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# Metamorphic Fashion Design

## Nature Inspires New Paths for Fashion Communication

**Elisabetta Cianfanelli, Debora Giorgi, Margherita Tufarelli,  
Leonardo Giliberti, Paolo Pupparo & Elena Pucci**

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### **Keywords**

Metamorphosis, Natural Inspiration, New Fashion Communication Paths, 3d Fashion, Bionic Models.

### **Abstract**

The Covid-19 pandemic has brought to a sudden halt most of the human social, economic and productive dynamics, causing, on the other hand, a rapid acceleration towards digital transformation in order to overcome the limits of physical presence.

In this transformative context is inserted the contribution that aims to describe an experience of applied research to explore new possible models of communication for the fashion system in the digital world. Through the current climate of transformation, the project *Metamorphic Fashion Design* was born, which intends to reflect on the possible responses of the fashion industry in this new phase. *Metamorphic Fashion Design* is a new experiential multiverse in which new relationships have been formed between different disciplines such as Character Design, Game Design, Fashion Design, Interior Design, Performance Art and Sound Design. This project experience has opened to new reflections and new critical insights on how the digital properly declined can consolidate, more and more, as a means of new innovative trajectories throughout the fashion system. The project aims to propose a new form of communication for the excellence of fashion with the possibility of extending this experimentation to the made in Italy system.

## 1. Over the Fast Model

The Covid-19 pandemic has placed humanity in a condition of generalized uncertainty, sweeping away any balance, and has strongly questioned the sustainability of our production and distribution systems. With a decisive acceleration towards digital, everything seems destined to change, even the modes of communication. The fashion system, due to its volatile and discretionary nature, has been particularly vulnerable to the pandemic crisis, as “the average market capitalization of apparel, fashion and luxury players dropped almost 40% between the start of January and March 24, 2020” (McKinsey, 2020). Indeed, the health emergency has highlighted the transformational urgency for the fashion system, in fact accelerating the acceptance and transition operations towards digital transformation and sustainability, understood as the paradigms of the future. However, this is not a sudden revolution: the entire fashion system has undergone intense changes in recent decades, due to the now consolidated unsustainability of increasingly rapid supply chain and value generation models (e.g. Fast Fashion, see-now-buy-now strategies) (Joy et al., 2012, Fletcher & Grose, 2012, McNeill & Moore, 2015). Nowadays, in times of health, economic and humanitarian emergency, the ultra-fast production and consumption seem to have proven its unsustainability at different levels that require systemic and no longer punctiform interventions. The model that involves the project, production, sale and consumer behaviour concerns the “life span” of fashion products, which appears to be increasingly reduced not only for the obsolescence programmed by industry, but for the cultural model on which it is based.

Covid-19 is challenging the Fashion system, demonstrating the unsustainability of the globalized supply chain. Thus, the fashion system needs to explore new communication models in the impossibility of presence. If the social distancing does not allow to communicate the collections as before, with fashion shows, events and trade fairs, how can fashion respond and reinvent itself through new channels? The pandemic has offered the opportunity of a reset and a complete redesign of the industry value chain (McKinsey, 2020), as well as communication and presentation models. The project *Metamorphic Fashion Design* aims to capture the transformative need and thus reflect, through the project, on the possible responses of the fashion industry to a recovery that requires a redesign rather than a simple restart. Hence, the project aims to explore new techniques and communication models for the excellence of fashion, with the possibility of extending this experimentation to the entire made in Italy system. On the one hand, the awareness and sensitivity of people involved in sustainability have increased to a “take-make-remake” model (Rinaldi, 2020). On the other, brands have shown a strong will to drastically change what is possible to define as a “worn-out and frenetic practice”. This shift in the fashion system involves production rhythms, but most of all, the structural dynamics of communication and event organization. Seasonality could, therefore, no longer be an element to search for in an unsteady way. Still, the opportunity to slow down the whole process from the design phase with durable garments, both in the meanings conveyed and in the materials of which they are made. This new perspective of the fashion system turns attention to an idea of sustainability “concrete and tangible”, which thanks to digital technologies

can find a further and predominant winning aspect: the communication of fashion through digital. The opportunity is in the involvement of design methodologies as Game design: within these new paradigms digital and fashion hybridize as the first result of a “new habitat” that we have been looking at for too long on the horizon. Moreover, in the digital realm, games are recognised as narrative architectures related to experience design for their capacity to shape actions, emotions and thoughts (Jenkins, 2004). Therefore, game-like products and services become valuable solutions to enrich participation and customer engagement (Huotari & Hamari, 2017, Wolf; Wunderlich et al., 2020). The use of Game Design techniques and practices defines both an explorative nature in the design of communication and a very fast prototyping and testing capacity, thus connecting various areas of design, cinematography and visual arts in general, promoting a transdisciplinary approach to learning and design.

