

ADITI
GALADA

Design Portfolio

2021

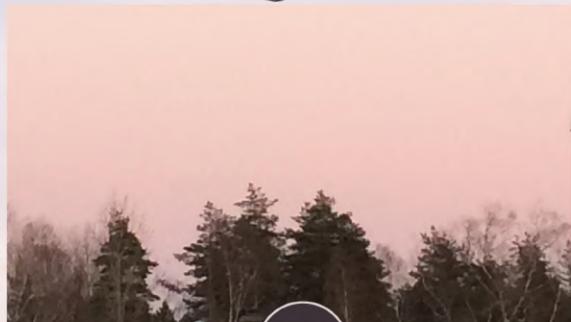
Digital Prototyping



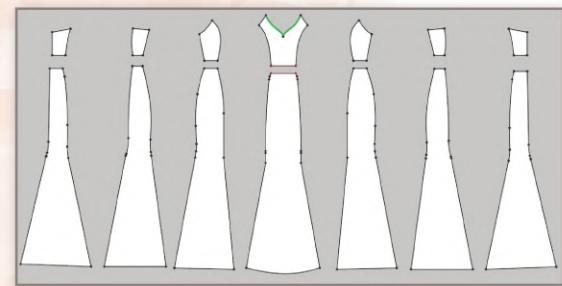
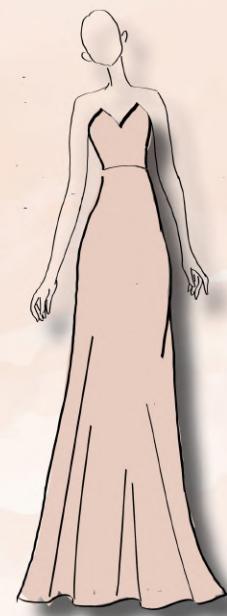
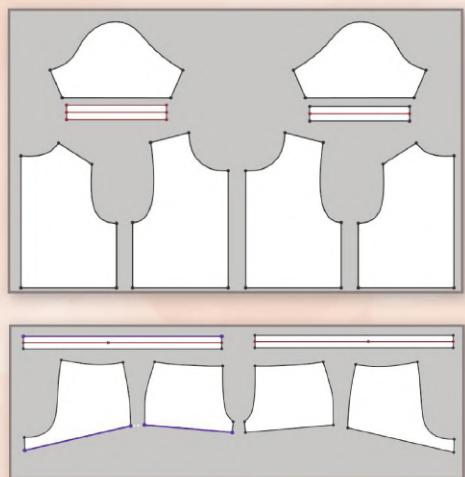
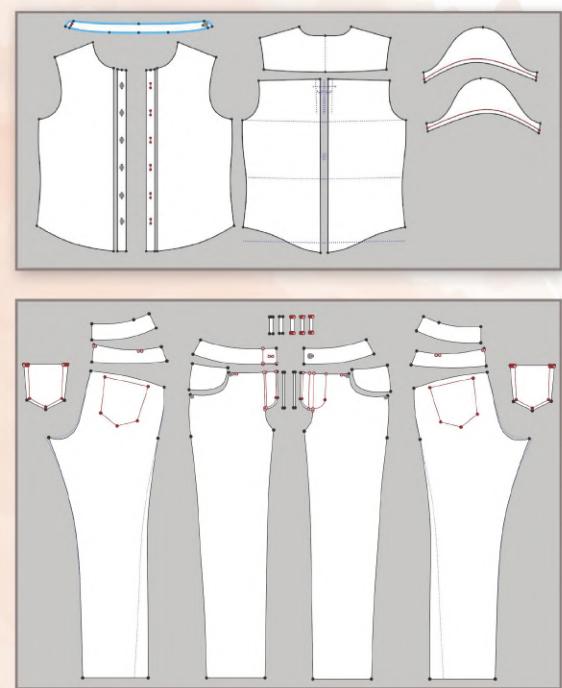
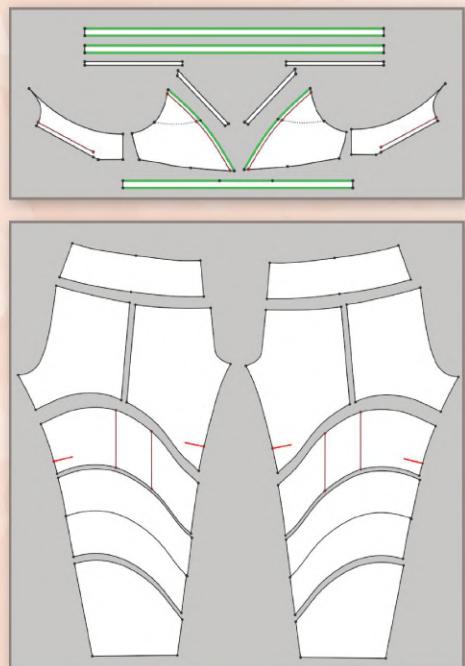
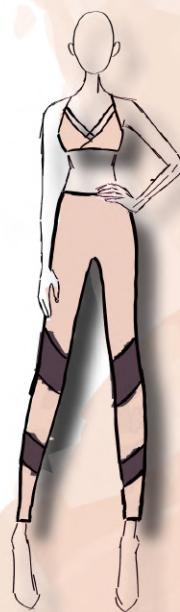
LAVENDAR

HABITAT CLOTHES TO LIVE IN

The collection supports the diverse roles a woman must play to succeed in various facets of life. Shades of peach represent the romantic side and shades of lavender represent grace, and luxury. Bold silhouettes make the ultimate juxtapose between power and elegance empowering the wearer to deal with everyday challenges.



LAVENDAR



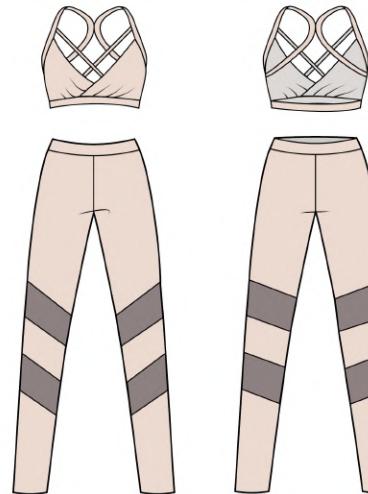
HABITAT CLOTHES TO LIVE IN		SEASON	SPRING 2022	STYLE NO.	001
		CATEGORY	CASUAL	FABRIC	100 % Cotton
		NAME	Jeans	SIZE	XS, S, M, L
DESCRIPTION					



HABITAT CLOTHES TO LIVE IN		SEASON	SPRING 2022	STYLE NO.	002
		CATEGORY	FORMAL	FABRIC	100 % Silk
		NAME	Shirt	SIZE	XS, S, M, L
DESCRIPTION					



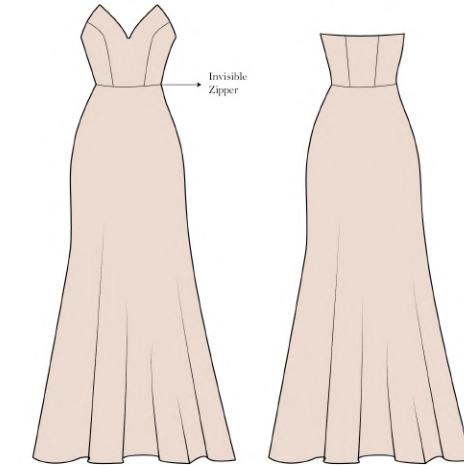
HABITAT CLOTHES TO LIVE IN		SEASON	SPRING 2022	STYLE NO.	004
		CATEGORY	SPORTSWEAR	FABRIC	90% Nylon 10% Spandex
		NAME	Bra & Legging	SIZE	XS, S, M, L
DESCRIPTION					



