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Investigation of Challenges and Opportunities for Fashion Designers in Arthropod Inspired Clothing

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Abstract

Nature has served as a source of inspiration for artists and designers for ages, presenting a limitless variety of ideas, from expansive city skylines to the profound depths of the sea. Yet, one of nature's most complex creations—arthropods—often goes unnoticed. These invertebrates, characterized by their segmented bodies, jointed appendages, and striking patterns, play a crucial role in ecosystems but are frequently overlooked in the realm of design. This research underscores the potential of arthropods as a wellspring of artistic inspiration for fashion, highlighting their captivating beauty, versatility, and harmony. The concept of insect-inspired fashion was sparked by observing a butterfly in a garden. Despite their intricate exoskeletons, shimmering colors, and lively movements, these small creatures are often disregarded by designers, even though they offer boundless creative opportunities. This research

seeks to shift the perception of insects from being seen as "creepy" to being recognized as a source of inspiration, showcasing their textures, patterns, and colors through innovative fabrics, prints, and decorative elements.

Keywords: Arthropod, Fashion Design, Insect, Colors, Cut Lines, Motifs

Introduction

Arthropods are invertebrate animals with an exoskeleton and segmented body, they are distinguished by their jointed limbs and symmetrical bilaterally body. It is a group of organisms with nearly 10 million species and every specie has its own role in our eco-system.

Fashion has long been a reflection of the world around us and our fascination with the natural world, taking inspiration from the natures culture even the smallest inhabitants of our planets such as “Arthropods” ones that make all the ecosystems tick. The research got the idea to settle on insect inspired fashion by observing a butterfly flying through the garden, seeing the little creature fly around from one flower to another made the research question that how nature is the greatest artists of all and its artistic transcends human imagination, show-casting beauty, balance and adaptability. Designers take inspirations from the skyline to the depth of the ocean but they hardly come across the little creatures which exists with us camouflaged in our gardens, trees and rocks. They might seem creepy at first but when you see them closely you can see how beautifully they are made, there delicate shell, tiny legs and bright colored bodies living in their own little world. Their segmented bodies, movement, textures, color variation, intricate patterns are enough to get inspired. The inspiration is drawn from the mesmerizing beauty of insects from their colors to patterns in-cooperating elements like fabric mimicking the layer of chitin found in insects, wing like structures, iridescent hues and the use of exo-skeleton patterns in garment making.

Now a day’s designers and artist are working on robots, futuristic fashion and ongoing hot-topics such as when in 2020 the outburst of Covid-19 took place, designers started making collection based on the virus. Secondly designers are producing fashion collections with the use of Artificial intelligence (Ai) and using latest technology in garment making which is causing a lot of pollution and environmental damage. The research states the problem that people should stress more on nature then these temporary artificial things and the fact that these little creatures are around us most of the time but they still get ignored.

The objectives of producing this collection are to change people mindset that insects are not creepy but inspiring, they contribute so much to the eco-system yet they are so beautiful by their textures, patterns and movements. There are many ways entomologist encourages people by making them visit insect enclosures, botanical gardens, field visits to observe and see the beauty of these tiny creatures. People are working in different fields but near to zero people are focusing on fashion fusion with insects that how inspiring a little beetle can be and how it is enough to create a whole collection dedicated to it. The designer’s objective is to design a fashion collection with arthropod inspired textiles and silhouettes using multimedia, surface development, embellishment, print making on different materials to introduce innovative design which involves designs showcasing the creativity that can emerge from drawing inspiration from nature.

Literature Review

The author narrates how the use of "Beetle wing embroidery" rose to fame in the 18th century in India and was mostly used by the Victorians attending ball in fully embellished light cotton dress with hundreds of beetle wings gleaming like emeralds, making fashion statement and statement about their wealth, power and status. (Libes , K. 2021).

The relationship of arthropods inspired fashion has been doing on since the 19th century as seen, this article tells us how beetle wing embroidery is used in enhancing beauty of a fabric and making it a fashion statement for women to wear at that time and inspired me to use the technique of beetle wing embroidery in our fashion collection as well. As our whole collection is based on insects, the designer will be using the beetle wing embroidery technique and reviving the old techniques. They would use it as an embellishment element in their collection to enhance the beauty of the garments.

In contrast to this in east Asia people traditionally reviewed insects as key components of spiritual practices in a more positive aspect. People used to keep insects as pets as they were therapeutic to see and felt like home. Japanese artists were aware if their rich history in insect art: Kano Kogenobu, in 19th century prepared hand scroll of sketches to further promote them. The European audiences learned about it and these Japanese prints were highly popular in the west and became extremely fashionable. (Schachat, S.R. 2015).