The new opportunity that the transmediality of new digital technologies offers for the genesis of creative processes opens us to new horizons in which digital natives are able to orient themselves thanks to their ability “to exist, rather than to resist, through their own manifestations” (Cuzzocrea & Benasso, 2020). Consequently, this new awareness is accompanied by the approach to the problems that the fashion system has been highlighting for some time now, related to fast fashion and therefore to the modification, understanding and dissemination of a fashion communication sewn on the global consciousness of the Z generation. The same methodologies with different practices and techniques are then used in oth-



er industrial sectors and not, with which they share the same consequences, but also the same noble objectives. In this regard, Giuseppe Sabella (2020) expresses himself with these terms:

The pandemic today has led us to review the relationship between man and nature and, with it, to rebuild our habitat [...]. The industry [...] is already on horizons that have broken with the old paradigm, and there is no doubt that this incident in history will accelerate the transition to the new.

## 2. Fashion Democracy e Game Design

As mentioned before, in the pre-covid it was possible to notice a growing awareness of consumers towards sustainability issues, which consequently reflected and influenced the very responsibility of brands and their communication policies. However, it is interesting to highlight how the attempts and experiences inherent to the “cleaning” of the fashion system have not been sufficient to support a significant paradigm shift. Probably, the structural characteristics of the globalized fashion system have amplified the distance between individual initiatives, confining the experiences of an ethical and sustainable fashion to the “good practices” dimension, and not of systemic change, demonstrating difficulties in disseminating and disseminating progress (Destination Zero Report, 2018). During the crisis caused by the spread of the virus globally, the entire fashion system has suffered a severe recession as highlighted by the International Monetary Fund: “2020 is probably the worst year for the global economy since the Great Depression” (Martínez-Pardi, Seara, Razvi

& Kibbey, 2020). However, we still need radical changes at every level of the fashion industry with a broader shared, and strategic vision on sustainability issues understood as environmental, social and economic sustainability. In this climate of transformation was born the project *Metamorphic Fashion* in which, within the *Fashion Democracy* seminar of the CDLM in Fashion System Design we tried to describe through experimentation a new model for the presentation of fashion collections during and after the pandemic. The project is a unique experience to face the changing conditions of the fashion system, with sustainability awareness related to the entire production process, also sharing a new idea of communication for fashion through the use of tools belonging to the world of Game Design. An interesting example of the fusion between Game Design techniques, fashion and new digital technologies is the one that Nicolas Ghesquière designed as artistic director of Louis Vuitton (Fig. 1). The *skins* designed by Ghesquière are real digital looks that during the League of Legends world final in 2019 revealed the real potential of the fashion-videogames union. The same operation, from the event organization perspective, was proposed by Travis Scott with his live concert on Fortnite video game (April 25th, 2020) (Fig. 1). Thanks to digital platforms such as Twitch and YouTube, these experiences revealed the new balance that digital is redesigning, coming to “host 12 million spectators” (Dondoni, 2020). While in the collaborations between fashion and videogames can bring the risk to downplay Brand Awareness, those experiences, events and performances are setting new horizons of expression for designers and consumers.



Figure 1. Metamorphic Fashion, fashion and videogames.

Animal Crossing Fashion Show (Fig. 1) is another case to the point, where the perfect match between fashion and the digital event is achieved in an in-game collective show. The final synthesis of the Show is a video in which the models are video game avatars that animate the catwalk with the Spring Summer 2020 looks of Craig Green, Bottega Veneta and Chanel, among others. Valentino, Marc Jacobs and Gcds, for example, have recreated the outfits of the spring-summer 2020 and pre-fall 2021 collections in a gaming format.

The synergistic union of brands and products also belonging to distant categories and *worlds* is an experience that fashion has repeatedly promoted and experimented, leveraging on communication and visualization aspects of products often strongly avant-garde. This hybridization between Game design and fashion transforms, therefore, from a simple marketing strategy for the acquisition of new market segments to a complex social and emotional experience. Whatever the intensity of this connection is, in any case, an advantage in terms of sustainability is assured. In particular, on the one hand, Virtual Shows allow a considerable reduction of environmental costs related to the communication sphere of fashion, on the other designing a digital fashion allows investing in creativity without worrying about the life cycle of the product (Fig. 2).



Figure 2. Metamorphic Fashion, digital fashion show.