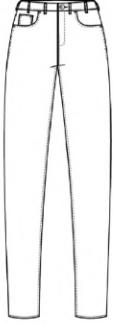
HABITAT CLOTHES TO LIVE IN		SEASON	SPRING 2022	STYLE NO.	003
		CATEGORY	CASUAL	FABRIC	100 % Cotton
		NAME	T-Shirt & shorts	SIZE	XS, S, M, L
DESCRIPTION					



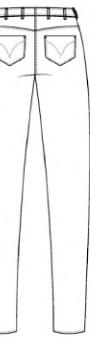
HABITAT CLOTHES TO LIVE IN		SEASON	SPRING 2022	STYLE NO.	005
		CATEGORY	EVENING WEAR	FABRIC	100 % Silk
		NAME	Gown	SIZE	XS, S, M, L
DESCRIPTION					



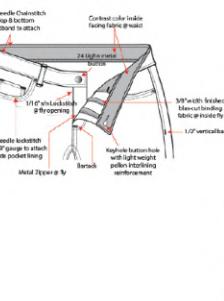
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SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			



HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			



HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
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NAME	Jeans	SIZE	XS, S, M, L			
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HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			

Code	Description	QC	Tol(-)	Tol(+)	6
D0001	Waistband - Circumference Top Contour	Yes	1/2	3/4	33 1/2
D0002	Waistband - Circumference Bottom Contour	Yes	3/4	3/4	32 1/2
D0015	Low Hip - Position from Top Waist Edge	Yes	0	0	6
D0016	Low Hip - Circumference (1" from top waist)	Yes	1/4	1/4	37 1/2
D0065	Thigh - Circumference 1 Inch Below Crotch (Flat Fold)	Yes	1/2	1/2	24
D0024	Knee - Circumference (3" from the crotch point)	Yes	3/8	3/8	17 1/4
D0025	Leg - Circumference 1" from knee	Yes	1/4	1/4	13 1/4
D0037	Front Rise - Top Waist Edge to Gusset Seam	Yes	1/4	1/4	9 1/4
D0041	Back Rise - Top Waist Edge to Gusset Seam	Yes	1/4	1/4	14 1/2
D0042	Gusset - Width	Yes	1/8	1/8	3
D0048	Gusset - Length	Yes	1/4	1/4	9
D0051	Inseam - Parts Regular	Yes	1/2	1/2	27 1/2
E0043	Front Pocket - Opening	Yes	1/4	1/4	8
E0044	Back Pocket - Opening	Yes	1/4	1/4	5 1/2
E0057	Pocket - Bag Length	Yes	1/4	1/4	10 1/2
E0058	Pocket - Bag Width	Yes	1/4	1/4	0

HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			

BILL OF MATERIALS						
Material	Quality (details)	Supplier	Price	Qty	Placement	Black B56 Purple P76
Woven Fabric	97% Cotton 3% Elastane / Woven	Jean's Fabrics	\$5.55	2	Shell	Enter Garments Black Purple
Woven Piping	100% Cotton / Woven	Jean's Fabrics	\$1.45 yd	3	Packaging	Pocket Bag Bleached sand Bleached sand
Interlining	100% Polyester	Mood Fabrics	\$ 0.51 m	1	Interlining	— Reinforcement as needed White White
Velcro	180 mm	Mood Fabrics	\$ 0.10	1	Velcro	— Black
Snap	180 mm	Mood Fabrics	\$ 0.10	1	Snap Cr.	Nickel Black
Zipper	YKK Zipper DTW	Mood Fabrics	\$0.18	1	Zipper CF Fly	Black Purple

HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			

Item	Supplier	Material	Color	Size	Quantity	Comments on both neck pockets	Color	Color
Thread	Mood Fabrics	Polyester thread	Black	1	\$0.00	Thread on both neck pockets	Grey	Grey
Perma Core Thread (size 40tex)	Jean's Fabrics	Mood Fabrics	Black	1	\$0.650	Thread — Top	Grey	Grey
Thread	Mood Fabrics	Sewing thread 40tex	Black	1	\$0.00	Thread — Top	Grey	Grey
Thread	Mood Fabrics	Sewing thread 38tex	Black	1	\$0.00	Thread — Loops	Black	Purple
Label	Label from garment	100% Polyester	Black	1	\$0.03	CB Main Label	Peach	Peach
Label	Label from garment	100% Polyester	Black	1	\$0.03	CB Label	White	White
Label	Label from garment	100% Polyester	Black	1	\$0.03	CB Label	White	White

HABITAT CLOTHES TO LIVE IN						
SEASON	SPRING 2022	STYLE NO.	001	CATEGORY	CASUAL	FABRIC
			98% Cotton 2% Spandex			
NAME	Jeans	SIZE	XS, S, M, L			
DESCRIPTION	5 pocket jeans	FIT	Tight			

Tag General Cover	Factory Sourced	\$0.09	1	50.00	Hangtag cover	Black	Black
Tag Fit Tag	Factory Sourced	\$0.03	1	50.03	Fit Hangtag	Black	Black
Tag Hangtag SOL sticker	Factory Sourced	\$0.01	1	50.01	Sticker	White	White
Attacher points	Factory Sourced	\$0.01	1	50.01	Fastener	Clear	Clear
Bag Polybag (with bottom) (small)	Factory Sourced	\$0.03	1	50.03	Poly Bag	Clear	Clear



