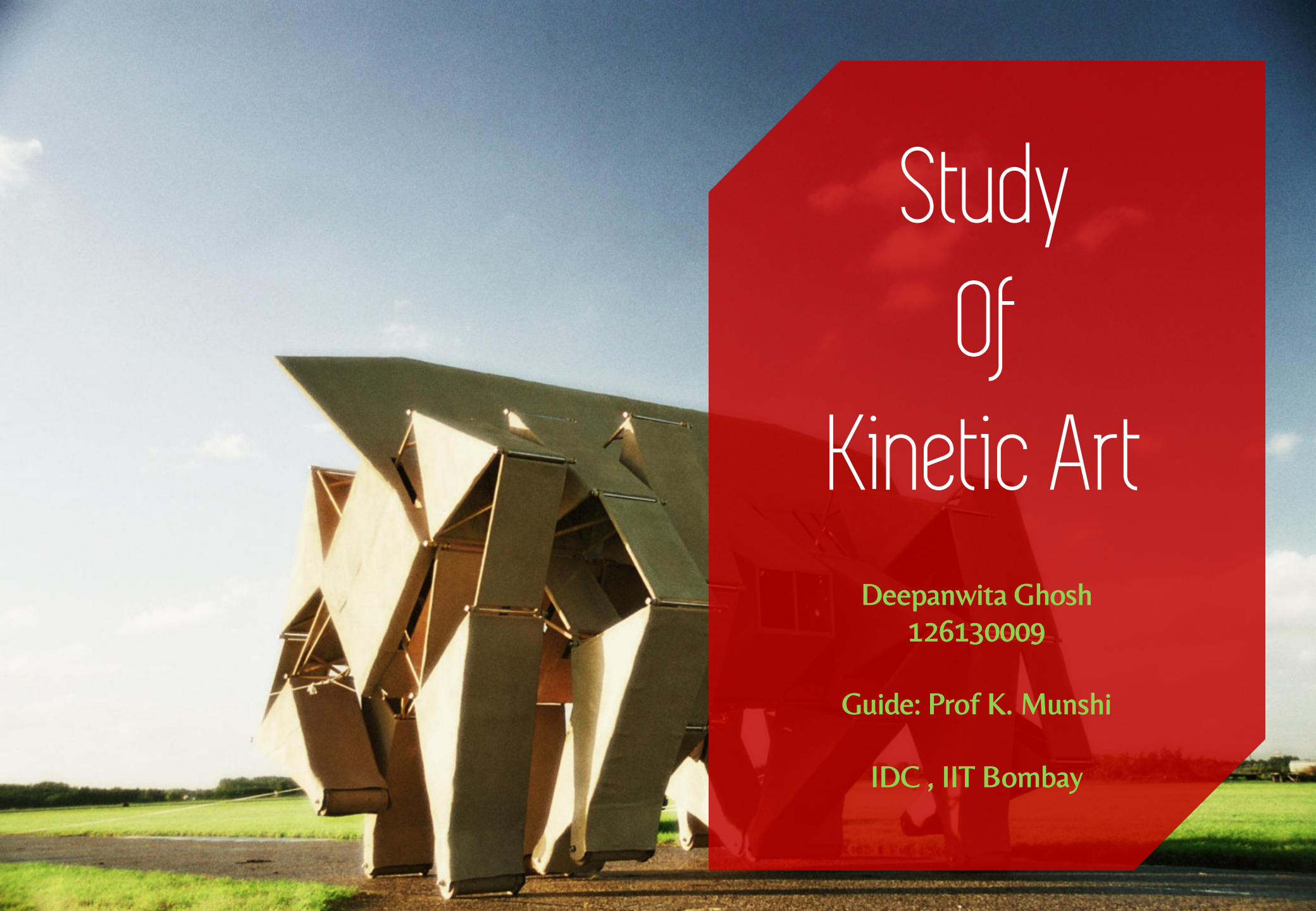

Study Of Kinetic Art

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Guide: Prof K. Munshi

IDC , IIT Bombay

APPROVAL SHEET

The project titled 'Study of Kinetic Art' by Deepanwita Ghosh is approved in partial fulfillment of the requirements for the degree of Master of Design in Product Design.

