

# Construction of Non - existent, Unknown, Surprising, Creative Volumes using Flat Patterns.

Application of Accidental Cutting Methodology.

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On certain occasions, creative processes of volume genesis are fed exclusively by technical processes. The elevation of the technical process *as integral to the creative process in the field of material and volumetric research* has been experienced by prestigious designers who were also architects, or had studied architecture: Paco Rabanne, Gianfranco Ferré, Tom Ford, Pierre Cardin, Pierre Balmain, Gianni Versace and Josep Font, among others. In this sense, from interdisciplinarity, there comes the *possibility of influencing and modifying a foreign field*. In this paper, the focus is on a very specific area: *experimental*

*pattern cutting*, and a particular method - Accidental Cutting (which is the intellectual property of the author - an architect - of this article). The method is focused on obtaining original and previously unknown volumes from abstract patterns and without a volumetric reading, which has applications in fashion and other fields, including architectural design.

Key words:

Serendipity, Experimental Pattern Cutting, Creative Pattern Cutting, Experimental Design, Experimental Pedagogy.

## 1. Architects - fashion designers and the three-dimensionality.

Certain fashion designers such as Paco Rabanne, Pierre Cardin, Gianfranco Ferré, Gianni Versace, Pierre Balmain, Tom Ford and Josep Font were, or are, architects or studied architecture.

Paco Rabanne finished his architecture studies in Paris with commendations. Later, however, he started to design accessories for different fashion brands such as Christian Dior, Cristóbal Balenciaga and Hubert de Givenchy. In the construction of clothes, he used materials more typical of architecture than of fashion, such as metals, plastics and paper and ignored the usual ways garments are constructed through sewing to use welds, vulcanizations and rivets (Seeling, 2000, 376; Vigué 2012, 63). Pierre Cardin, who used marked geometries in garment structures, was considered one of the most innovative fashion designers of the '50s and '60s (Seeling, 2000, 372). Pierre Balmain gave up architectural studies in order to work in fashion (Seeling, 2000, 218). Gianfranco Ferré had graduated in architecture at the end of the '60s and, like Paco Rabanne, he introduced himself into fashion through the design of jewellery and other accessories (Seeling, 2000, 529). For Gianfranco Ferré, architecture and fashion and their processes are comparable: "I apply to fashion design the same approach that I applied to the design of buildings. It is basic geometry: you take a flat shape and turn it into volume" (Fischer, 2009, 25). Gianni Versace also studied architecture before moving to Milan to work in fashion design (Seeling 2000, 530). The versatile Tom Ford, considered one of the most influential contemporary fashion designers in history, studied interior design at Parsons School of Design (Taylor, 2008).

In every country, there are similar examples of fashion designers that studied architecture or interior design. For instance in Spain, José Luis Devota, of Devota & Lomba and Jesús del Pozo, who at his death was described by the newspaper *El País* as a "Fashion Architect"

(Torriente, 2011). *Vogue* magazine, after the passing of Josep Font, who was the creative director of the Del Pozo brand after the death of Jesús del Pozo, praised his creativity and gave a special mention to his work of volume genesis: "... sculptural forms that are fed on his own training as an architect and that have finally become a hallmark..." (Luis, 2018).

In some cases, fashion designers felt a fascination for architecture. Christian Dior wanted to be an architect, but it was not possible; he studied at the School of Political Sciences in Paris, pressed by his parents, who wanted him to be a diplomat (Vigué, 2012, 39).

Other great fashion designers, without being professionals of architecture, were also acclaimed architects of shapes and volumes, such as Cristóbal Balenciaga, who is considered the architect of haute couture since his sober volumes remind us of architectural forms. For Balenciaga, fashion was an art: "The designer must be an architect to know how to cut, a sculptor to give shape, a painter to choose colours, a musician to find harmonies and a philosopher to create style" (Seeling, 2000, 214). Coco Chanel once said: "Fashion is architecture, it is a question of proportions" (Fischer, 2009, 11). André Courrèges was not an architect, but started civil engineering studies. The influence of architecture in his work is remarkable, for he decided to apply the technical skills he had learned and his vision of modernism with the architectural application of Le Corbusier (Stevenson, 2011, 182).

At the same time, famous architects do not hide their attraction for fashion. Frank Gehry said, "As a young architect I was fascinated by fashion", which led him to design shoes for J.M. Weston in Los Angeles (Almeida, 2009). Similarly, Zaha Hadid, dared to design footwear in a limited series in her collaboration with Lacoste (<https://www.zaha-hadid.com/design/lacoste-shoes/>).