Another one quoted about the anatomy of arthropods, about its body which divided into three different sections, including jointed appendages which are covered with a cuticle made if chitin often containing minerals like calcium carbonate. (Snodgrass, R.E. 2019).

The researcher gets to know about the body structures, the parts of the insect and the cuticle around the body which is made with a thin lining, they can use this article to choose the fabric textures of our garment. The designer can produce the structures of the garment, which mimic the insect body with more modern and futuristic cut lines. With the help of this book, they can choose the fabric of their garments mimicking the body of the insect for example they can use organza and tissue fabric to imitate the layers for chitin as it is also delicate and thin. they can use fusing as an element and dedicate one of the garments purely dedicated to the anatomy of arthropods.

Furthermore, this article tells us about the Cholesteric liquid crystal patterns found in the iridescent adorned cuticles of many insects with sporadic pattern and colours are shown in the layer of insect cuticle, mostly in geometric patterns and other diverse colours and patterns are found in different insects. (Scarangella, A., Soldan, V. and Mitov, M. 2020) Moreover, another book tells us about the different ways that an arthropod move, it can either be in a line or in scattered manner. The moving patterns of these insects are deeply explained in this book. The way of movement also depends on the size and the number of legs of the insect. (Herreid, C.F. and Fourtner, C.R. eds., 1981).

It tells us about the moving pattern of an insect for example some of them move in a line or in a group form, as the designer have incorporated architecture in their collection to give the garments structured and modern silhouettes so the line movements can be compared with illusion architecture for example architectures by Zaha Hadid. In the collection they will be adding one

structured garment with an illusion affect like a spider web to add inspiration drawn from spider in the final project.

Furthermore, this article tells us about the process “Metamorphosis” which is also found in many insects including butterfly and beetle, this process is the journey from a caterpillar to a butterfly. The designer alexander McQueen used techniques such as making patterns of wings, body painting, printing, embellishment with jewels and use of fringes and fabrics like silk, velvets and jacquards to making insect inspired garments inspired by the process of metamorphosis. (Bew, S. 2018).

In this article the designer used dramatic cut lines and convertible garments to show the conversion of the insect, the use of 3D form dresses and opal jewels was done to give them a dramatic element, tuxedos made with silk and double lapels on jackets where make to give it a wing like structure. Dark and very pleasant, quixotic visuals were in the show.

One of the articles published by Vogue magazine purely targets insect motifs specifically butterfly, that how they are being used over the years as an inspiration element in fashion design. From embroidery, printing, embellishment to laser cutting the butterfly motif is everywhere, used in every type of technique. (Nast, C. 2021).

This article tells us how butterfly was used as ingenuity and a fashion element since 100 of years and how this one single element helps beautify the garment so elegantly. The designer will be using butterfly as a focal element in this collection as it is a beautiful insect and it has a lot of elements to draw creativity, from patterns, textures to appealing colours.

(Flowering Moon, 2021)

Material and Methods

The research was built on primary research it plays a vital role in terms of reliability as well as validity of the data within the analytical domains of the topic. Before the creation of the fashion collection market exploration was done, where they explored different domains of fashion from fabrics, prints imitating insect textures to embellishments materials. Further they explored fabrics which was closest to insect shell “Chitin” with the same stiffness and lightweight for example organza or mesh fabric. Then they interviewed people about their view on insect fashion, did surveys, visited fashion houses and attended fashion shows to collect information.

Arranged interviews with the designers who has worked on insects to gain experience. There the researcher got the knowledge about the colour-pallet to use for the collection and the different materials used such as glitter, iridescent fabric, glow in the dark pigments to mimic the cholesteric

patterns found on “Jewel beetles”. As for secondary research used blogs, research papers and articles from google scholar were considered along with books plus observational and interviews were frequently used in context of qualitative research. Field visits were made so the research could feel even close to the nature and explain the insect behaviour accurately.

Furthermore, the designer made design developments and collected fabric samples to do experimentations and try mimicking the insect characteristics, creating unique patterns, cutline and the technique of pleating was used to match the futurism and architectural twist in the collection. Different multi-chrome fabrics and pigments were arranged to use on the garments.