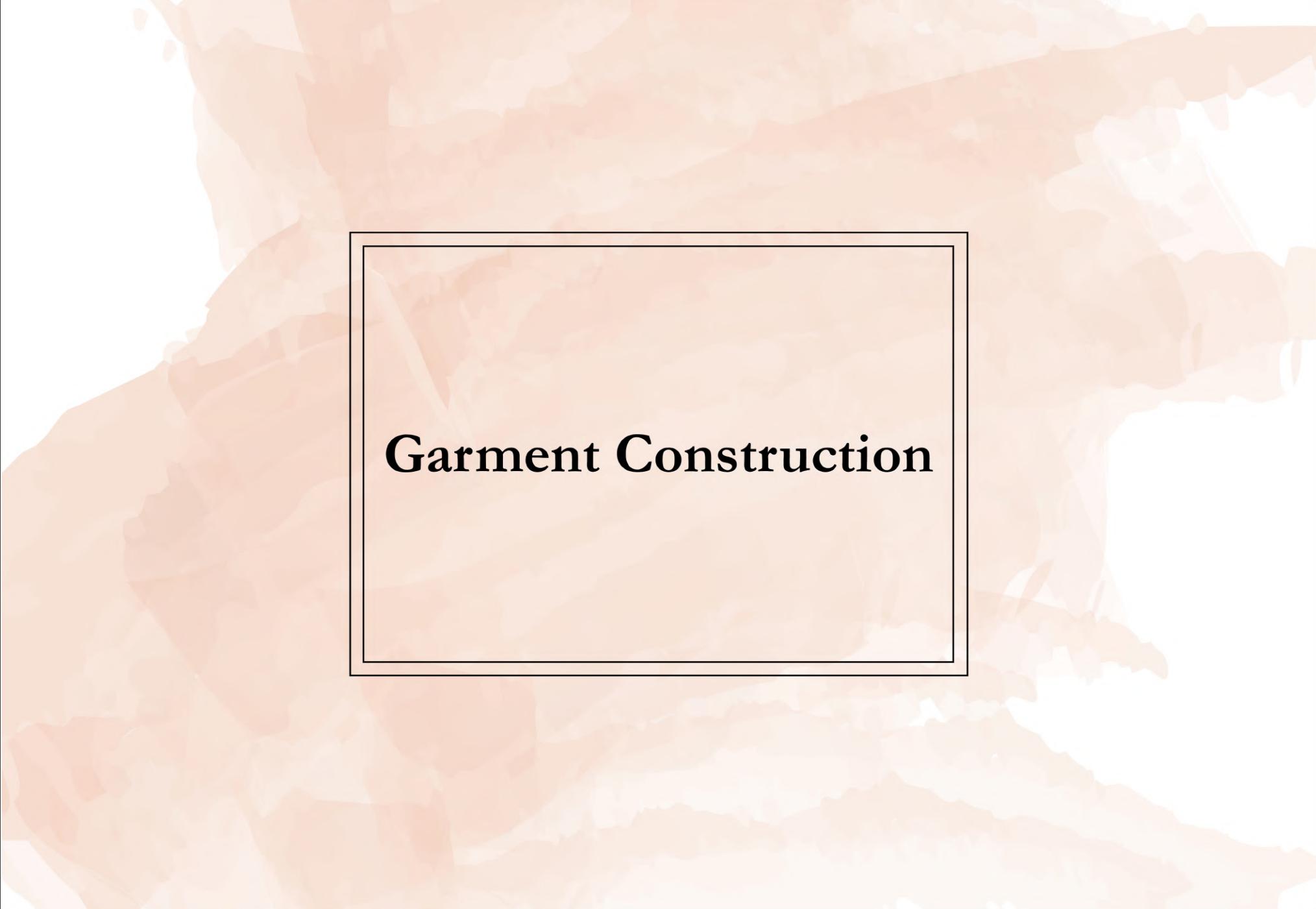






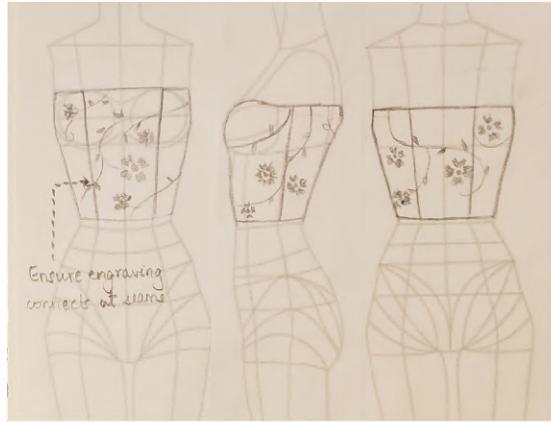
Transformational Reconstruction



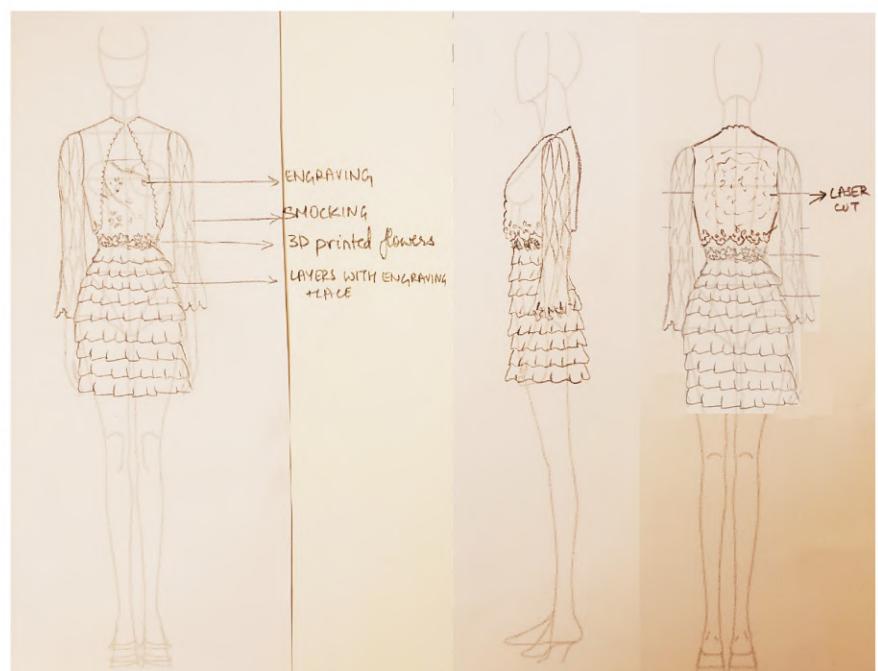


Garment Construction

Sakura



A romantic look was achieved through the hourglass silhouette which has known to be a charm for generations. The shades of pink relate to joyfulness and the dark shade of purple is associated with power. The engravings on the dress are inspired by cherry blossoms which signify beauty and mortality. They carry great importance in the Japanese culture and are called "Sakura" in Japanese. The smocking and motif on the jacket are inspired by the tree of life which signifies strength and growth in Buddhism.

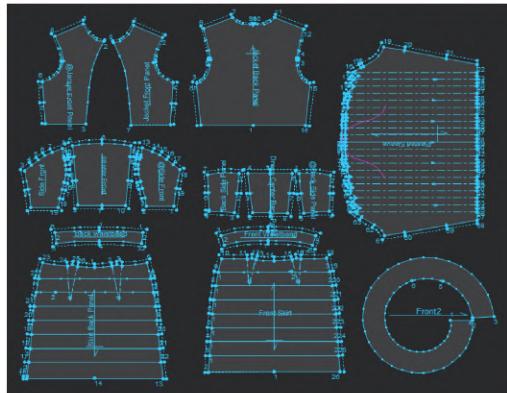


Sakura

A combination of handwork and new technologies are used to create the outfit. To create the garment, first, patterns were developed, designs for textures were made, laser cutting and engraving were done, panels were sewn together and the 3D printed flowers were attached to the waistband.

- Utilized 2D/3D software programs (Adobe Photoshop, Adobe Illustrator, Optitex PDS and Clo3D) to visualize and improve the design
- Experimented with novel production methods (3D printing, laser cutting & engraving and sonabond ultrasonic fusing)

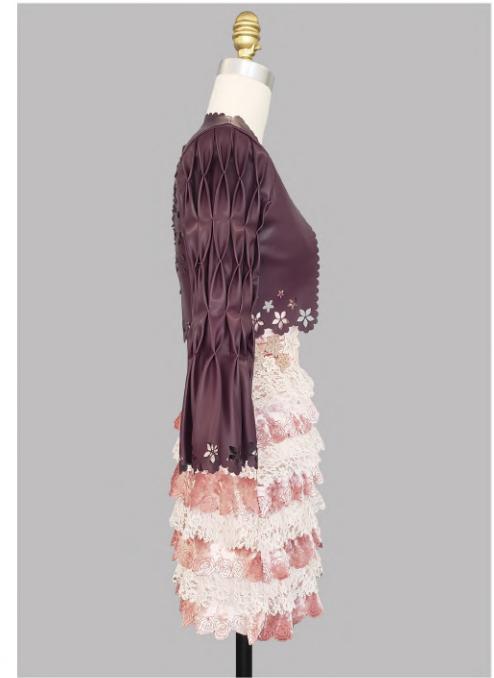
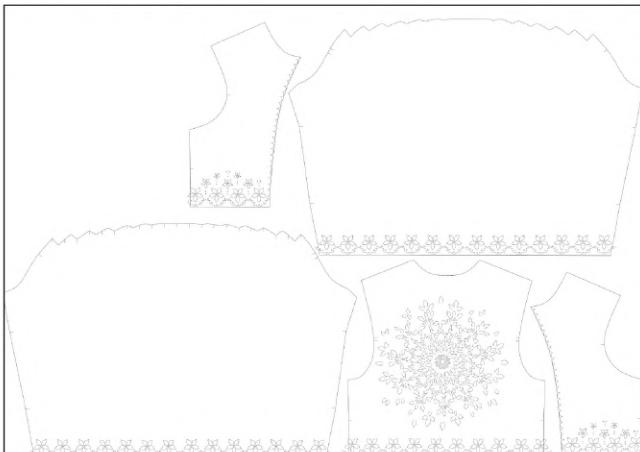
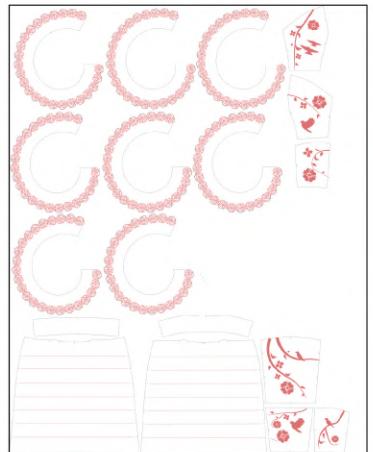
Pattern Making



3D printing File

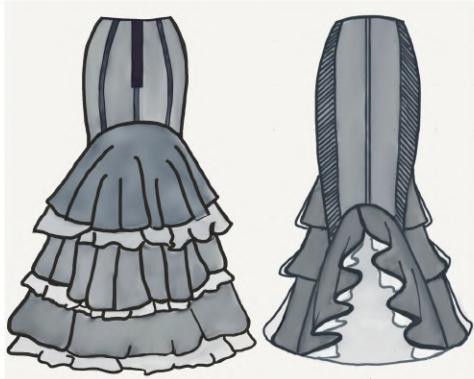


Laser Cutting File



Forever New Or Retro?

