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Throw inside into the traditional and computerized pattern making in case of fashion industry

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Abstract: The traditional pattern-making procedure takes time and requires an expert understanding of fashion design. Pattern designers must use a "trial and error" process until client 14 is happy to create a form-fitting garment that meets each customer's demands of customer 13. Various strategies, from the actual working environment to overall manufacturing processes, are being used to enhance recent growth in the textile and fashion industries. With more production procedures and tools available, the process is evolving significantly. Creating rectified patterns, which significantly impacts the entire production process, is one of the most frequent procedures in this industry. Making a design requires various strategies because it depends on the various aspects we want to use to make a particular product for a customer. In recent days, introduction of different computerized system has made the overall system very easy with a focus on new innovation and higher productivity in the field of fashion design.

Keywords: Textile and fashion industry, Manual and computerisedpattern, design and optimisation.

Introduction

Fashion design refers to as pattern cutting, garment fabrication design, etc. On brown paper, pattern designers traditionally create four lines for garment construction based on a drawing for garment manufacture. The pattern is a pre-drawn design on a sheet of stiff white paper that illustrates the many parts of a dress in size and measurement. Pattern making is creating templates to produce sewing patterns for clothes and other creative projects. A pattern-making technique aids in translating a designer's imagination from a sketch to a finished product. Also known as "Technical Designers" pattern makers. When fashion designers have finished designing a garment, (Puri, 2013)technical designers begin to work on creating the garment's pattern. There are several distinct but related steps in the manufacturing of a garment. Every step of the garment-making process substantially impacts a garment's aesthetic appeal, proper fit, and drape qualities(Kazlacheva, 2017).The extensive use of computers has resulted from the development of technology over the past few decades. Simple computer programs are used in homes, schools, and small-scale settings, while sophisticated, cutting-edge machines with technological advancement are used in large-scale settings, retail stores, and industries(Han et al., 2017). Leading fashion corporations in domestic and international markets clearly understandIT evolution's role since the computer revolution(Kazlacheva, 2017).

Methodologies

Sloper pattern making

It is an essential garment pattern with no seam allowance from which other similar ways are designed. It is also a basic or foundation pattern to develop and create new garment patterns. All basic sloper/block is based either on standard or custom measurements. It is a two-dimensional method that manipulates an existing foundation pattern 'sloper' or a 'block'. The current is cut out of muslin fabric comfortably to fit a dummy body or an individual(Han et al., 2017).

Computerization in Pattern Making

In the fashion industry, the garment creation process starts from the 2D domain: The pattern maker creates the 2D sewing pattern using traditional, often tacit knowledge, established templates and a few standard measurements, such as waist circumference, shoulder width, etc(Yang et al., 2007). There are many powerful techniques to model shapes directly in 3D, with various approaches specifically developed for 3D garment modelling, e.g., sketch-based user interfaces and input gestures in physical or virtual reality via 3D scanning or data-driven modelling. Advances in human body modelling facilitate custom digital tailoring garments that fit the personalised body avatar without relying on standard sizes(Puri, 2013). However, the 2D sewing pattern of the garment is still necessary for accurate cloth simulation and manufacturing of the physical apparel(Sayem et al., 2010).

Computer-aided design (CAD) uses computer technology in real or virtual designing. The design of geometric models for object shapes is often called computer-aided geometric design. The output of CAD often must convey symbolic information such as materials, processes, dimensions, and tolerances according to application-specific conventions, just like in manual drafting of technical and engineering drawings(Sayem et al., 2010).

CIM in the apparel industry refers to the integration of manufacturing processes at different stages with the technological intervention of computers. The integration thereby helps achieve multiple benefits such as easing the cumbersome procedures at the optimum quality standards, exploring new fabric qualities and innovative ideas simultaneously, and fulfilling the consumers' requirements(Jhanji, 2018). The basic principle of CIM is the development of directions and techniques to integrate technical, production, and marketing processes and procedures, the underlying basis of integration being the use of computer and communication technology(Puri, 2013).

Importance

Pattern-making converts a sketch into a garment; hence, it links the design and production. Three major elements, interpretations, technique, and technology, complete the development of garment pattern making. Performance: This is the ability to read and understand the design/ sketch and its objective, a technician can resolve technical challenges but none of it is completed until the design goal is achieved/ accomplished. Technique: The pattern maker should have a large set of tools that can be implied/selected or used while making different specifications/ designs to achieve its results. To a huge extent, efficient and fruitful customised garment production depends upon the technological facts interpreted into the pattern making. One (pattern maker) should have a specialised mindset and understand each detail's production implementations in the relevant pattern. Pre-requisite: Knowledge of basic geometry is necessary because pattern-making is based on logic and mathematical calculation, whether done manually or by software(Cavanagh & Peté, 2017).

