moderate the amount of pollution in apparel production.

Mona Maher; Advisor: Rachel Anderson | Texas Tech University
The purpose of Collision was to explore the upcycling of cut-offs for limited production. Researchers have identified the potential for apparel design software to aid in the upcycling of second-hand clothing; however, textile waste generated during cutting is arguably easier to upcycle because of the volume produced in addition to the consistency of the size and shape of each cut-off. This design study was thus conceptualized to determine whether apparel design software may help increase the rate in which cut-offs are transformed into new products. Pre-consumer textile waste was collected from several cut and sew facilities owned and operated by United Dry Goods in Bengaluru, India. Patterns for this design were then digitized using the software, EFI Optitex. By superimposing images of each cut-off on top of the patterns, I was able to experiment with the orientation of each piece and optimize the amount of textile waste collected.
The fashion industry is in the current state of over production and over consumption of fashion that has resulted in a proportionate increased use of resources, particularly textiles (Niinimäki, 2013). Traditional garment production methods of cutting fabric pieces from patterns and constructing them into a garment yield approximately a 15% fabric waste. Zero waste fashion design treats textiles with integrity by producing garments with little or no fabric waste (Gwilt & Rissanen, 2011). The pattern making stage needs to be an integral part of the design process, rather than a stage that follows it (Rissanen, 2005).
The design process for Macchia Spiral into Zero-Waste Times Two addresses the fabric waste from apparel manufacturing. The fabric off-cuts, scraps that are left after garments have been cut, have been eliminated (Rissanen, 2013). The traditional cut and sew method of garment production, where fabric pieces are cut from patterns and sewn into a garment, yields approximately 15% fabric waste. Zero-waste pattern design addresses this issue by producing garments without fabric off-cuts. The patternmaking stage needs to be an integral part of the design process, rather than a stage that follows it (Rissanen, 2005). This challenge was further expanded by dyeing the fabric to size eliminating any waste in dye usage. This design is an example of aesthetic sustainability, a term that describes products that focus on the psychological bond between subject (consumer) and object in a way that continuously adds nourishment to human life (Harper, 2017).
Maintaining sustainable principles was important to both the designers and the grower, and together we established design priorities for the project: Within the luxury price point, make a runway piece that has some transformable element to encourage extended use, reflects a thoughtful design process grounded in the fabric itself, includes only natural colors and components, and integrates the Suri Alpaca locks (freshly sheared fibers) in some way.

Farm to Fashion: Suri Alpaca with Spiral Patternmaking

Mary Ruppert-Stroescu | Washington University in St. Louis & Jeremy Bernardoni | Louisiana State University
The environmental impact of textile waste has urged the need for sustainable alternatives to landfill disposal and increased the interest in reuse and recycling. In attempts to respond to these demands, a sustainable design using textile waste was created by combining art techniques and textile embellishment techniques from the eighteenth-century to salvage the values of the materials through reverse logistics. The inspiration for the design came from scratchboard etching which is an art technique shown through slashing, a textile embellishment technique in apparel design. This type of technique is often used in apparel design because of its unique texture and visual impact. However, the execution of this technique may generate more textile waste due to the multilayers used for its purpose. Hence the approach to use existing textile waste would be valuable to reduce the concerns in using this technique as well as address sustainability issues in the apparel industry.
Transformable garments are feasible ways to practice sustainability via versatility and durability. Infinity is transformable and versatile; it can be worn for multiple looks or occasions, mirroring the individuality and creativity of the wearer. Infinity was hand knitted and it has a long, scarf-like silhouette that is 15 wide and 116 long. Unlike woven fabric, knitwear is flexible and extensible; it stretches and conforms to its wearers silhouette, regardless of body shape or movement. Also, this garment can be worn in myriad ways. It can be worn as a scarf, head cover, shawl, or top with crisscrossed or loosely layered straps. Infinity offers its wearer the opportunity to use clothes to imagine and invent without limit. It has a greater chance of being worn and kept longer due to its physical, stylistic, and emotional durability, extending the product life cycle as the wearer repeatedly transforms the piece.
The Three-In-One Gown was designed with the intention to create a Met Gala worthy look that was sustainable. This gown was the result of an in-depth design process including the idea conception, colorway research, computer-aided design, advanced pattern making, and couture technique. The Three-In-One Gown is innovative and sustainable because it can be worn for at least three different occasions where generally, it would be worn once and thrown out to make room for another. It can be worn as a showstopper at a formal red carpet event such as a Met Gala or even for a bride. It can be slightly dressed down with the tulle skirt removed revealing a column-shaped evening gown for an after-party. And finally, the column skirt can also be removed leaving a flirty cocktail dress that is perfectly suited for a romantic evening on the town.
Be True