## 3. Metamorphic Fashion Design

### 3.1. Aims and scopes

*Metamorphic Fashion Design* was born during the most challenging time of the pandemic and is inspired by the very concept of natural metamorphosis to reflect its dynamics and mechanisms in the design of clothes. The initial project brief included the design of a collection of no-size and no-gender garments, to be prototyped and exhibited in an event organized at the end of the seminar. The themes inspired by the metamorphosis of nature, and distributed among the seven working groups are: collaboration, stratification, camouflage, rebirth, balance, connection and protection. In fact, the beginning of the design brief only included the design of clothes inspired by the theme of metamorphosis, as the weeks went by the teams of students together with professors evaluated new dynamics for the final restitution of the results, considering the speed of the digital revolution caused by the pandemic. It is useful to underline that Character Design has many points in common with Fashion Design: both dedicated to the construction of images and we must also consider that wearing a dress is not so far from wearing an avatar. The latter is chosen based on functional characteristics, but even more for psychological processes of impersonation. Therefore, it is possible to argue that the avatar relates to the dress as the video game relates to the fashion show. Scenography and scenery justify and exalt the aesthetics of the protagonist, the music and the change of rhythm tell different segments of the same story, the choice of a neutral model highlights the costume.

Moreover, with the spread of the pandemic, with the strengthening of digital channels, a new connotation of *Metamorphic Fashion Design* has emerged spontaneously, from a design seminar into a collaborative digital event, also connecting the world of education to that of public institutions. Thus, the final goal was the realization of a video concluding the experience of designing metamorphic garments and then contextualizing the digital fashion show in celebratory habitats of the event itself. Initially, teams created a document inspired by the *Game Design Document* (GDD) that includes a set of descriptive works functional to the exploration of the themes of a video game. In this case, it specifies and synthesizes the individual scenes of the multimedia work. Precisely, for drafting this document, teams analyzed cards and interviews of Character Designer and 3D Artist which describes the process of creating and identifying a character. The GDD (Fig. 4) tries to summarize the elements of the premises: avatar, costumes and variations, setting, movements and features of the character, sounds and storyboard in which to assemble the components.

### 3.2. The Design Process

The design phase starts with the modelling of the avatars on Blender. This open-source software offers tools for 3D sculpture with which it is possible to model complex organic shapes. Each one of the seven avatars matches the theme of the respective collection, as examples: collaboration-bee, camouflage-grasshopper, and so on (Fig. 3). The *vital breath* with which the avatars come to life is called *Rigging* and coincides with associating a body with the skeleton with which it moves.



Figure 3. Metamorphic Fashion, gang design.