The iconic dove tail ruffled skirt gives the wearer a casual chic look. The layered flounces with polka dots & delicate tulle and tantalizing pin tucks on the side panel unveil a playful femininity.



Classic Fairytale

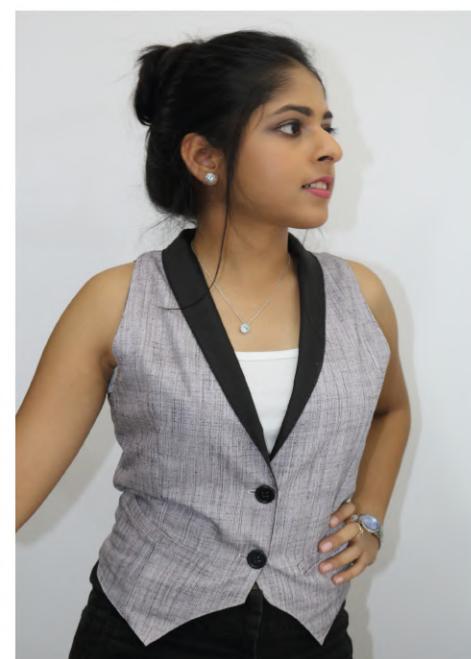
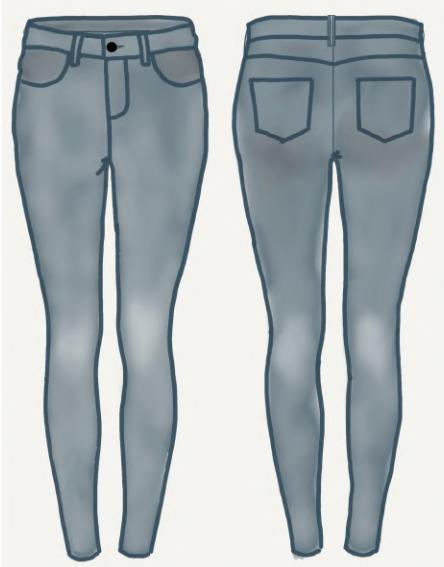


While symbolizing the journey from impediment to liberty the plush and comfy ball gown utilizes floral appliques and elegant fabrics to give a sense of depth and dimension which is sure to take every girl to her own fairyland.



Work Pret

Pret is a range of modern power dressing garments. Crafted with superior cottons and outstanding finishing, these garments are sure to make a statement. The reversible waistcoat brings with it a new freshness. The timeless indigo jeans has an extraordinary calming effect when paired with a polo t-shirt.



NonViolent Overlay

Clad in this satin lined quilted faux leather jacket, you have powers beyond ordinary. The power to woo every man, power to make others bow in your subservience and power to rule the world!



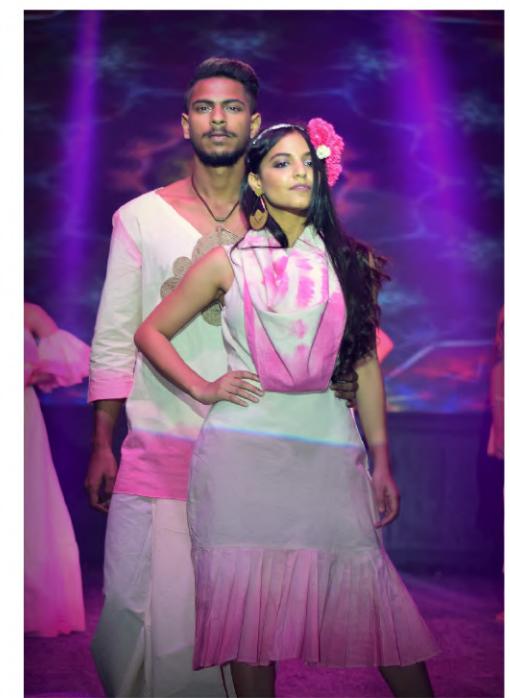
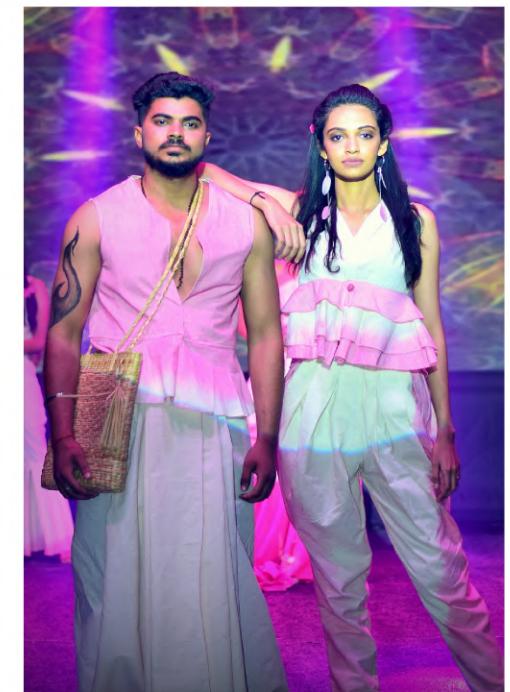
Daily Occasions

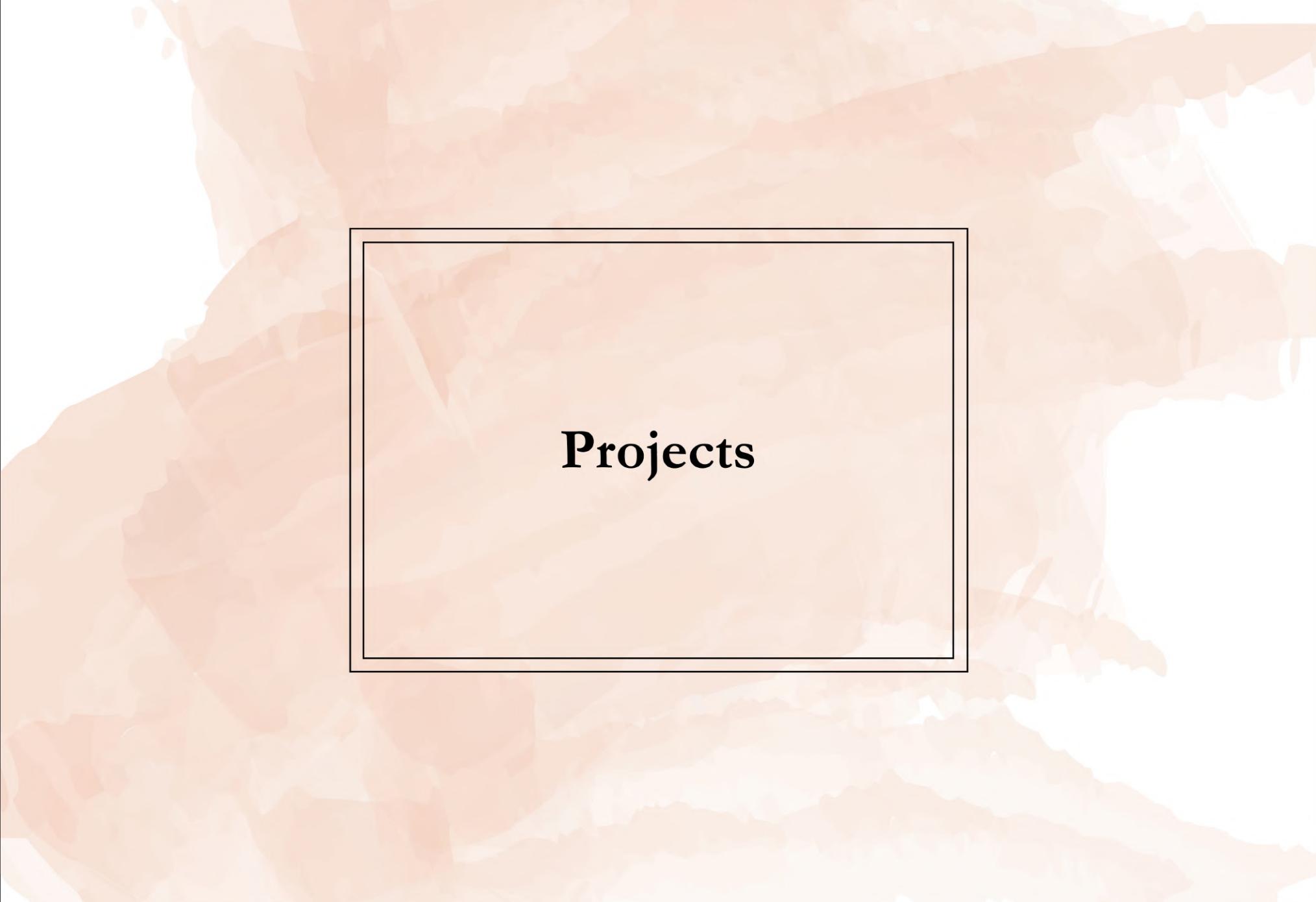
Fashion is best suited when combined with nature. A nature inspired collection, where style meets sustainability, created with attractive designs and blushed with a natural strawberry dye, adds a touch of cotton to daily occasions.