A one-of-a-kind quality piece of artwork is an ideal way to exhibit Couture techniques. My design embraces the idea that eco-fashion can be made more attractive by embracing the uniqueness of the design. Artisanship attracts consumers who dream of owning a piece of artwork while being executed from sustainable components. The foundation of this garment was constructed of sustainable textiles, such as wool and pineapple leaf fiber. The remainder of my garment contains materials that were recycled from The House of Bianchi Company, where my grandmother worked for decades. She rescued end of the run/bolt items from the trash and gifted them to me, because she believed that every textile contained a work of art. Her respect of these products being rejected, and the idea of not wasting goods set her up to be much ahead of her times. That is why this garment is dedicated to my grandmother and Mother Earth.
The art of knitting using precise machinery to bind individual threads into a single entity cannot be learned alone. To enhance my professional works, I sought an opportunity to learn machine knitting. I also learned to knit cords using six-needle cord knitting machine. After returning to my own institution, the lack of knitting equipment posed a challenge for my practicing, progressing, and perfecting of the techniques I learned. Nevertheless, I undertook the challenge and utilized my new understanding in knitting. The purpose of the design was to create a cocktail dress using an unconventional material specifically yarn. The dress features bias drapes of yellow and blue ottoman stitch pieces with a blue all-knit piece and red cords strap forming a knot with tassels on the back. The yarn colors were selected for the contrast effect. The content of yarns is 100% acrylic with characteristics of durability, easy care, and softness.
Repurposing has emerged as one of the sustainable design strategies, as the apparel industry is identified as a significant contributor to the negative environmental impacts. Repurposing is to re-design fashion goods to extend the lifespan of the products. According to Irick and Eike (2017), the higher the level of repurposing is, the more advanced knowledge of pattern-making or construction is required. Especially, the highest level of repurposing, which is called intentional pattern-making, the designer will need a strong understanding of pattern development to accommodate the given materials (Irick & Eike, 2017). However, the method of using pattern-making skills in repurposing is uncovered yet. Therefore, the purpose of this design research was to explore a creative way of repurposing and incorporate diverse ways of repurposing into creative design practice.
The purpose of this design was to explore the intersection of repurposing textiles with zero waste for a third time. The interior design textile samples were first constructed into a duvet bed cover and enjoyed in home decor for twelve years. With a change in interiors, the textiles were put in storage with possibility for discard. This design incorporates intentional patternmaking by deconstructing the duvet cover and draping the interior textile panels to create a sleeveless tailored jacket. Flat pattern pieces were created for yokes, lapel, facings, collar, pockets, and lining with all fabric used to fulfill the goal of zero waste. Tailoring techniques and machine quilting were used to give the interior textiles structure for the jacket. The three-piece art wearable ensemble demonstrates individual upcycling by creating and modifying this new garment from used materials to generate a product of higher quality and value than the compositional elements.
The purpose of the design, Swatcher coat, is to raise awareness of the wide range of textile types that are compatible with digital printing available using a three-dimensional form and a sustainable apparel design framework. The initial inspiration for the design concept came from the recent COVID-19 pandemic because converting a computer-application lab to an online course forces students to use print-on-demand platforms (e.g., Contrado) for their final projects. Platforms like Contrado function as one-stop production facilities that specialize in making custom products on demand and do not hold stock or produce products beyond need. This design serves as an educational tool that promotes the application of on-demand digital printing technology (e.g., Contrado, Spoonflower, Honest Fabric) and sustainable design processes. It can also help design students to recognize the wide range of different fabric types that can be printed on (e.g., lace, velvet, neoprene, matte Lycra, leather) and the use of a traditional method of quilting.
Memories