Available 3D CAD systems for the fashion industry

Commercially available 3D CAD systems for 3D garment visualisation and virtual try-on software can be categorised into two groups based on the underlying working procedure to create 3D designs(Cavanagh & Peté, 2017),(Liu et al., 2018).

Virtualfashion1, available in two different versions: VF Professional and VF basic, provides a 3D workspace for the designer to create 3D designs interactively on 3D garment moulds linked with virtual human models. The software contains male and female virtual models for design purposes and allows the designer to import models from other software such as Poser and Daz. The designer can select any garment mould associated with either a male or female model, start the garment design by modifying the mould, and apply fabric to the design from a fabric library(Cavanagh & Peté, 2017).

Modaris 3D Fit from Lectra is a 3D virtual prototyping solution which associates 2D patterns, fabric information and 3D virtual models. It enables the simulation of 3D design from 2D pattern pieces developed by a wide range of 2D CAD software and helps the designer to validate fabrics, motifs and colours. It allows an onsite or remote review of the virtual prototypes in three dimensions and provides the opportunity to check garment fit in various fabrics and sizes. It has a broad library of over 120 materials and their mechanical characteristics. It also allows the designer to input new fabric properties to view differential drapes(Liu et al., 2018).

Browzwear is a 3D design and visualisation software capable of turning 2D patterns into 3D virtual garments on customisable virtual models. It is interfaced with pattern design, grading and marker-making software (AccuMark from Gerber) and is offered to the market as AccuMarkVStitcherTM by Gerber. The software allows customisation of the integrated virtual human models utilising a range of parameters, from age and gender, through body measurements and posture, to skin tone and hairstyle, and even through the stages of pregnancy. It can convert the 2D pattern pieces into 3D garment designs, which represent the realistic draping behaviour of fabric based on physical characteristics(Han et al., 2017).

Vidya is 3D draping software which has found applications in the clothing industry for product development and in video games, animated films and Internet shops. It enables the creation of customised virtual mannequins based on the customer's market, specific size tables, and body-scanned data. It can visualise 3D garment design from 2D patterns and simulate fabric drapes on a virtual mannequin which can be animated to review the fit. It can be expanded by inputting any fabric characteristics from an objective fabric measurement system such as KES and FAST(Han et al., 2017).

3D Runway is a cloth simulation software system for 3D garment draping and visualisation, and it is based on 2D CAD patterns and natural fabric characteristics. It offers the user a range of parametric mannequins featuring 65 adjustable body measurements and several posture positions. The software also contains a flattening tool which can transform the 3D object's surface into 2D pattern pieces to a limited extent(Cavanagh & Peté, 2017),(Burns & Vuruşkan, 2019).

Advantages of application of computer in automatic pattern making

3D system at the centre of a textile information network to process textile design and clothing design synchronously and in parallel. Maker Product development involves close relations between the buyer/designer, merchandiser, pattern maker, and fabric person. For the right product development, there must be good communication between different departments, but, in most of cases, designers are not in direct contact with the merchandiser or pattern maker so the merchandiser sends samples to designers or buyers for various approvals(Burns & Vuruşkan, 2019). The major component in the cost is fabric consumption. Earlier merchandisers used to give design sheets to the pattern masters and get the patterns made and grading is done. This process commonly used to take 3-4 day then also after taking so much time, companies had to quote the price approximately. CAD has made this process tremendously easy and faster as the master can make the pattern in less time or retrieve a similar way, see the grading and marker of that style and quote the price(Han et al., 2017).

Conclusion

The most technically challenging clothes design and production job is creating garment patterns. The two are connected through the creation of clothing. At the moment, creating patterns still relies heavily on experience. Analysing wear comfort, fit assessment, and body proportions for traditional pattern-making are perennially challenging problems. A good pattern-making technique can considerably increase the efficiency of developing clothing products. Comparing 3D fashion design to conventional design techniques has demonstrated the superior efficiency of this new technology. Despite this, designers are integrating 2D and 3D fashion design in their creative processes due to the limited human understanding of 3D garment CAD settings. The 3D-to-2D flattening technology can help pattern makers create clothing patterns, the 2D-to-3D fashion design technology can help designers change 3D garments, and the virtual try-on technology of 2D to 3D may assist designers in determining whether the garment style is viable. However, the efficiency of the fashion design process cannot be increased by using the technology above alone. It is suggested that the 3D-to-2D flattening, 2D-to-3D fashion design, and virtual try-on technologies be combined.

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