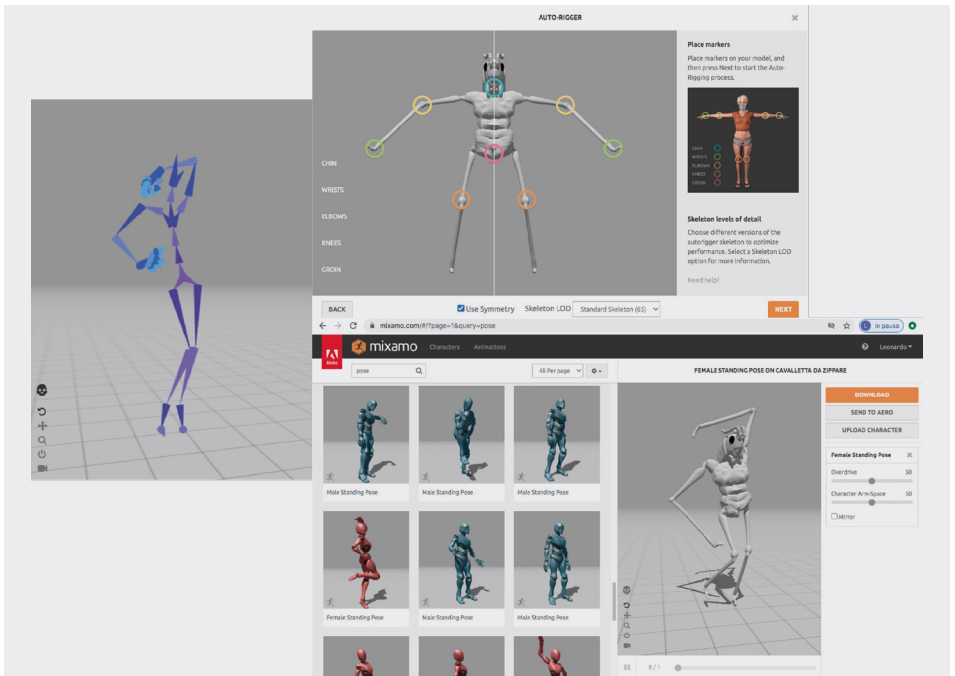
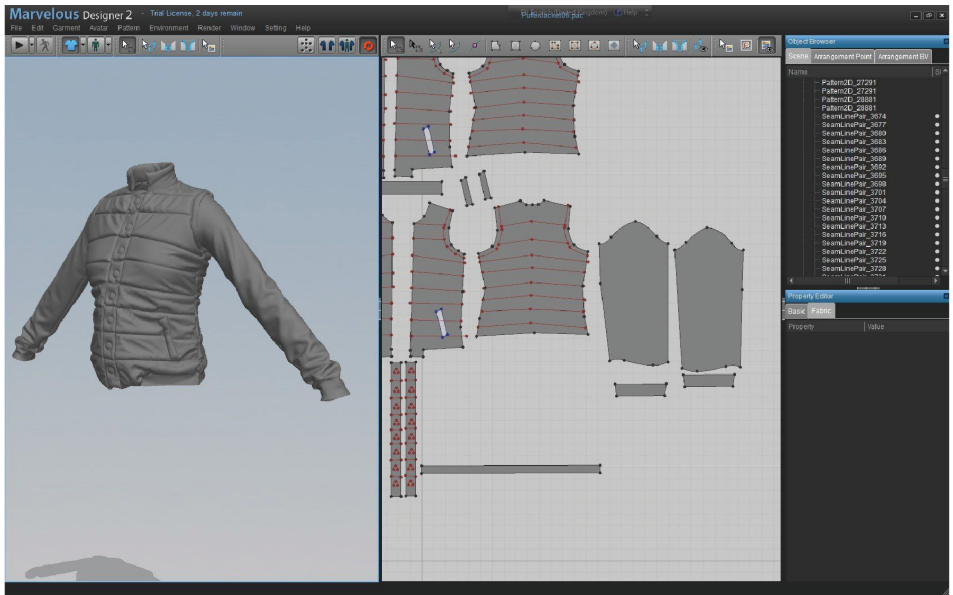


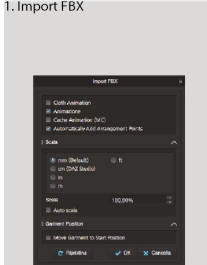
Figure 4. Metamorphic Fashion, mixiamo.



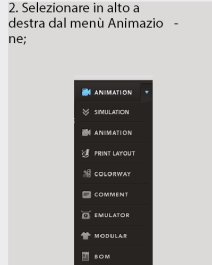


## Importare avatar su CLO3D e Marvelous Designer

1. Import FBX



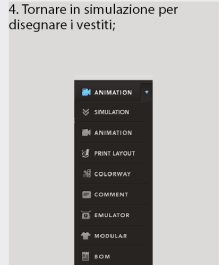
2. Selezionare in alto a destra dal menù Animazione; - ne;



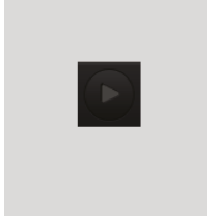
3. Mandare l'animazione al punto iniziale, in modo da avere l'avatar in questa posizione;



4. Tornare in simulazione per disegnare i vestiti;



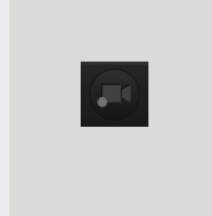
5. L'avatar predisponde già di un'animazione per testare i vestiti, visibile premendo play;



6. L'animazione è solo dell'avatar, il vestito rimane fermo;



7. Per animare i vestiti bisogna registrarne la simulazione, con questo pulsante;



8. Finita la registrazione clicca play: avatar e vestiti si muovono insieme.



La simulazione dei vestiti serve solamente a valutarne il comportamento in movimento, le animazioni definitive verranno fatte in seguito.

This operation is obtained with Adobe Mixamo, a software that allows *Rigging* the avatars through the identification of the main articulations (Fig. 4). Mixamo, however, enables to download only single animations of a specific duration, the assembly of individual movements takes place on Blender. Each skeletal joint corresponds to a string of values that record its position at each frame. Through the manipulation of these strings, it is possible to obtain more elaborate and prolonged movements. The working groups have realized the clothes on CLO 3D and Marvelous Designer software (Fig. 5). This phase ends with the simulation of the dress concerning gravity and fabrics features (Fig. 6). B-Union is inspired by the bamboo modules and the collaboration between the parties; Risky Beauty whose fascinating clothes offer protection to the wearer; Pleets Wave in which the pleating connects with the rocky waves of Arizona; Rebirth in which there is the sartorial reworking of animals like the jellyfish.