Sustainable fashion is a buzzword in our current society. Fashion designers and scholars have invested their efforts into the study of sustainable apparel design. As a non-traditional student in fashion design, before I attended college, I had more than 10 years working experience in fashion industry. My experience allowed me to understand how waste this industry is and helped me to find the right direction of my study which is sustainable fashion. By recalling my childhood, I found more sustainable methods were used out of necessity and the lifestyle was greener. At that time there were severe shortages of raw materials in China. People had to explore how to use the materials they had available to create traditional garments using time honored sewing techniques. In my thesis collection making process I used some ancient Chinese techniques such as Nianzhi weaving, Chinese knotting and Macram to create my unique design. All these historical techniques added many beautiful details to my collections.
Created as a final project with meaningful sustainability in mind, I wanted to create an ensemble that showcased individualism in the face of strict rules and guidelines. Growing up, I had very strict parents that dictated what I was allowed to wear and express. Over the years, I have outgrown the pieces that gave me independence and I wanted to breathe new life into them with this project. I created the vest from upcycling a pair of jeans and adding studs and exposed zippers to give it a punk aesthetic. I kept the original back pockets and rivets and incorporated them in the vest design. The biker shorts were created by upcycling old band t-shirts to have the look come full circle. The shorts are embellished with studs and exposed zippers to maintain the aesthetic of the vest.
Textile Innovation & New Technologies

ITAA 20
Gloaming is a garment where I explored 3D printing using materials that vary in color due to heat or the presence of ultraviolet light. Over the past year, my research has involved the creation and assembly of 3D printed elements into an appealing, wearable garment that can also protect the wearer from UV ray exposure and heat exhaustion. This proof of concept 3D printed garment contains four features: interlocking components that move, components that change in the presence of UV light, heat-sensitive color-changing coatings, and glow in the dark coatings. There are around 250-star elements in the garment, with a total print time of approximately 60 hours. The integration of 3D printing into apparel design allows for easy configuration and editing of designs while producing a product in a sustainable additive manufacturing approach.
This ensemble takes its textile design inspiration from The Wizard of Oz. Paying homage to the cinematic classic by transitioning from black and white to emerald green in an interesting array of lines and dots. The surface of each piece is an adventure of its own making. Hand and computer aided techniques work together to create a layered streetwear look that is striking from near and far. The outfit begins with dye sublimation printed fabric in the form of a white jersey knit t-shirt. Keeping with the black and white theme the oversized black denim bomber jacket was hand screen-printed with metallic white and charcoal ink. Lastly, the emerald green satin skirt provides a feminine contrast to the t-shirt and oversized jacket, it showcases a geometric laser-cut dot pattern that draws the eye in and shimmers with movement.