In general, architecture and fashion can nourish each other. It is possible that the understanding of the union of art with technique, as well as the knowledge of space through geometry and technical drawing, helped some

architects to dedicate themselves to become prestigious fashion designers and architects simultaneously (Seeling, 2000). The interdisciplinarity originated by the training in another field, opens up new possibilities and allows a language of its own to be articulated, since a new and fresh vision into certain aspects is possible, importing solutions from other architectural matters, as in this case, to the field of fashion design (Iszoro, 2016).

For architects, it is usual to appeal to the three-dimensionality in different phases of the creative process. However, in fashion design, the process of the approach to volume, in many cases, is generated in the flat, and, only after, tested in a toile. In fact, for hundreds of years, both flat pattern cutting and draping methods, were considered as valid, but the first one is used more extensively in the actual industry and fashion system. In general, both traditional ways of constructing volumes determine predictable results, directed by the human mind.

## 2. The technical creative processes. Experimental pattern cutting.

The elevation of the technical processes to creative ones can occur in experimental pattern cutting methods, based on experience, and can produce radically new and innovative solutions.

The experimental pattern cutting methods, at present, are nourished by some processes more in agreement with architecture than with fashion design, as they are essentially the understanding of volumetric relationships through three-dimensional constructions and not in a plane. The introduction of three-dimensionality into the creative processes is a common denominator of the experimental pattern methods such as: Kinetic Garment Construction, Subtraction Cutting, Accidental Cutting, etc.

In some cases, pattern cutting becomes the indissoluble phase of the creative design process, and the pattern cutter and designer are necessarily the



Fig.1. Rickard Lindqvist modeling on a human body. Workshop organized by Work Experience Fashion, Matadero Madrid, April 2018, Photography: Eva Iszoro.

same person. In addition, the realization phase is fully integrated into the design phase. In these cases, the design phase is not followed by the realization phase, and in certain cases, the first one does not exist. This is a common characteristic of many of the creative pattern cutting methods and especially the experimental pattern cutting methods.

In the experimental methods of creative pattern cutting, experimentation can be understood in different ways; in some, a concrete result is pursued, while in others it can be unknown and surprising. So, the construction of the volume could be understood in different ways.

For example, in Fig.1 we can appreciate the volumetric approach to the human body by Rickard Lindqvist, the author of the experimental pattern cutting method: Kinetic Garment Construction. This method is focused upon functional purposes, such as generating clothes that are more comfortable for the human body in movement. In this case, the mind has an active participation in the experimental creative process, but the experimentation is necessary to achieve the objectives.

In the traditional way of constructing volumes in any kind of design, the mind has an active, intentional input

into the processes. In the experimental methodologies, sometimes, making could be more important than reflexive thinking. The volumetric constructions can imply variable degrees of consciousness of the use of the human mind.

Serendipities, understood as lucky discoveries or finds, valuable and unexpected, can occur accidentally or causally when we face the unknown, and some methods allow it, beyond the opinion of Federico Soriano that a method is a project (Soriano, 2013, 4-6). Some methods allow you to discover what is non existent.

"In this vision of pattern cutting, it is about generating new possibilities, experimenting, creating new interesting things that can unexpectedly surprise" (Roberts, 2013, 31-32). As a symbolic image of what Roberts expresses in these phrases, there are two clips of the video 'Cutting Backdrop' in which a collaborative experience of The Cutting Circle was recorded, shared by the designers Timo Rissanen, Julian Roberts and Holly McQuillan (Fig.2).

This image involves obtaining a pattern by drawing the outline of a person. In this case, the one that draws is Julian Roberts and the one that serves as the "outline" of the pattern is Timo Rissanen. These images are significant because they symbolize that in experimental pattern cutting design projects anything goes, any shape is likely to become a pattern, and reinforces the idea that the pattern should be more human, for man and not a mathematical science. Both patterns, the cut and cut out, can reach volumes, but we do not know in what way or what volumes they can generate. It is unknown if they are going to unite with each other or with other different patterns, nor are union marks perceived, so in the beginning everything is unknown.

The apparent formal relationship with the human figure is simultaneously symbolic, and totally uncertain and random. These two patterns can result in a volumetric design not previously imagined by the mind. Processes of this type can lead to new solutions, since designs based only on our imagination



Fig.2. Julian Roberts draws the silhouette of Timo Rissanen, Cutting Backdrop - video (Roberts, 2014).