Guide:

Date:

DECLARATION

I declare that this written submission represents my ideas in my own words and where others ideas and words have been included , I have adequately cited and referenced the original sources. I also declare that I have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the institute and can evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Signature:

Name : Deepanwita Ghosh
Roll No : 126130009
Date:

ACKNOWLEDGEMENT

I wish to express my sincere gratitude towards my guide , Prof. K Munshi who has been there to support and inspire me during the complete journey of my project.. Without his help and guidance this project would not have been complete.

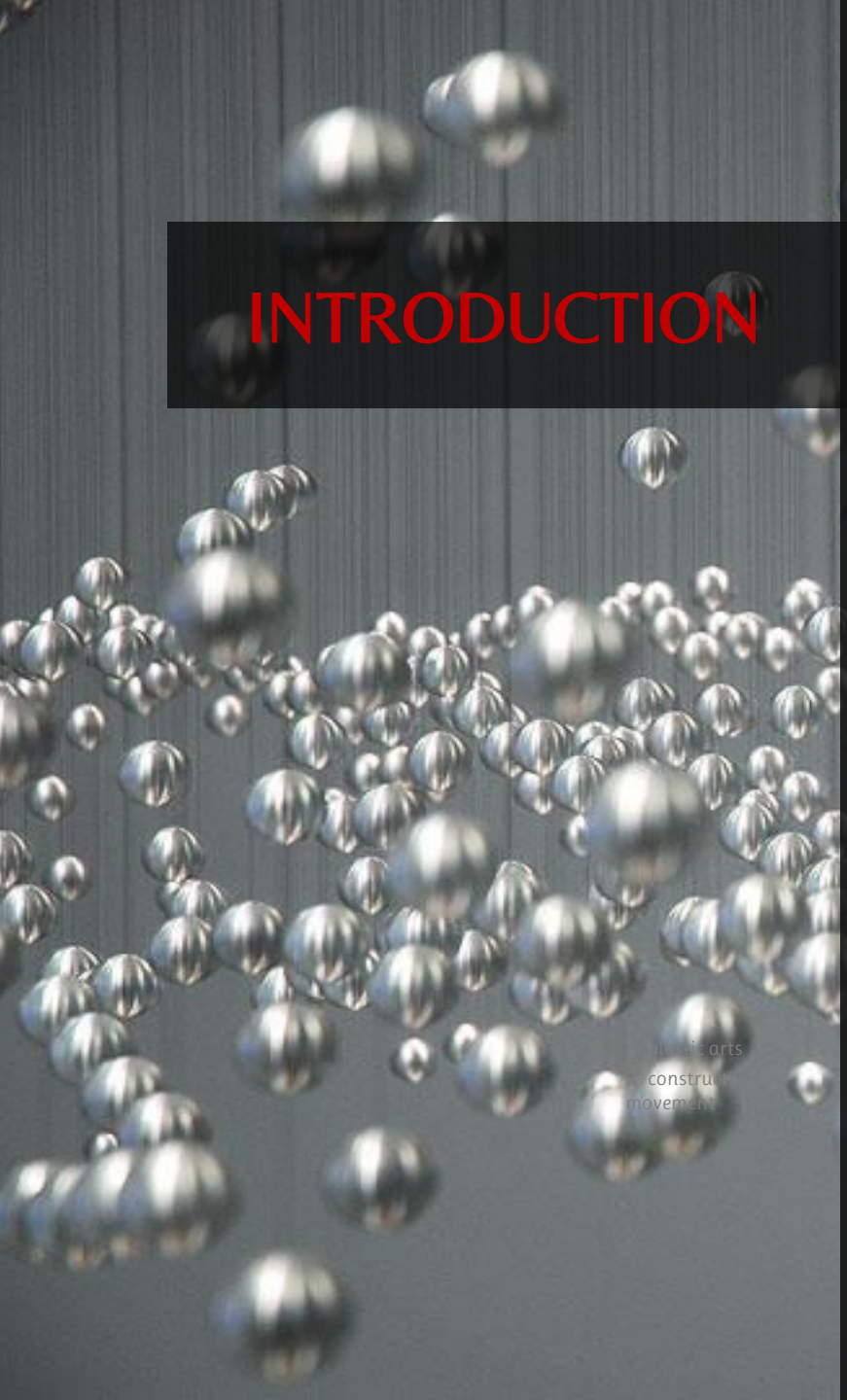
I would also like to thank all my friends from whom I have received some very important inputs and insights which have been of great value to me. I would like to thank them all for their support and encouragement which helped me complete this project..