Natural Dye







Projects

Sportswear T-Shirt for Enhanced Ease of Motion & Ventilation

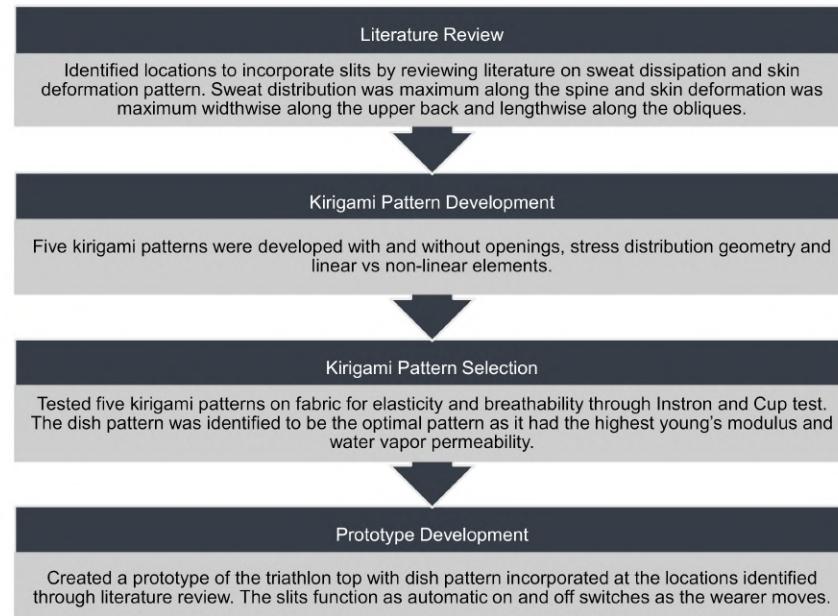
(Understanding Functional Aspects of Clothing & Design)

The present research study aimed to develop a prototype of triathlon top with kirigami slit patterns which are expected to enhance mobility and thermal comfort by improving stretchability and breathability of the garment. The stretchability is provided by “opening up” of precise geometric cuts/ design structures on the material instead of the fabric itself. Additionally, the slit structure improves sweat evaporation by increasing air flow in the clothing assembly.

Problem Analysis

Sensorial Discomfort	Thermal Discomfort	Motion Restriction
<ul style="list-style-type: none">Chafing due to friction at seamsBunching of excess fabric in the underarm area	<ul style="list-style-type: none">To maintain the core body temperature, the body triggers the physiological process of sweating.Posterior sweat dissipation is lower as compared to anterior sweat dissipation, however, the airflow pattern facilitates sweat evaporation from the chest as compared to the back.Clothing acts as a barrier to efficient body heat transfer and leads to excessive sweating which causes<ul style="list-style-type: none">Fabric to cling to the bodyExcessive sweat to drip down rather than creating a cooling effect through evaporation	<ul style="list-style-type: none">Garments are generally designed and fitted to standard body positions; however, body dimensions change during active sports.Especially during cycling, triathletes position themselves by resting their forearms on the handle to reduce the aerodynamic drag which created a high higher tensile stress on the garment.

Methodology

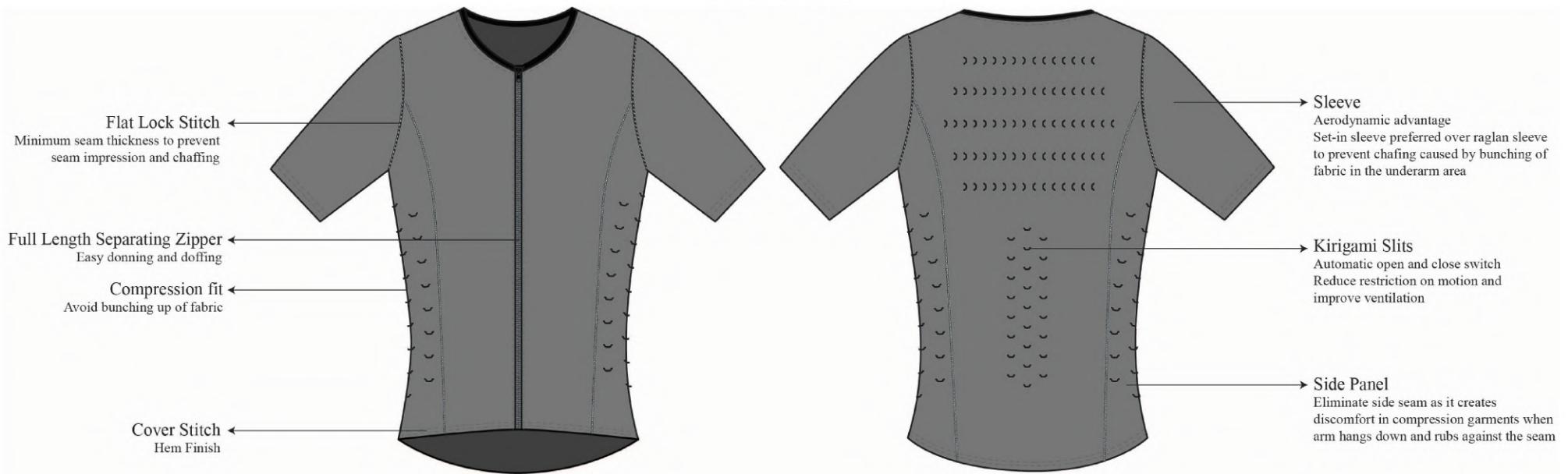


Slit Pattern	Control	Line	Chromosome	Diamond	Oblong	Dish
Young's Modulus (Wale)	0.95	0.23	0.21	0.21	0.22	0.20
Young's Modulus (Course)	3.63	1.69	1.08	1.10	0.84	0.16
Water Vapor Permeability	812.58	810.04	799.02	827.83	811.73	832.92

Sportswear T-Shirt for Enhanced Ease of Motion & Ventilation

(Understanding Functional Aspects of Clothing & Design)