Fig.3. Subtraction Cutting, Julian Roberts masterclass at UWL-University of West London, <https://subtractioncutting.tumblr.com/>

can inevitably tend to copy, even if unconsciously (Rissanen, 2013, 151).

Some of the experimental pattern cutting methods are based in serendipities, such as Subtraction Cutting invented by Julian Roberts, or Accidental Cutting, the intellectual property of Eva Iszoro, architect and fashion designer.

In Fig.3 we can observe a garment obtained by applying the Subtraction Cutting method.

## 2.1. Accidental Cutting.

Accidental Cutting is one of the experimental pattern cutting methods where uncertain results, serendipity and uncertainty are possible. In this procedure, the method of experimental pattern cutting and design method is developed.

The method enables the generation of unknown formal results: it is focused in finding, and not looking for, the non-existent. Accidental Cutting refers to the constructive and projective method of obtaining complex volumes as well as being a pedagogical and research methodology.

One of the principal characteristics of the method is that it is unnecessary to use the mind, the reflexive thinking, in the initial stages of the design process. The next section will examine aspects of the

method, which is based on abstraction, that enable the genesis of uncertain results.

### 2.1.1. Origins of the method.

First, it is important to discuss the origins of the emergence of this method, which arose precisely from the interdisciplinarity between architecture and fashion. The author of the method is an architect, and has no continued academic training in the field of fashion design. During the time in which she studied at college, there was no official and public institution where one could study for a degree in fashion design in Madrid. Despite having a strong concern for fashion, she studied Architecture at ETSAM-Architecture School (Escuela Técnica Superior de Arquitectura), UPM - Polytechnic University (Universidad Politécnica) in Madrid.

Feeling a strong passion for fashion, in 2004 she intuitively began to develop her own methodologies of research in volume construction, based on abstract and random modular patterns. The results of these processes were applied to specific

garments and exhibited in two exhibitions, the first at the Círculo de Bellas Artes in Madrid in 2005 and the second at the Foundation of the Official College of Architects in Madrid in 2007. (Fig.4)

Undoubtedly, the exploitation of modularity and the repetition of standardized elements is a much more utilized resource in architecture and construction than in fashion. In this sense, there is clearly an architectural influence that is exported to the field of fashion and in particular to pattern cutting. It is at that moment when a consciousness of the possibilities of modularization and its application in the field of design in general is acquired. Fig.5 illustrates a pattern of simple abstract form with different volumetric models resulting from a modular treatment of the initial flat module, and a garment in which one of the models previously obtained has been used.

In 2006, for the second time, the author of Accidental Cutting made use of modularity, but this time applied this resource to an architectural design project, specifically the realization of an international architectural competition

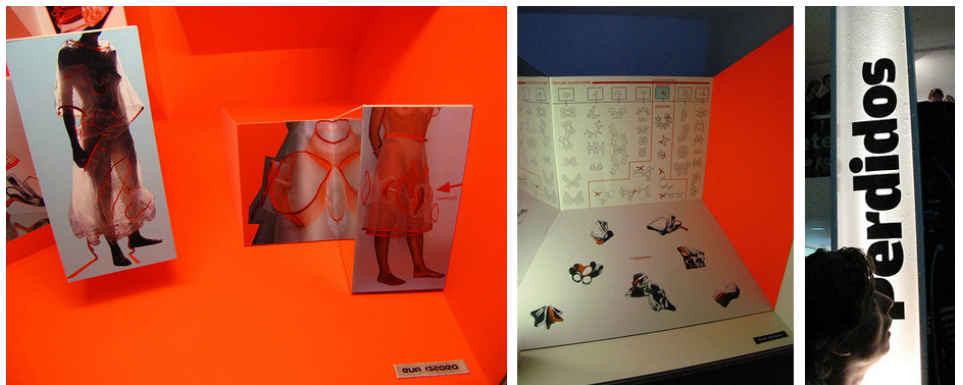


Fig.4. Images of the opening of the exhibition "Lost" ("Perdidos"), Foundation of the Official College of Architects in Madrid, October 2007. Photography: Eva Iszoro.