CONTENTS

ABSTRACT

The topic for the Design Research Seminar is Study of Kinetic Art. This field of art caught my interest when I was previously working on an immersive light experience project for my curriculum. The works of U-Ram Choe, a kinetic artist from South Korea was very fascinating and inspiring. Thus it got me curious to go ahead with this project.

The origin and developments in art and how kinetic art was formed was studied. The various ways in which movement was interpreted was noted and how the works of the artists in that era were influenced by 'movement' was studied. The works from the era of 1860 till today was researched and it was noted that the innovators in plastic arts have worked with a lot of different materials and technology as eras have passed transforming the image of movement in art into a genuine art of movement.



INTRODUCTION

"In art, as music, there are rhythms, movements, flow and ebb." - Betty Jean Billups

History of the term Kinetic Art

So far as it can be confirmed, the two words kinetic and kinetic art were not used in tandem in ancient literature or philosophy. The initial idea must therefore be the restoration of the Greek root as a scientific term at the beginning of the 19th century. The word 'kinetic'(French: cinetique) was universally employed around 1860 to define phenomena connected with movement in the field of sciences. In the field of chemistry it was used for the field of Gas Kinetics. In mechanics it held an altered sense.

Around 1890 these terms assimilated an added variety of sense. *The research of Muybridge and Marey, which had resulted in the invention of an apparatus capable of taking up to sixteen photographs per second, led to Edison's kinetoscope of 1892.* Edison's invention allowed taking a rapid succession of photographs, which gave an illusion of movement when seen collectively. *And finally in 1895, the Lumiere brothers put on their 'cinematographic' apparatus, which enabled audiences to take part in the display of projections. It is to this technique, which advanced into a new art form, that we owe the association of the word 'kinein' with the vocabulary of aesthetics.* The Germans, on the other hand had embraced this word for the arts of gesture.

It was in 1920 that the word 'kinetic' was first used in association with the plastic arts. Gabo, a notable Russian sculptor of the Constructivism Movement and Pevsner, a German-born British scholar of history of art and, especially, of history of architecture, spoke of 'kinetic rhythms' in their *Realist Manifeto* which dates from the same year-but the term became associated with accurate physical phenomena. As a result , the word 'dynamic' was still used to denote movement in plastic arts.

A term for a type of work which gained much popularity between the wars was that of 'mobile' – probably introduced by Duchamp, (a French-American painter, sculptor, and writer whose work is associated with Dadaism and conceptual art, although not directly associated with Dada groups) in 1932 to describe a work by Calder(Alexander Calder was an American sculptor best known as the originator of a type of kinetic sculpture).

It was only around 1954 that the word 'kinetic' finally became conventional part in critical terminology. It thrived into an energetic *avant-garde trend*, following the landmark exhibition *Le Mouvement* at Galerie Denise Rene in Paris in 1955, after which it attracted a wide international following. The *Yellow Manifesto ,* issued on the event of the 'Movement' exhibition, enclosed references to the 'kinetic arts' by Vasarely - artist and theoretician and Hulten – art historian. *The word was being used for visual research which compelled the spectator to respond to certain stimuli, for works whose temporal structure only became apparent if the spectator himself moved and later it spread to cover works which derived from colour-organs, or involved light projections and moving forms*.. An extensive chronology of kinetic art was published by Wolfgang Ramsbott (professor of experimental film at the University of Arts in Berlin)in 1960 and from this date on we might say that **kinetic art** made its place into art history.