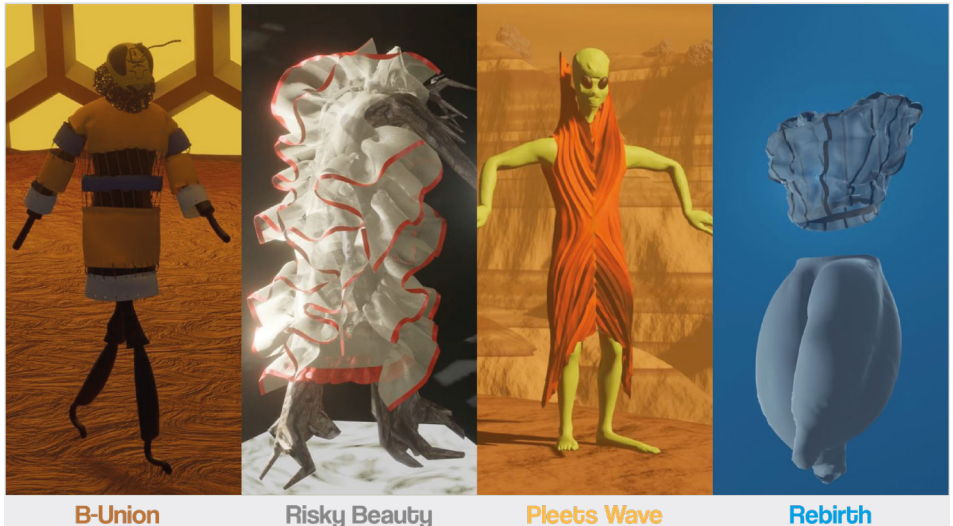


Figure 6. Metamorphic Fashion, clothes.

