

Adobe Illustrator – Best Fit CAD for the Design Community

A Brief History of Digital Garment Design

CAD (Computer Aided Design) has been used in the apparel industry for many years now and has evolved over time to cover many different aspects of the garment design and development process. In the early days CAD programs allowed 2D representations of garments to be developed on screen, from detailing design elements to drafting patterns. Nowadays CAD has evolved to encompass sophisticated 3D modelling techniques, allowing virtual true to life prototypes to be created, saving both time and money through the reduction of real samples required.

Since the adoption of CAD for the apparel industry, one of the key benefits has been the digital link from the design process (CAD) to the manufacturing process (Computer Aided Manufacture, or CAM). This passes key information – or *metadata* – rapidly across computer networks from the design stage to the production stage so that products can be produced more quickly, more accurately with minimised mistakes and reduced costs. This can range from taking pattern information from a CAD system and automatically positioning the pattern on the fabric so that waste is minimized to using CAD data to control the movement of materials, components, and finished products around the factory and the distribution of the products to their points of sale.

Another important usage of CAD data is being able to quickly pass metadata about the design to PDM (Product Data Management)/PLM (Product Lifecycle Management) systems. These systems deal with specifying all information about the style, from design and technical data through to costing and quality control, and then sharing and communicating this information rapidly across the supply chain.

Whatever the process being carried out, metadata plays an important role in its execution. Metadata is text based information that can be used to describe, categorise and define the file, so when the file is shared from one system to another, the receiving system knows what to do with it.

Pros and Cons of CAD (Computer Aided Design)

Despite the advantages of using CAD systems there are also some drawbacks. Apparel-specific CAD systems, whether 2D pattern drafting or 3D virtual design, deal with fairly technical information. The former requires pattern cutting knowledge, the latter requires both pattern cutting knowledge, expensive equipment (a pattern digitiser) and also fabric testing facilities. Even apparel CAD systems aimed more at producing fashion flats are based around the principles of auto-cad, with little emphasis on creativity. There is also quite a steep learning curve. These points tend to alienate the Design community, so apparel CAD systems tend to be adopted more by the garment tech community.

In addition, dedicated apparel CAD, as a relatively niche market, tends to be expensive. Because of the high costs, and steep learning curve, these types of CAD systems are often not well known by graduates or potential employees coming into a company.

A New Approach to Garment Design – Adobe Illustrator

Adobe Illustrator is the perfect solution to combat the disadvantages of typical apparel CAD systems for the design process. In terms of companies already using a vector based drawing package, Adobe Illustrator has an 80% market share in the apparel industry. Many fashion designers are already competent Illustrator users, and for those that are not, the learning curve and training requirements are significantly less than those of traditional apparel CAD systems.

It is also considerably less expensive because Adobe Illustrator is used in so many different industries and so has a substantial user base. So whereas apparel CAD systems may only be deployed for a small number of key users in a business, Adobe Illustrator is a viable option to roll out across the full design department. Unlike the CAD systems, Illustrator also lends itself to creativity, so rather than making Designers feel like “computer operators”, if trained correctly, Illustrator just becomes another artistic medium, an extension of the pencil.

Ease of use, straightforward learning requirements and inexpensive cost have also meant that Illustrator has been adopted by many universities, meaning that many graduates are also competent in using the program.

Is there a catch?

Now at this stage you may argue that you are losing two of the major benefits that come with dedicated apparel CAD systems – the fact Illustrator is not garment specific and that style data does not pass to a CAM or PLM system. I’ll address the former first....

Toolsets

When you look at the tools available in Illustrator, you won’t see tools entitled “stitch” or anything else using apparel terminology. This is because Illustrator contains generic tools that produce vector graphics for many different industries i.e. graphic design. But because of its broad market, Illustrator is a very powerful tool that can handle any graphic work you need it to, including fashion sketches, fashion illustration, print design etc.

With proper tuition, you can adapt the generic tools to enable you to produce fast and accurate fashion drawings. For example

- Illustrator’s Symbol functionality allows you to create libraries of garment components, such as buttons, rivets, pockets etc that can be called upon and added to any sketch using a drag and drop, so basic elements never have to redrawn
- The Pattern Fill functionality enables you create complex knitting ribs using a few basic shapes, something that would take considerably more time with pen or pencil
- Using the Paint Brush tool and Brush Libraries, designers can create intricate top-stitching details with a couple of clicks of the mouse.

All these techniques enable designers to create production-ready garment drawings, more quickly and accurately with a far greater level of detail than can be achieved with traditional methods of drawing. All that is required is some basic training that shows designers the techniques needed to optimise Illustrator for fashion.

Using metadata

So onto the second point; passing metadata onto CAM or PDM/PLM systems. What many people working in fashion do not know about Illustrator is its ability to work with metadata. They may know that you can embed information about the file such as Author and Description, using the File Info option from the File menu, but find it ineffectual as the type of metadata you can capture is much geared towards print production and graphic design.

However, there is a way to define, capture and export metadata from Illustrator. You can do it by creating multiple tabs containing your own pre-defined metadata, using the Adobes XMP Custom Panel facility. Adobe's metadata is created using XMP (Extensible Metadata Platform), a language based on the common standard XML. Using Adobe's XMP language you can create metadata such as Brand, Product Type, Season, Fabric, Product Code and more – the possibilities are endless for a designer to create the metadata.

And having created it, there is now the potential to pass the metadata to CAD, PDP/PLM, CAM systems. Adobe provides The XMP Toolkit allowing you to integrate XMP functionality into any other business product or solution.

So.....

Despite Adobe Illustrator already being used widely in the apparel industry, many people are not aware just how powerful it can be and know how to utilize it to its full potential. It is an application that is not only designer friendly, cost effective and easy to use, it is also capable of becoming apparel specific and metadata “intelligent”, meaning that it really is a viable alternative to traditional CAD systems for the apparel design process. All that it required is some tailored training to open users up to its full potential.

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