ESSENCE OF KINETIC ART

Kinetic art encapsulates all two or three dimensional works in actual movement, including machines, mobiles and projections, whether controlled or uncontrolled. It also encompasses works in virtual movement that is a situation wherein the spectators eye responds quite clearly to physical stimuli. The final category includes works of artists who permit optical phenomena to play a major role. Lastly it also includes those works which require the spectator to actively participate , either with his own movements or due to the role which he plays in constructing or reconstructing the elements of the work.

The point that the term kinetic art is applicable to this extensive variety of work must not be taken to infer that the aesthetic experience of movement is indistinguishable in all cases. This understanding in fact seems to differ in direct relationship to the presence of the three basic groups:

those which are stable but stimulate physiological reactions in the spectator, those which challenge the spectator to physical action, And finally those which are themselves in movement.

Among these three groups, it is the one which is related with the virtual movement that creates difficulties of classification. It is not due to the fact that the artists are inspired from a boundless number of sources- a problem which transpires in all branches of arts- but there is no conclusive boundary between old-fashioned images of movement, whether semantic or plastic, and the current version which lead to the freedom of the elements of movement. However, it is possible to name a few artists who are mostly considered as the forerunners of this field, since they were successful in bringing the subject of virtual movement into eminence by their usage of colour, line, volume.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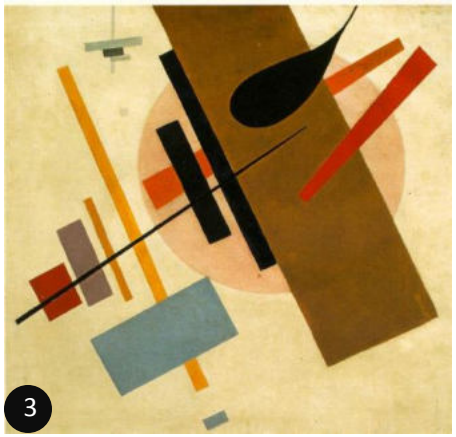
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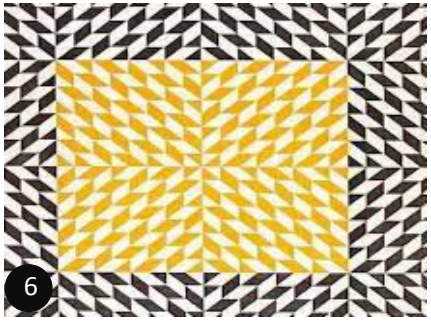
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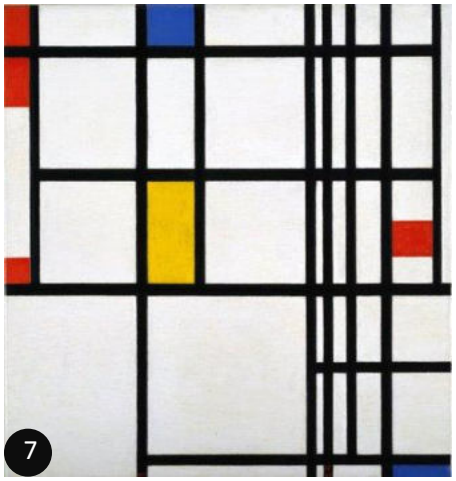
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Ref : https://www.google.co.in/search?

These are: Delaunay(fig 1), Kandinsky(fig 2), Malevich(fig 3), Herbin (fig 5), Mondrian(fig 7), Albers(fig 6), Berlewi(fig 4), Klee(fig 8) and several other members of the Bauhaus.

To give a summary of the kinds of Kinetic Art:

The Stable : *fixed elements arranged to stimulate physiological reactions in the spectator*

The Penetrable : *the works are installed at a space and challenge the spectator to physical action*

The Mobiles : *those which are themselves in movement due to different causes.*

The Stable - Yaacov Agam

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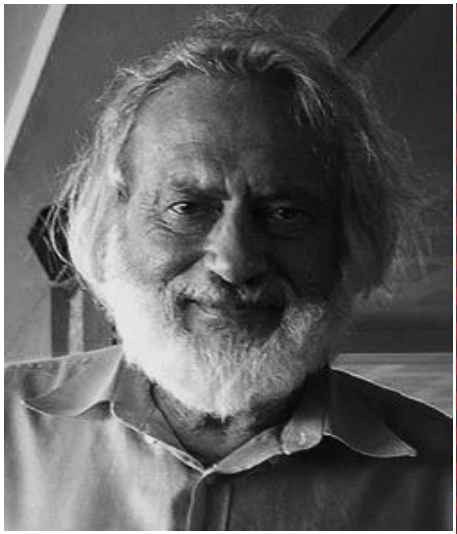
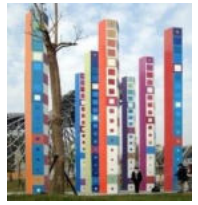