Technical Flat



Prototype

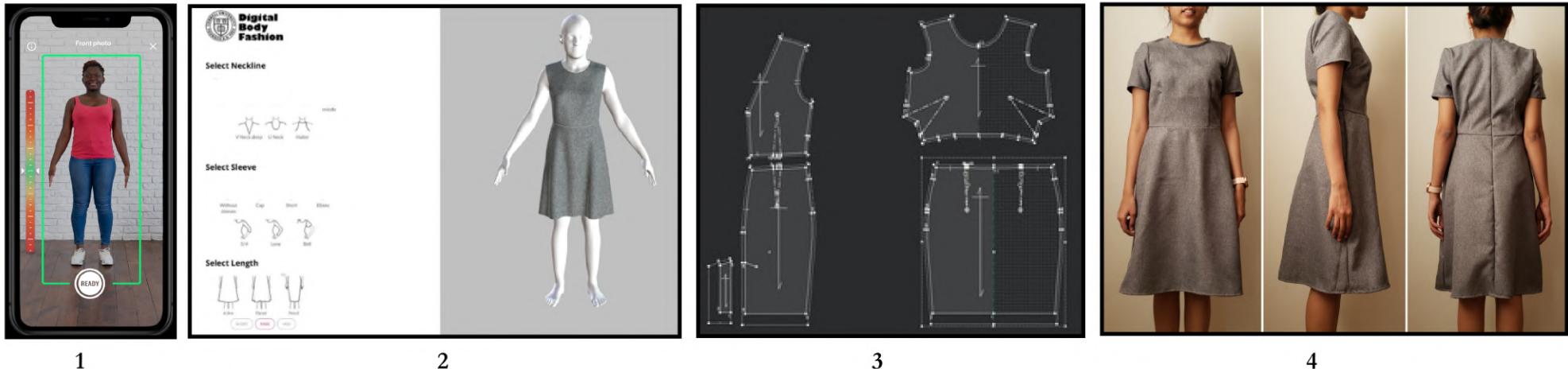


Mass Customization through Mobile Body Scanning

(Cornell Digital Fashion and Body Scan Research Lab)

Collaborated with a five member research team to explore:

- (1) how online mass customization experience differs when collecting measurements manually and through a mobile body scanning app
- (2) how the garments created using manual/ body scan measurements fits the customer.



1. Capture Measurements

Treatment Group

Participants were scanned through a mobile body scanning software program to extract 70 body measurements

The 3D body avatar was exported as an .obj file into the pattern making software

Control Group

Provide body measurements by manually measuring with a tape

2. Website for Dress Customization

The users could choose from a set of necklines, sleeves, dress type, length and shape to create a customized dress

3D images of selected style combinations on a default avatar was updated dynamically

3. Garment Development

Developed custom-fit patterns, laser cut on a 100% polyester fabric and created the garments

4. Fit Testing

Surveyed participants to evaluate fit perception of the rendered prototype, expectations from the dress and customization experience

Collected images and feedback on fit of the physical dress from participants

Measuring body dimensions is complicated and is subject to error when recorded manually by novice gaugers. The fit of garments of the control group (manual measurement) varied largely depending how accurately the participants recorded their measurements.

When developing patterns for the treatment group, the fit was checked by running simulations on customized avatars obtained through body scanning. As a result, the garments created for the treatment group fit majority of the participants well without drag lines or fold lines.

Developing a Prediction Model for Crotch Length Measurement

(Cornell Digital Fashion and Body Scan Research Lab)

Improper garment fit creates inconvenience and dissatisfaction among customers. The crotch length measurement is crucial to determine the comfort and aesthetic fit of bifurcated garments such as trousers. However, measuring the crotch length is difficult and subject to error when recorded by novice gaugers.

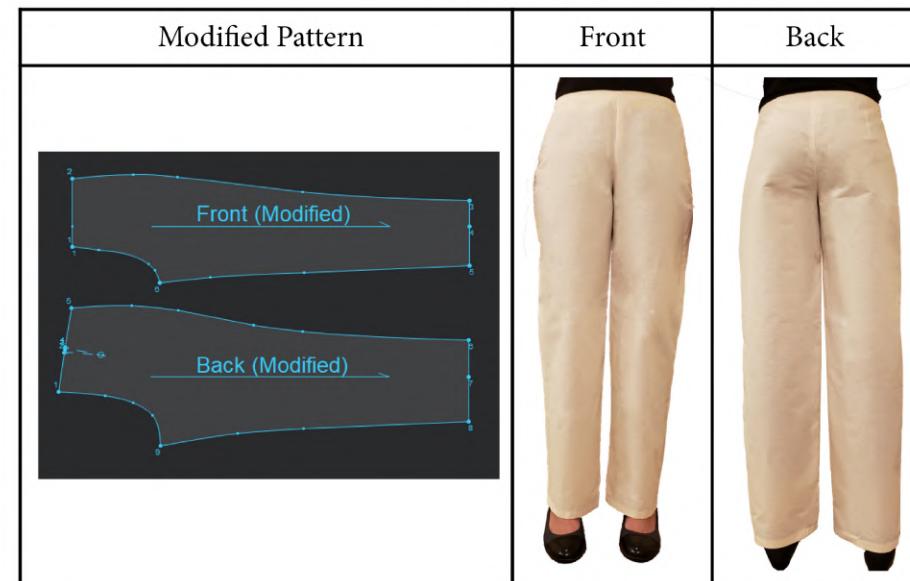
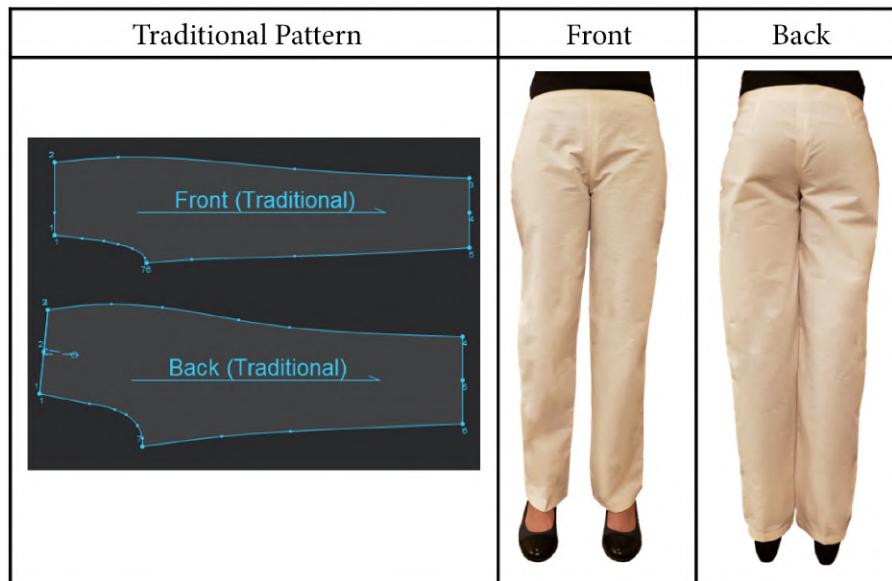
Developed multiple regression models from body measurements of 200 randomly selected women in the size USA database to predict crotch length:

	Ordinary least square regression			Ordinary least square regression			Ordinary least square regression			Lasso regression			Principal Component Regression		
K	4			5			6			5			4		
Measure	Training	Validation	Test	Training	Validation	Test	Training	Validation	Test	Training	Validation	Test	Training	Validation	Test
BIC	480.15	183.26	184.15	478.88	183.73	184.17	483.12	186.12	186.79	500.51	178.55	176.68	609.91	211.21	211.09
AICc	464.23	175.68	176.56	460.51	175.41	175.84	462.27	177.25	177.93	482.13	170.23	168.36	594.05	203.62	203.50
RSquare	0.8601	0.8872	0.8771	0.8625	0.8957	0.8871	0.8632	0.8990	0.8900	0.8547	0.8515	0.9053	0.6177	0.6315	0.7545
RSquare Adj	0.8552	.	.	0.8564	.	.	0.8558	0.6042	.	.