Wandering But Not Lost
Elegance lies in simplicity. Not only does elegance lie in simplicity of design, but it also lies in simplicity of materials. Textile dye pollution is no secret in the world of fashion. Synthetic dyes are capable of escaping conventional waste water systems, and causing irreparable health damages. The BioCouture Gown for Future Focused Fashion combats the dangers of synthetic dyes, as it utilizes bacteria dye to create a completely organic beautiful black color. The BioCouture gown consists of a 100% silk dupioni shell and a chiffon lining. Couture finishes are dear to my heart as it communicates quality and unmatched craftsmanship. All seams on this gown are french seams. The bacteria-stamped bows and ribbons are sewn and attached by hand. Each bacteria stamp is placed and printed by hand to ensure equal spacing. Additionally, each bacteria stamp is individually painted by hand with a ferrous sulfate-tannin paste to create the black color.
Thrill-seekers are continuously searching for new ways to have an incredible time. For some wakeboarders, this means venturing out to the planet’s harshest icy waters to push the boundaries of their sport. They aspire to jump off of icebergs at heights of 5m while being pulled behind a boat traveling up to speeds of 40 kph. These athletes have to be exceptionally accurate to execute their approaches safely and avoid injury while performing in chilling arctic waters of around 0°C. Riding in these frigid waters requires athletes to layer-up in full surfing wetsuits designed for temperatures of +8°C. Currently, there are no wetsuits on the market that satisfy the thermoregulation needs for these athletes while providing proper protection to the chest, back, and legs when navigating the erratic elements of arctic waters. The wetsuit addresses these challenges by providing male wakeboarders an ultra-warm, impact protective wetsuit for arctic temperatures.
Sorbet Sunrise is an original Whole Garment design consisting of a highly shaped silhouette using horizontal knitting. All processing steps to create this sweater used technology by Shima Seiki, a leader in flat-bed knitting technology. It also employs an engineered digital print, constructed by individually placing each gradient into the rhomboid shapes. This overall print combines principles of an engineered design and an overall design by consisting of many shapes that arrange into a larger ombre effect. Innovative technologies were essential to the success of this highly designed garment, including: Adobe Creative Suite, Shima Seiki ApexONE, Shima Seiki MACH2X SWG-X 8-gauge machine, and a Shima Seiki SJp-160 flat-bed product printer. The sweater was knit using two ends of 100% cotton 20/2 open-end spun yarns.
The rising demand for leather goods in the marketplace, coupled with the global shift in awareness toward reducing carbon emissions, will require the leather industry’s carbon footprint to be taken into account. Alternatives to animal leather are imperative for the future of the leather industry in order to meet market demand, if we are taking into consideration the well-being of our planet and society. The objective of this project was to explore using vegan tea leather as an alternative to animal leather for garment production and accessories. A self-developed vegan tea leather was used to create a cocktail dress with earth tone flower arrangements as decoration and accessories. This sleeveless cocktail dress was created using a princess line bodice joined at the waist seam to a six-panel mini flare skirt with a scalloped hem.
Reflection and response to waste and fabric layout challenges posed by a larger body of work were addressed by designing a garment that would incorporate a solution. This design solution incorporated the use of digital textile printing, repeated motifs, and laser-cutting to make use of the smaller, wasted areas left on digitally printed yardage. Smaller motifs were set within the unused areas of the digital layouts and laser-cut; these motifs were then sewn to a base fabric to create a new textile with texture and movement. The process incorporates the use of widely accessible technology, making this approach easily repeated and expanded on in future work.
Organic Collaboration Between Nature, Designer, and the Wearer - Look 1

Organic Collaboration Between Nature, Designer, and the Wearer Look 1 explores the idea of combining biology and fashion using a bacteria-based dye alternative to traditional black dye. This colorant was created by combining Janthinobacterium lividum with acorn tannins. Bacteria is a regenerative source, thus being a more sustainable alternative to the production of synthetic dyes. These garments are fully reversible and have the ability to be worn multiple ways. The reversible high neck long coat in this outfit is made from linen and cotton canvas featuring curved seams. This coat was dyed by only allowing the bacteria to grow in some areas which creates a unique pattern and was later stained using tannin dye paste. The bacteria dyed t-shirt in this outfit can be worn as a full-length double layer t-shirt, a twisted cropped t-shirt, a single layer dress/tunic, or something in between.
Three-dimensional printing (3DP) has been applied by apparel designers to create 3D printed wearable products. The purpose of this design research is to explore the feasibility of integrating 3D printed structure for athleisure sportswear using Fused Deposition Modeling (FDM) 3D printer and thermoplastic polyurethane (TPU) filament. Variations of 3D printed structures are 3D modeled in Rhinoceros using the predeveloped unit and references the structure in traditional woven textiles. 3D printed samples are evaluated based on preset criteria for performance in the garment design. The hooded sweatshirt is developed with venting features in the front bodice with 3D printed flexible structures. Construction techniques are explored to best integrate TPU filament printed structures with traditional fleece knit for sportswear. The study results suggest that ready-to-wear apparel has the potential to adopt 3D printed parts through developing resilient structures from traditional textiles to explore functional and fashionable features.