Yaacov Agam pioneered a new form of art that stresses change and movement. He studied under the Bauhaus' color-theoretician, Johannes Itten, and then rejected traditional static concepts of painting and sculpture.

Figures show the kinetic sculpture related works of Yaakcov Agam



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Yaacov Agam - *transformable, polyphonic and tactile works*

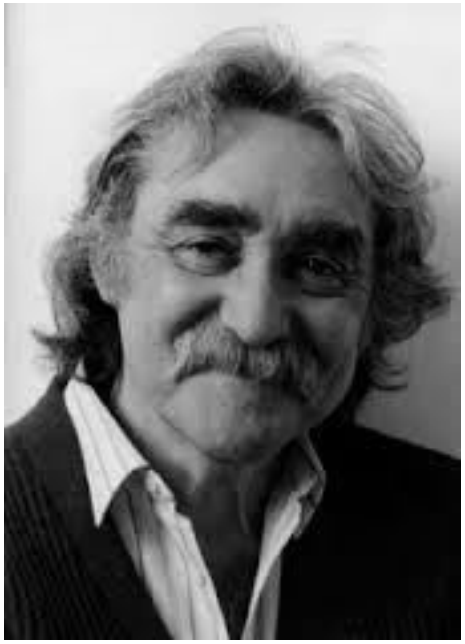
Agam has fashioned works which only disclose their structure when the spectator moves before them. *He has used the words 'contrapuntal' and 'polyphonic' again and again in the naming of his works which undergo complete metamorphosis as the spectator passes in front of them.*

Agam stretches further than the time scale which is an implicit in traditional music. He considers mere duration substantially less rich than the eminence of time which is involved in his changeable paintings- a time that is vibrant, unalterable and unanticipated. He believes that the complete question of including kinetic effects into a painting is inevitably attached with the notion of time.

Fig above shows the transition of the work when the viewer sees it from one end to the other by moving for the art called Double metamorphose III, 1968-69