Fig.5. Versatility of the flat pattern in terms of volume conformation. Pattern in the form of "x", models obtained with it, and an application in clothing, 2004-2005, photo: Eva Iszoro.

promoted by the Ministry of Housing of Spain, for the construction of avant-garde protected residential buildings in the area of Aguas Vivas in Guadalajara. On this occasion she did not do it alone but with two other architects: Clara Moneo and Valerio Canals. Modularity allowed the development of a project of 2,400 houses with internal distributions, in only four days of work, with the use of three different modules repeatedly configured in different ways. This proposal was awarded the first prize, in three sites of the seventeen initially proposed, with a total built area of 75,244m<sup>2</sup> (Fig.6).

In this sense, we are facing a clear case of formal profitability by exploring flat elements repeated and joined in different ways, so that in the final volumetric result no modularization is appreciated at all, it is camouflaged in some way, as can be seen in Fig.7, where the model corresponding to parcel RC-17, one of the three sites developed as result of that competition, is exposed.

Later, Iszoro went back to explore modularity in architectural design, as well as in the field of pattern cutting and its application in fashion.

Although in the case of the architectural competition, the volume was produced by the extrusion of the forms formed in the plane by the union of only three modular flat pieces, in pattern cutting the rules of the game are different.

In the architectural project, the joint was possible since all the modular pieces had straight edges of the same length. However, in the field of pattern cutting oriented to creating volumes, the unions of the edges of shapes can be differentiated from each other because the fabrics and textiles are not rigid. For example, it is possible to join a straight line with a curve, a curved line with a broken line, or a curved line against another curved line, and those joints are particularly interesting. Volume lifting actually occurs when the lines are different.

Some of the general characteristics of the Accidental Cutting pattern cutting method, whose point of origin is modularity, will be briefly described below.



Fig.6. Three modular pieces that generate the project for the construction of avant-garde protected housing in Aguas Vivas, Guadalajara; modular geometric conformation scheme in a horizontal section of the sites; the development with interior distributions of the three housing plots. Schemes and drawings: VEC-Valerio Canals, Eva Iszoro and Clara Moneo.

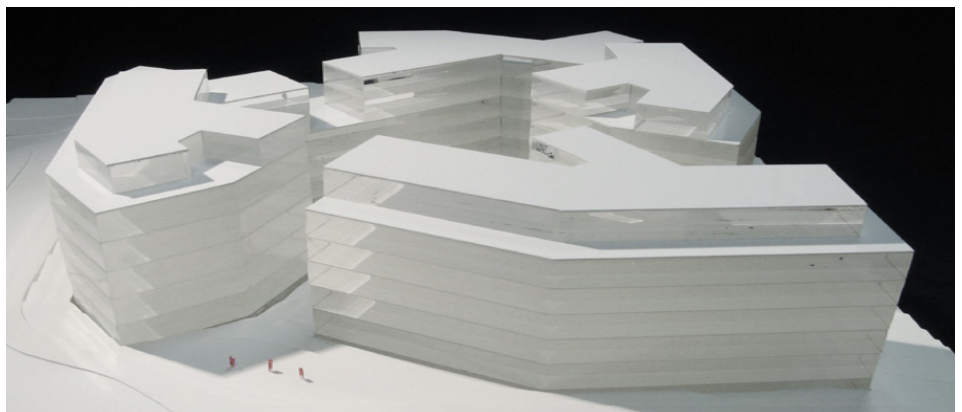


Fig.7. Model of avant-garde protected housings (the RC-17 plot) in the extension of Aguas Vivas in Guadalajara. Photography: SEPES.

### 2.1.2. General characteristics.

The key to the method is to treat all patterns in an abstract way, whether they have a clear volumetric reading or not. This concept refers to the capacity of the observer of the flat pattern to distinguish the volume that it is capable to create. In the image of the Fig.8, the first pattern, on top, would probably be identified as a cube by most observers. The second pattern corresponds to the volume of a sleeve, which would probably be identified by people with an educational or professional base in fashion design and fashion pattern cutting, but its volumetric reading is not clear, for most people, as in the first case. The third flat pattern is abstract, and even a pattern cutter or fashion designer would not be capable of distinguishing the volume that it is capable of generating. The unknowns that exist are: is this pattern joined with itself or with other patterns; what kind of garment or object can result; where can it be situated in a garment or another object?