Research Visuals

Three types of different fabrics

Embroidery and embellishment material

Pigments and fibres

Mood-boards

Historical Context

Fashion inspired by Arthropods has been evolving since decades and is still present somewhere in the industry today. The homogenization of insect motifs, patterns and designs in fashion has a rich history that spans many cultures and time-periods. The historical examples demonstrate that the fascination with insects and their aesthetic qualities has been present for centuries for example “Ancient Egypt and Greece” insects were associated with “symbolism”, Beetle shaped amulets were a frequent in the ancient Egypt which meant regeneration and protection. Bees were associated with the “Goddess of Artemis” so the insect motifs could be seen in their clothes and

jewellery pieces. Secondly in renaissance period the theme of insects and nature world became prominent and intricate designs and patterns found in insect wings, exoskeleton, influencing embroidery, textile patterns and insect motifs were integrated into garments to reflect nature. In "Baroque" era insect inspired lace embroidery was used on garments. Art movements included insects such as "Art Nouveau" movement people espoused organic forms and nature inspired things which also included designers such as "Louis Comfort Tiffany "included insect motifs into accessories focusing into intricate details and insect anatomy.

(Mattglen, 2014)

Designers Inspired by Insects

Designers often draw inspiration from insights due to different reasons such as their "aesthetic appeal" vibrant colours, unique patterns and textures. Secondly, Biomimicry is also one of the factors designers maybe inspired by the functional aspects of insect behaviour and anatomy and use it as an upheaval. Thirdly it is about symbolism and cultural importance, in different cultures insects carry different roles, so designers can use these cultural meanings into their collections. Other than that inspiration through the natural patterns harmony and the ecosystem can also be the reason of inspiration.

Challenges and Solutions

Fashion designers may find challenges while creating an insect inspired collection but it is equally possible to overcome these challenges for example making fabric which replicate the characteristics of arthropods exoskeleton can be difficult, the material needs to be flexible and durable, but it can be constructed by working with material engineers, scientists to help the designer explore and align with their insect centre vision. secondly, the most important factor is to make the garment wearable and fully functional, but balancing a functional insect inspired design with fashion aesthetic can be tricky, so in order to avoid this problem, designers should make sample pieces of the garment with different materials testing before creating the final garment, ensuring that the final garment is bought visually, pleasing and comfortable. Lastly communication and market acceptance can be challenging and it can be overcome and by clear communication of the idea through various channels, such as social media, fashion, runways, and marketing of the collection correctly.

Designers

Designers who had come up with great insect inspired collections are: Alexander McQueen have created a collection named “Plato’s Atlantis “collection (spring/summer 2010) with garments embellished in insect patterns and embellishments. Iris Van Harpen has created collections with natural elements such as insects with the use of 3D printing and created structures and textures found in the insect world. Christopher Kane “Lace Beetle” collection (spring/ summer 2011) was inspired by beetles, Janice Wu has explored insect themes and created garments which mimic the appearance of their exoskeletons, Three as four was an avant-garde collection inspired by natural elements with insect patterns and their unconventional shapes, many other designers are Gucci, Valentino, Prada, Burberry and Erdem.

“Plato’s Atlantis” by Alexander McQueen.Vouge.com, 2023

Iris van Herpen

Boissonneault, 2019

Lack of Awareness

People are into fashion but they never seen to take these little insects as an inspiration, insect inspired bedspreads are sold in market but the idea of making a fashion collection dedicated to them is completely ignored. Even in Pakistan designers are getting influenced from cultural issues such as Dowry and historical events but none of them seen to take interest in little creatures, recently "Sana Safinaz" came out with their spring fall collection and only two of the garments were honeybee print inspired out of fifty-six articles launched, this ratio talk about the percentage of importance insect fashion contains in the minds of designers and the lack of knowledge they have about insect inspired fashion.

Colors and Patterns/Textures

Insects contribute a lot in fashion, they provide us with a lot of elements such as their shining range of colors and patterns have fascinated people throughout the history from bright hues of butterfly's intricate cholesteric patterns found on beetles, strip like ornamentation found on honeybee, they offer endless elements such as colours like iridescent blues, metallic green, yellow to bright orange with unique textures on the body of insects.

Agustin, 2016

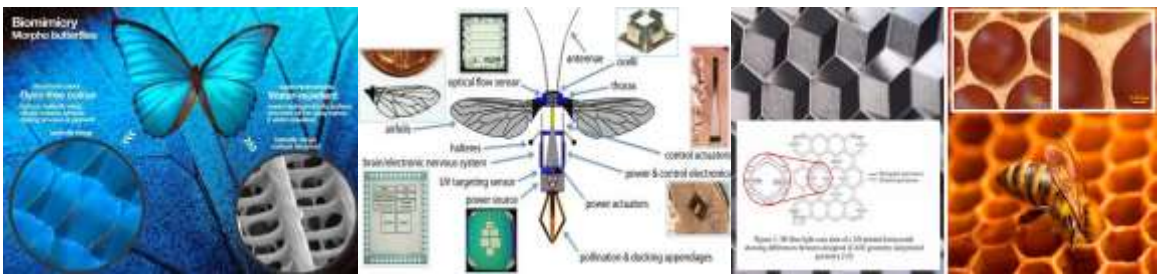
Architecture inspired by insects and its fusion with insect fashion