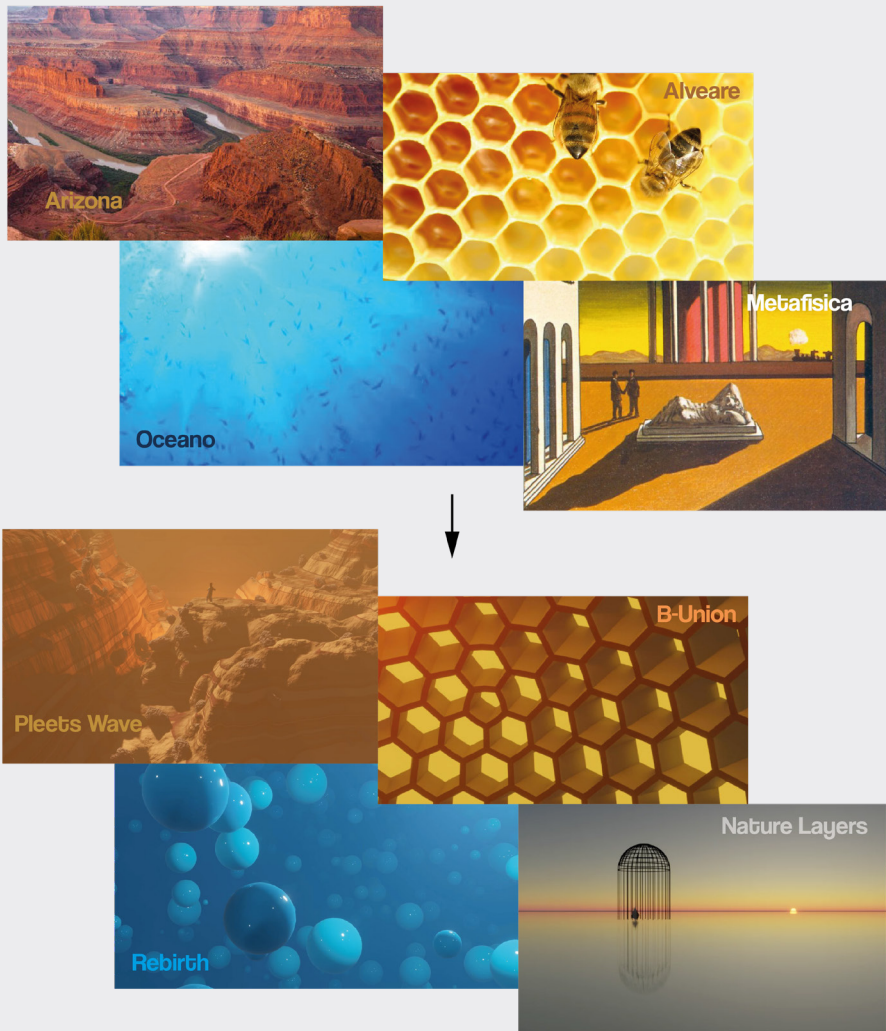
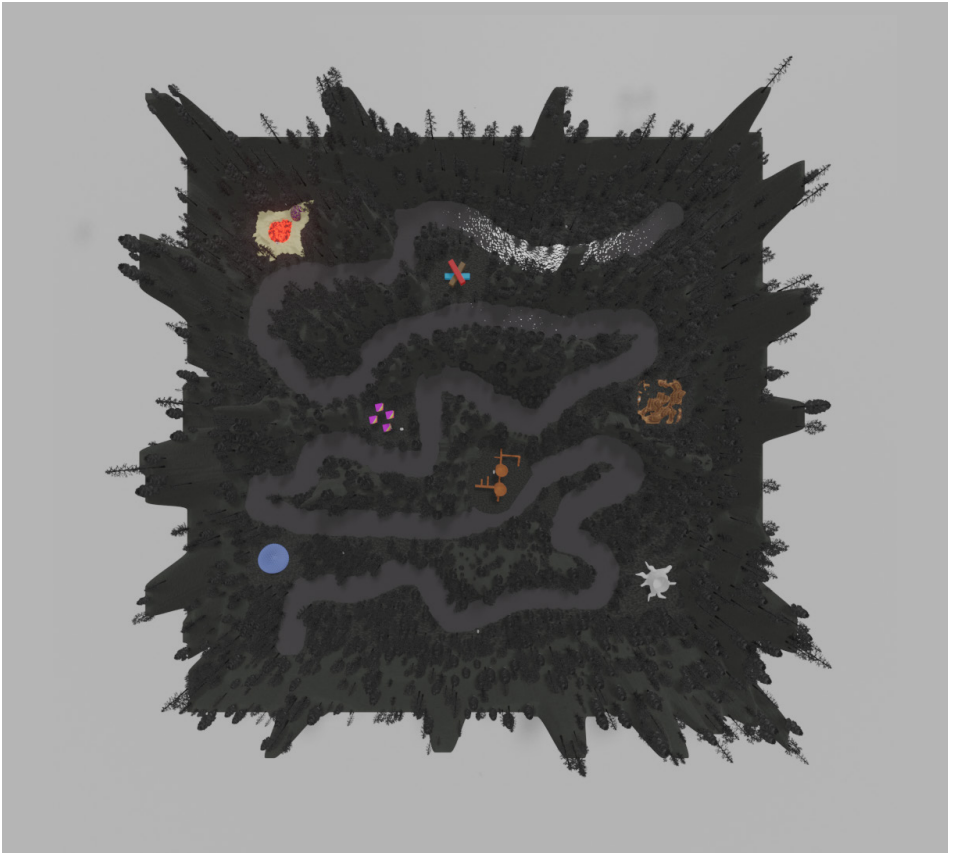


Figure 7. Metamorphic Fashion, environments.

The next step was to contextualize the collections. In the GDD teams described with text and images the place and the atmosphere. The inspirations are postcards of an itinerant journey, from Arizona to a beehive, from the abysses to De Chirico's paintings. These inspirations have been re-elaborated to realize nine scenarios, within which the performances would have taken place (Fig. 7). The variety of settings testifies the richness of this project, but it was necessary to have a context, the framework that would unite all the collections.



**Figure 8.** Metamorphic Fashion, forest.

Then we drew inspiration from Alberto Savinio's painting *Nella foresta* (In the forest) in which the vegetation in greyscale houses colourful sculptural architecture. A contrast of shapes and colours is also present in *Artesella*, a natural park in Borgo Valsugana that hosts open-air works of art. Our virtual forest measures 1 square kilometer and is fully 3D designed (Fig. 8). The winding of the river guides us to the discovery of this forest and the structures that dot it. The structures, externally, do not always correspond to what is inside, maybe entering a cube as high as we could find ourselves in an infinite metaphysical plane (Fig. 9). A digital artifice that on one side amplifies the surreal taste of the forest, on the other side has allowed us to record the single scenes in different files. The Game design methodologies used in this experience detach themselves from the classic playful principles, to "venture" towards a new form of "Digital Game" in which responsibility and social consciousness are directly proportional to the complexity of virtual reality. As Alessandro Baricco (2018) argues, we are in a condition in which "the elevation of the game to the founding scheme of an entire civilization" predisposes not only new forms of "augmented ethics" (Morace, 2020) but a real new fabric of relationships in which to express and communicate through fashion becomes a social act. The result of the *Metamorphic Fashion Design* project was a 3D animated video that uses the same language of video games: even though we didn't deal with interactivity, we created an imaginary world in which to tell stories of Italian creativity. With adequate time and resources, it will be possible in the future to go even deeper into Game Design, combining the expressive capacity of digital with the immersion of the In-Game experience.