In general, the relation of this flat pattern with the human body, or any other object, is uncertain. The volumetric reading of the first two is clearer. However, it is not known to what the third pattern corresponds, nor what volume can be constituted by joining with itself or with other patterns. This pattern, therefore, has no clear volumetric reading. In the

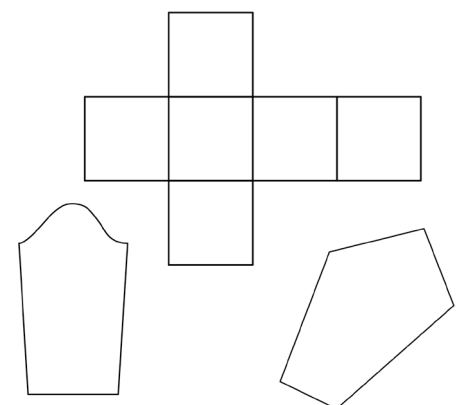


Fig.8. Patterns with and without volumetric reading. From left to right, a flat pattern that corresponds to a cube, to a sleeve and to an abstract flat pattern.



Accidental Cutting method, it is essential to understand, not only this, but also all the patterns in this way, including the first two, the cube and the sleeve. It is essential to eliminate any volumetric reading of the patterns at the beginning of the creative process.

In general, any pattern is basically composed of two elements:

- A Concrete surface.
- B Volume construction marks.

When any of these two elements is altered, a new pattern arises; that is, two patterns with exactly the same surface and different construction marks, constitute distinct patterns, since they are likely to give rise to distinctive volumes. In Fig.5, on the left, a flat pattern with the form of an "X" is able to generate different volumes by joining this form with itself. On the right is an application of one of the volumetric models into a garment, assigning a determined scale to the experimental volume that was repeated twice in a symmetrical arrangement into the garment which was then embedded into a conventional volume for the human body.

Any flat pattern can include, in itself, points or lines that can be interpreted in different ways, with cuts, gatherings, or folds, etc. The interpretation of abstract drawings induces or allows a relative interpretation of the flat patterns.

The Accidental Cutting methodology involves the knowledge and exploration of some specific concepts of the method which makes it possible to obtain a greater quantity of differentiated volumes applicable to fashion design or other kinds of design. The patterns can be relative to each one, hierarchical, complementary, interior/exterior, or positive/negative, etc. By exploring this terminology, the possibilities of generating new volumes increase. The relationship with the format of the tissue or other material and the patterns is important. It is possible to consume a perfect rectangle of the width of conventional fabrics, and then to explore the zero waste philosophy of design. This can be one of the sustainable approaches of the Accidental Cutting experimental pattern cutting method: to obtain patterns without any waste of

fabric. However, it is not the main purpose of the method which is the possibility of obtaining very different volumetric results. However, this is one of the most remarkable features of it (Fig.9).

### 3. Conclusions.

Experimentation and interdisciplinarity are two factors that can enhance the discovery of the new and nonexistent. The interdisciplinarity between different subjects allows a new vision on an existing determined field, but the new findings would not occur without the application of experimentation, which in turn enables the discovery of serendipities.

In particular, the interdisciplinarity between fashion and architecture has been manifested, throughout history, in great achievements, that have affected both fields in a reciprocal way. Fashion designers of international prestige are or were architects or studied architecture. Possibly, on some occasions, they would not have triumphed in fashion if their training had been different, as they had a special vision on different aspects of a matter alien to their training.

Fashion design and architecture have many common elements such as three-dimensionality and the need for technical definitions for the possibility of materializing designs and projects. In both cases, in the conventional design, technical drawings are the result or are subordinated to projective developments directed by the human mind in advance. However, occasionally there is a possibility of elevating the technical fact to a purely creative and artistic one. Sometimes the elements are apparently only technical, such as flat patterns, used as a necessary means before the three-dimensional elevation of objects can participate and be part of the same creative process. In this way, the unexpected can occur in the three-dimensional construction from these elements.

In particular, in the field of experimental pattern cutting, a new interpretation of the technique and of the patterns, together with the experimental methodology itself, makes it possible to



Fig.9. Toile, applying the Accidental Cutting methodology. Student: Clara Villalba, Subject: "Experimental Design. Textile creation and pattern cutting." Professor: Eva Iszoro, third and fourth year of studies at ESDM Design School of Madrid, 2018-19, Photo: Eva Iszoro.

obtain innovative and original volumes. This new look could have its origin in the interdisciplinarity. A clear example of this is the experimental pattern cutting method Accidental Cutting, founded by Eva Iszoro, an architect with a particular and different vision of the field of fashion, having been self-taught in this field. The influence of architecture and architectural thinking affect this method. Specifically, modularity, a resource widely used both in architecture and construction in general, was precisely the theoretical and practical basis of this method in its origin. In addition, the influence was in both senses, reciprocal, between fashion and architecture, which even helped to win an international architecture competition.