The lasso regression model was chosen as it explained 90.53% of variation in crotch length using just five easy to measure predictor variables.

$$\text{Crotch Length} = -10.67 - 0.17 \times (\text{height}) + 0.47 \times (\text{hips}) + 1.02 \times (\text{waist height}) - 0.46 \times (\text{knee height}) - 0.10 \times (\text{arm length})$$

All measurements are required to be in imperial units

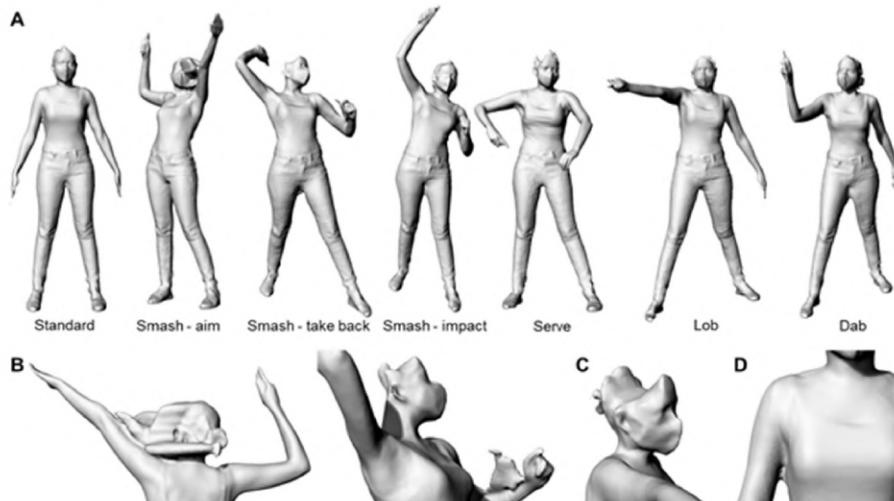


3D Scanning in Dynamic Badminton Positions

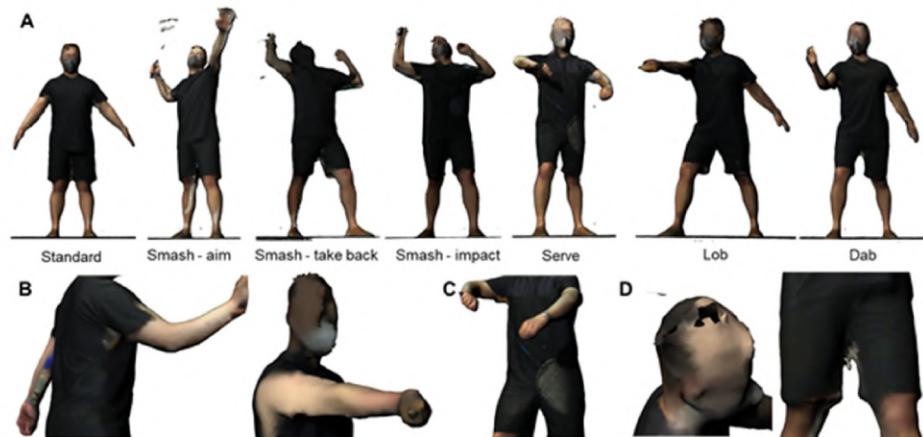
(Cornell Digital Fashion and Body Scan Research Lab)

Garments are generally designed and fitted to standard body positions. However, the body dimensions change as a result of strenuous exercises, extreme body movements and asymmetrical positions assumed during active sports. As a result, sportswear garments stretch more and undergo higher tensile stress. When clothing hinders the range of motion, the resultant discomfort causes the performance of the wearer to decline. To prevent such drop in performance, the design of activewear t-shirts must accommodate changes in dimensions. The aim of the study was to explore the possibility of using two types of 3D scanners to scan participants in active body positions and check the validity of the scan.

Scan obtained from 3D body scanner (Human Solutions GmbH, Germany)
(A) Standard and six dynamic poses, (B) mis-patched parts, (C) loss of head data, (D) unclear armpit boundary.



Scan obtained from portable 3D scanner (Occipital Inc., Boulder, CO)
(A) Standard and six dynamic poses, (B) blurred surfaces indicating inaccuracy, (C) racket recognized as a part of the body, (D) loss of head and noise around the crotch.



Overall, the stationary body scanner could provide high quality results for most of the active body postures involved in badminton. It sometimes created an error during the mesh-patch phase, but it could generate the right model in a different direction.

On the other hand, the portable scanner did not show a satisfactory result, especially for the dynamic poses which it would not be easy for a participant to keep for a fair amount of time. When the participant moved, it ruined the 3D scan result.

3D body scanning requires the participants to stand in a still posture in order to capture body measurements. However, standing immobile might not accurately represent the body dimension when in motion. Therefore, employing 4D scanning would enable a more comprehensive analysis of the change in body dimensions as a result of body motion.

Shape Changing Woven Patch

(Hybrid Body Lab, Cornell University)

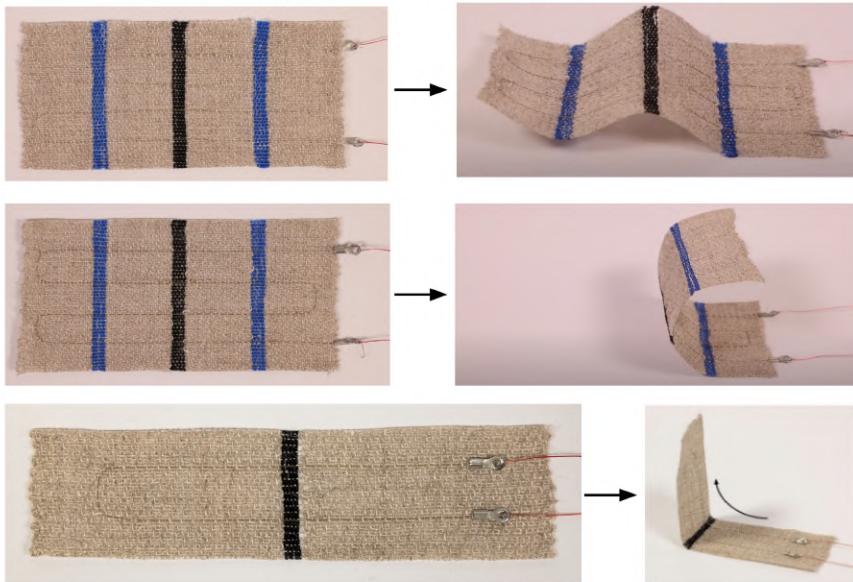
Collaborated with a four member research team to develop a woven patch that enables diverse movements such as bending, expanding, and shrinking on actuation.

Embedded shape memory alloy (SMA) wires into the weave to achieve a seamless form factor

Utilized different weave techniques and yarns to manipulate the stiffness of the patch locally and enable controlled movement

The patches can be attached or detached easily without requiring permanent alterations

A few examples of shape change on actuation are shown below:



Expanding

Shrinking



The patches can be used to improve functionality or enhance aesthetics.