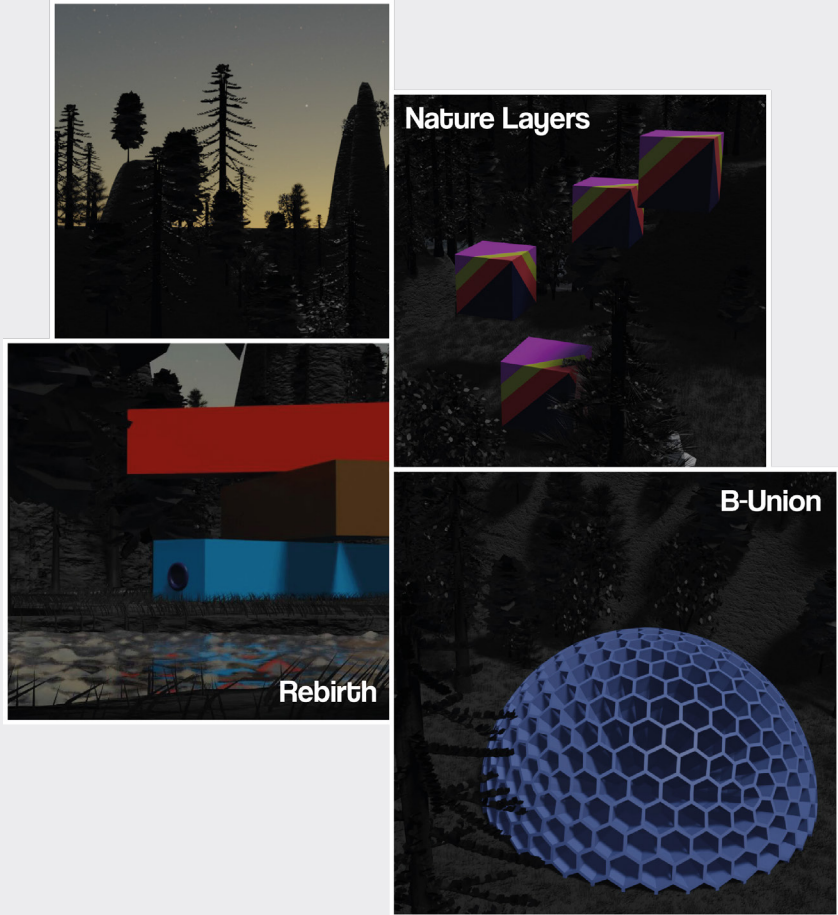


Figure 9. Metamorphic Fashion, structures.

### 3.3. A Blended Future

The *Learning by Doing* approach to Game Design, a discipline extraneous to the dynamics of CDLM in Fashion System Design, deals with the creation of immersive digital systems, video games, in which to live experiences of various kinds.<sup>1</sup> Multidisciplinary was the first benefit of this project as it touched disciplines such as Interior Design, Character Design, Fashion Design, Direction, Performance Art and more. Each of these areas was studied in depth for the communication of the same theme, a synaesthetic system in which different elements collaborate harmoniously to express the same message. The second strong point is the ability of the digital to create something that is not real and make it usable: the abstraction necessary to design new worlds is the same used in the artistic process. It is no coincidence that some video games are inspired by surrealist or abstract works. However, we should not make the mistake of thinking that everything is possible in digital: the realization and the rendering must be subject to constraints far from impalpable. The digital tools have high costs, and the skills in the use of the software are acquired in time as for any other instrument. On the other hand, technology allows reaching adequate levels of creative expression. In particular, with the means available to students, it was possible to give life to a performance that in reality, would not have been feasible (Fig. 10). Thus, it is crucial to address that designers usually take into account the feasibility of a project to the detriment of creativity. Still, if the rules in digital are less strict, and the product is designed

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1 <https://progameguides.com/fortnite-cosmetic/twistie/>.



**Figure 10.** Metamorphic Fashion, character design.

for the virtual environment, then the designer can find creativity opposed by industrial dynamics. A dress designed to be worn in-game, for example, should not necessarily respond to the size and fit system of our world. In the same way, the psychological levers that influence the gamer in the choice of the character and the style that represents him, do not respond to the stereotypical trends we know in everyday life. The brands that want to interface with videogames will have to find a way to connect real and virtual through the transmission of a unique message, which is manifested aesthetically in a suitable way to the different languages. Thus, in the future designers can design fantasy avatars, moving from the fashion to the transformation of bodies. The hope is that the environmental impact of the fashion industry can decrease and creativity becomes, where possible, sustainable digital information.