The introduction of the resources of interdisciplinarity and experimentation made it possible to have a new vision on the technical drawings of surfaces, lines and points, and to treat them in a way that is not conventional.

Almost certainly, it can be said that, if the author of the method were not an architect and had a different education, the investigations that were carried out would not have taken place and the theoretical foundation of a new method of experimental pattern cutting and design would not have been possible

## Bibliography

- ALMEIDA, Isis, 7 March 2009. Big-Name Architects Start Designing Fashion, The Wall Street Journal, [accessed 12 July 2019]. Retrieved from: <http://www.wsj.com/articles/SB123630652361848267>.
- FISCHER, Anette, 2009. Construcción de prendas. Lausanne: AVA Publishing. ISBN: 978-84-252-2359-4.
- ISZORO ZAK, Eva, 2016. Paco Rabanne y la modularidad en la moda. Accidental Cutting. In EGUIZÁBAL, Raúl (Ed), Metodologías 2, Madrid: Fragua, p. 111-126. ISBN: 978-84-7074-725-0.
- LUIS, Nuria, 8 October 2018. ¿Y si Josep Font fuese el nuevo director creativo de Lanvin?, Vogue [accessed 12 July 2019]. Retrieved from: <https://www.vogue.es/moda/news/articulos/josep-font-lanvin/37124>
- RISSANEN, Timo, 2013. Zero Waste Fashion Design: A Study at the Intersection of Cloth, Fashion Design and Pattern Cutting. Ph.D. Thesis, Sydney: University of Technology.
- ROBERTS, Julian, 2013. Free Cutting [online]. London. Retrieved from: <http://www.mediafire.com/?10d8kgbkp1yxc88>
- ROBERTS, Julian (Director, Editor), 2014. Cutting Backdrop (Video), Retrieved from: [https://www.academia.edu/13927140/Cutting\\_Backdrop](https://www.academia.edu/13927140/Cutting_Backdrop)
- SEELING, Charlotte, 2000. Moda el siglo de los diseñadores 1900 – 1999. Köln: Könnemann. ISBN: 3829029837.
- SORIANO, Federico, 2013. Un método es un proyecto. In RIBOT, Almudena; BORREGO, Ignacio, GARCÍA- SETIÉN, Diego. Colaboratorio 3. Arquitecturas Colaborativas: M-30, Madrid: Maira Libros, p. 4-6. ISBN: 978-84-941317-0-7.
- STEVENSON, NJ, 2011. Moda Historia de los diseños y estilos que han marcado época. Barcelona: Lunwerk. ISBN: 9788497857352.
- TAYLOR, Molly. 22 Abril 2008. Tom Ford, Vogue [accessed 12 July 2019]. Retrieved from: <http://www.vogue.co.uk/spy/biographies/tom-ford-biography>
- TORRIENTE de la, Eugenia, August 14, 2011: Adiós al arquitecto de la moda", El País digital, [accessed 12 July 2019]. Retrieved from: [http://elpais.com/diario/2011/08/14/revistaverano/1313272801\\_850215.html](http://elpais.com/diario/2011/08/14/revistaverano/1313272801_850215.html)
- VIGUE, Jordi, 2012. Atlas Ilustrado de los grandes diseñadores de Moda. Barcelona: Susaeta. ISBN: 9788467720716.
- VOGUE, 11 mayo (2011). <http://www.vogue.co.uk/spy/biographies/tom-ford-biography>

## Biography

**Eva Iszoro Zak** is a fashion designer and architect. She is the author of Accidental Cutting which outlines an experimental design and pattern cutting method, based in abstract, accidental and random cuts, with applications in fashion design as well as product and interior design. She has written a Ph.D. thesis in the field of creative and experimental pattern cutting: Direct methods of creative pattern cutting. Pedagogy and experimentation. The thesis has been distinguished with the Extraordinary Prize for a Ph.D. Thesis at UPM- Polytechnic University in Madrid (Universidad Politécnica de Madrid). She is an associate professor at URJC-King Juan Carlos University in Madrid as well as a professor at ESDM-Design School in Madrid.

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