Architecture inspired by insects incorporates elements like biomimicry which includes streamline structures, shapes, decentralized systems plus eco-friendly materials to replicate efficiency of nature. The designer who has worked on insect inspired architecture is “Zaha Hadid”. Her work carries its own futurism. It has shapes which are more or less inspired of these insects, moreover the researcher has explored the locomotion of insects, the pattern they form while walking and crawling on surface forms a line and if the designer replicates the line and repeat it, they can get references of Zaha Hadid line inspired architecture. Secondly there’s one more example which relates to insects. It is a swarm inspired sculpture piece made by Zaha Hadid Victoria and Albert Museum in London, as per for swarm relation to Insects, mostly insects like to more in groups and swarms for example “swarm of bees” this is what this piece was inspired from. To merge insect architecture with fashion they can create structured garments with line repetitions which can be represented by pleating technique on fabric. Use of mesh and sheer fabrics to show layers in garments with incorporation of architectural fused with insect shapes into garments silhouettes

Historic Pictoric, n.d.

Insect Anatomy

Anatomy of insects is also an element, the unique features such as exoskeleton, body segmentation and the way the wings flutter is very mesmerising to see for example For example a butterfly has three main parts head thorax, and a segmented abdomen, it’s wings has delicate skills, which form intricate patterns, the structure, and the overall anatomy showcases an intricate combination of structure and beauty, the inspiration factor from the anatomy can be replicated by creating structural garments and the structures can be influenced by a fusion of architecture with insects such as the work of Zaha Hadid.



Employees, 2017

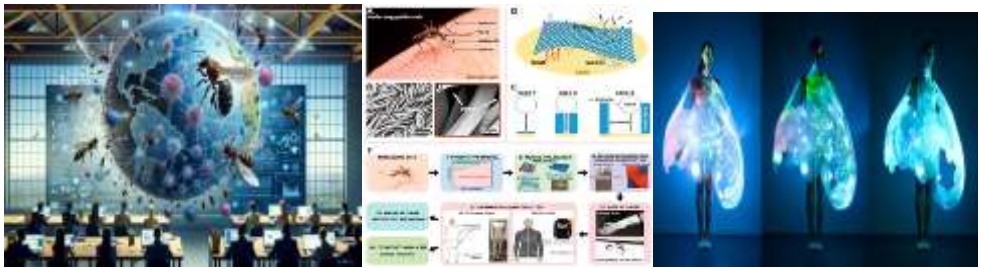
Biomimicry in Insects

The trend of biomimicry was also derived from insects, it involves imitating their body structures. Insect with their efficient and adaptive design, inspires, practical and aesthetic garment, such as the use of stretchable, and weightless material mimic insect wings. The strong exoskeleton of Beetles with iridescent hues reflect light in a captivating way. The vibrant and iridescent colours busy on a butterfly wing created by minuscule scales, designers can use Edison fabrics and printing techniques to make the beautiful colourations of butterfly wings. Spider silk with create tinsel strength and light weight properties can be used as an alternative to synthetic silk in clothing and textiles.

Anon, 2023

Sustainable Fashion

Sustainable fashion and eco-friendly products are very much light by people and insect fashion fully supports the idea of sustainability. Insects are Known for their culpableness and efficiency, they provide biodegradable materials, the use of sustainable material, such as cruelty, free, silk, and alternative clothes made from inside fibres, not only lessen environmental impact of fashion, but also promotes ethical practices.



Nowacki, 2023

Technological Innovation

The technological innovation in arthropod fashion includes the use of advanced techniques, materials, and methods. As insects have unique features, they influence designers to mimic the structural properties which can lead to development of durable materials and lightweight fabrics.

3D printing technology can also be used to create convoluted and comprehensive design similar to the insect anatomy. Secondly, do you love smart textile suggest fibre-optic can be used to replicate bioluminescence seen in some insects.

Conclusion

Fashion inspired by insects is a hint to the limitless world of imagination which nature gives to creative minds in the industry. As practitioners continue traverse the world of insects, hopefully this trend evolves and influence more sustainable and innovation approaches. The technology of biomimetic textiles to 3D printing techniques contribute to garment making is not only mimicking insects but embodying environmental responsibility and functionality. In the opinion of the researcher there are many creative possibilities that designers can come up with great designs inspired by insects mimicking their characteristics would promote the importance of insects in fashion and awareness amongst people to see them in a positive way.

In essence through thoughtful and innovative design, fashion has become a canvas where resilience, beauty and adaptability of insects come to life, which leaves an indelible mark on the evolving landscape of the fashion industry.

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