In this sense, the perspectives that experiences like *Metamorphic Fashion* describe, detach themselves from a *consumed* vision of sustainability to arrive in a more participatory circular and systemic vision. We are aware that environmental or sustainability brands and declarations allow companies to highlight the impact and quality of products, increasing the company's reputation and making it easier for consumers to make informed and ethical purchasing choices (Fabietti, 2015).

However, these brands and statements must be credible, clearly understandable and must correspond to a real benefit for the environment or progress towards sustainability. We understand, therefore, that the increase in digital channels and technologies that the pandemic has caused will only succeed in conveying an idea of sustainable fashion if communication follows the same qualities as environmental statements, i.e. it is credible, clearly understandable and accessible.

#### 4. Metamorphosis and Made in Italy

Sustainability is today an immanent value to the whole design process: from the conception to the realization it is necessary to foresee the destination of each element produced. If already in 1970 Tomás Maldonado in his essay, *Design Hope: environment and Society*, condemned “waste in any of its forms” (Maldonado, 1970), today we are no longer faced with a scarce collective awareness, which therefore requires induction of sensitivity on the issues of sustainability, but we direct ourselves through concrete tests and social actions, as in the experience of *Metamorphic Fashion*, towards the continuous and rapid verification of values now inherent in all people. The digital tools offer the possibility to dematerialize

the value while preserving the ability to transmit messages. Its reproducibility as multimedia content, moreover, allows it to be enjoyed anytime and anywhere: there is no warehouse, no transport and no waste. Considering the environmental and energetic impact of fashion shows, designed to exist only once, it is immediately evident that the conditions of the past can no longer exist. Events such as the presentation of the Chanel 2010 autumn/winter collection,<sup>2</sup> in which 265 tons of ice and snow were transported from Scandinavia, are no longer conceivable today. In the face of a further “iceberg effect” that in recent years has highlighted only individual sections of sustainability in fashion. The interdisciplinarity at the base of the *Metamorphic Fashion* design project has been discussed; it is now necessary to analyze its versatility as a tool. In particular, *Made in Italy* has found in the past in the cinema a valid ally for the communication of its identity, can discover nowadays in gaming a language with which to intercept future consumers. We have seen how the contextualization of the garments worn by avatars in the scenarios has amplified the communication of the collections. This systemic convergence can frame other types of products. The Italian design culture, full of meaning and history, flavours and charm, needs an appropriate communication that is “in step with the times”. *Metamorphic Fashion* describes a process of dematerialization not too far from the essence that identifies the Made in Italy: the transversal taste that permeates the know-how of the boot and the atmosphere that you breathe in the Italian lifestyle, are intangible values that translate into

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2 <https://www.vogue.com/fashion-shows/fall-2010-ready-to-wear/chanel>.

economic and operational possibilities. In the same way, the creation of multimedia content based on the logic of gaming, suitable for communicating the universe of values we have, can give life to new markets and trigger new social dynamics. It is strategic today to sow to reap the fruits when, in about ten years, the Gen Z grown online will be able to evaluate a product without having to touch it. When the protagonist of a video game has more followers than an influencer and digital will be even more credible than it is today, those companies that will have invested in media languages and the new virtual market will have a competitive advantage.<sup>3</sup> A strategy not to be understood as a replacement of the dynamics in action, but in parallel: the artisan and industrial competence will still be a guarantee of the greatness of man, as well as the physicality of relationships will still be unique and unrepeatably, but the communicative and emotional sphere of creativity will find in digital a palette of a thousand colors and new business opportunities will be generated. The breaking down of geographical and social borders through the digital democratization of fashion will have positive repercussions on the founding values of society. In the perspectives just described the supply chains will become permeable and will facilitate the osmosis of knowledge, through *sensitive* and conscious connections. A new horizon that replaces that of *fast fashion* is prospected. The *porosity* of the supply chains will allow new paths and new relationships between the actors synergistically involved in this new paradigm that we can define as the *porosity* of the supply chains: *Metamorphosis of Fashion*. In this scenario, we

have economic, social and environmental sustainability in every production level. The *Metamorphosis Fashion* proposes a proactive and strategic way to the most critical aspects of sustainability and systemic innovation in fashion. Thus, the environmental sustainability component, and the traceability of fashion design processes are combined synergistically with the social and cultural component that digital has helped to transform during Covid-19.

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V

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