► Linen warp

► Silk warp

► Twill weave

► Plain weave

► SMA wire

Expanding

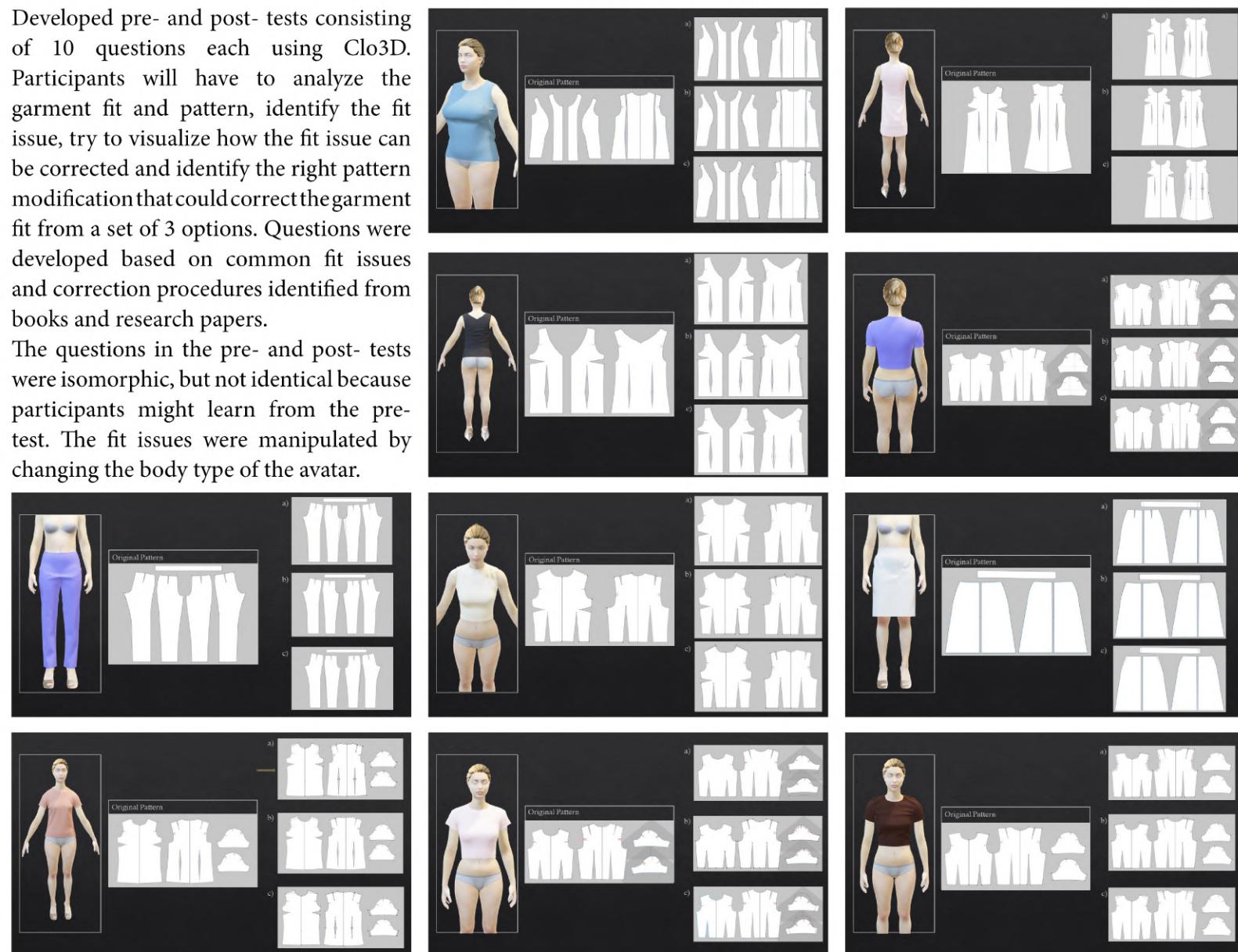
Weaving the patch on handloom

Fit Correction Evaluation: Pre-Training Questionnaire (ongoing project)

(Human Factors: Anthropometrics & Apparel)

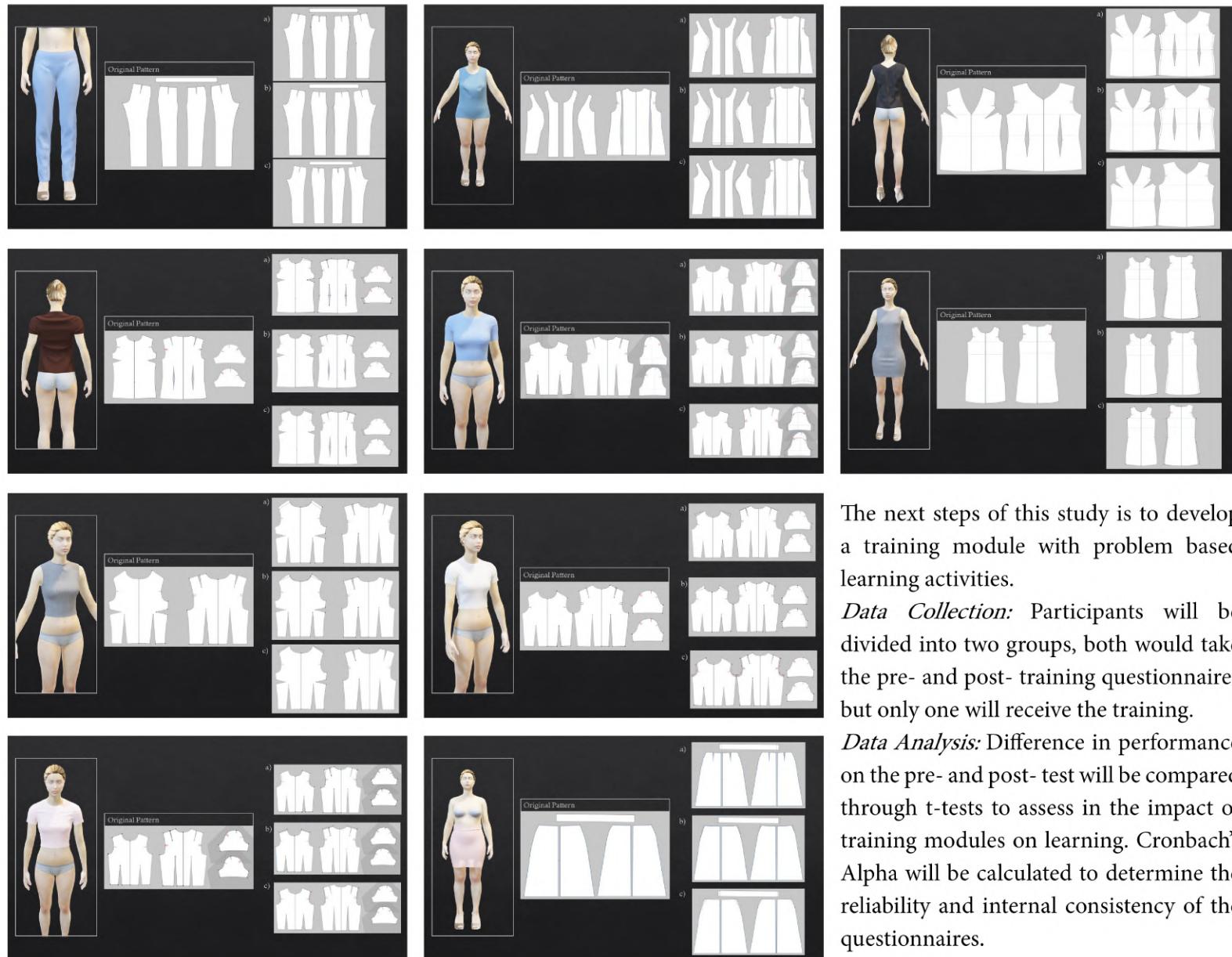
Developed pre- and post- tests consisting of 10 questions each using Clo3D. Participants will have to analyze the garment fit and pattern, identify the fit issue, try to visualize how the fit issue can be corrected and identify the right pattern modification that could correct the garment fit from a set of 3 options. Questions were developed based on common fit issues and correction procedures identified from books and research papers.

The questions in the pre- and post- tests were isomorphic, but not identical because participants might learn from the pre-test. The fit issues were manipulated by changing the body type of the avatar.



Fit Correction Evaluation: Post-Training Questionnaire (ongoing project)

(Human Factors: Anthropometrics & Apparel)



The next steps of this study is to develop a training module with problem based learning activities.

Data Collection: Participants will be divided into two groups, both would take the pre- and post- training questionnaires but only one will receive the training.

Data Analysis: Difference in performance on the pre- and post- test will be compared through t-tests to assess in the impact of training modules on learning. Cronbach's Alpha will be calculated to determine the reliability and internal consistency of the questionnaires.