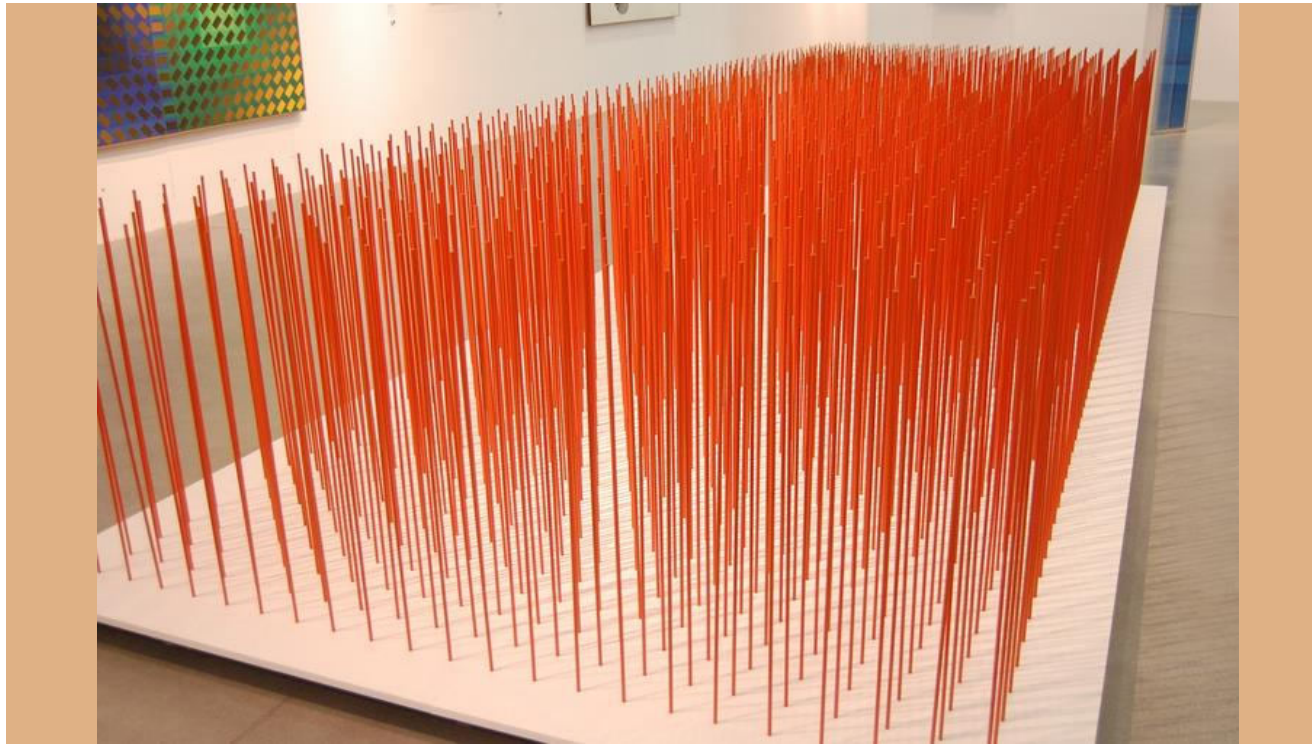
The Penetrable – Jesus-Raphael Soto

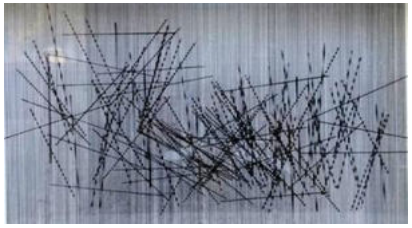
Ref images : https://www.google.co.in/search?q=soto



Soto was a Venezuelan op and kinetic artist, a sculptor and a painter. Soto has fashioned penetrables, interactive sculptures which comprises square arrays of thin, dangling tubes through which observers can walk. It has been said of Soto's art that it is inseparable from the viewer; it can only stand accomplished in the illusion apparent to the mind by observing the piece.

Figures in this page show the works of Soto.





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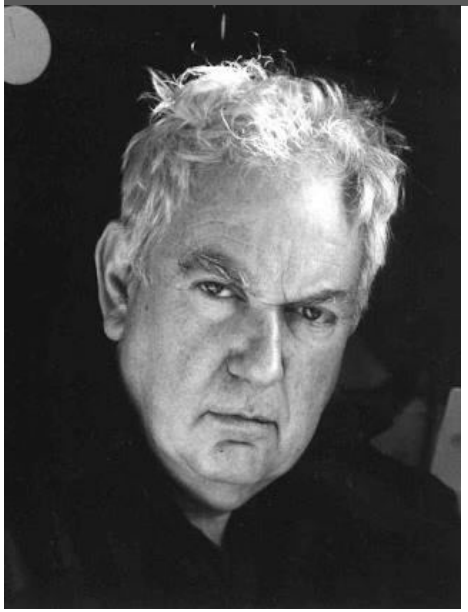
Jesus Raphael Soto - the moiré effect

Soto used recurrence as a resource to get liberated from the traditional concepts of form and composition, which in his outlook, were at the phase of figurative art. He has arrived at the conclusion that accurate perception in the plastic arts could only be attained by a sort of transformation which is derived by movement alone . *The culmination of Soto's myriad "investigations" (a word he uses frequently) is no doubt his "Penetrables," (1967-97) which includes plastic or metal cords hanging from grids which the spectator must traverse*. Soto has also created many non-penetrable works in which metal rods painted in diverse colors induce the effect of a suspended volume, which is usually a cube or a sphere. As the spectator approaches them these "virtual" installations prompt a glistening optical effect. *The first Soto "Penetrable" to also project a virtual volume is the one greeting viewers at the Jeu de Paume exhibition.*

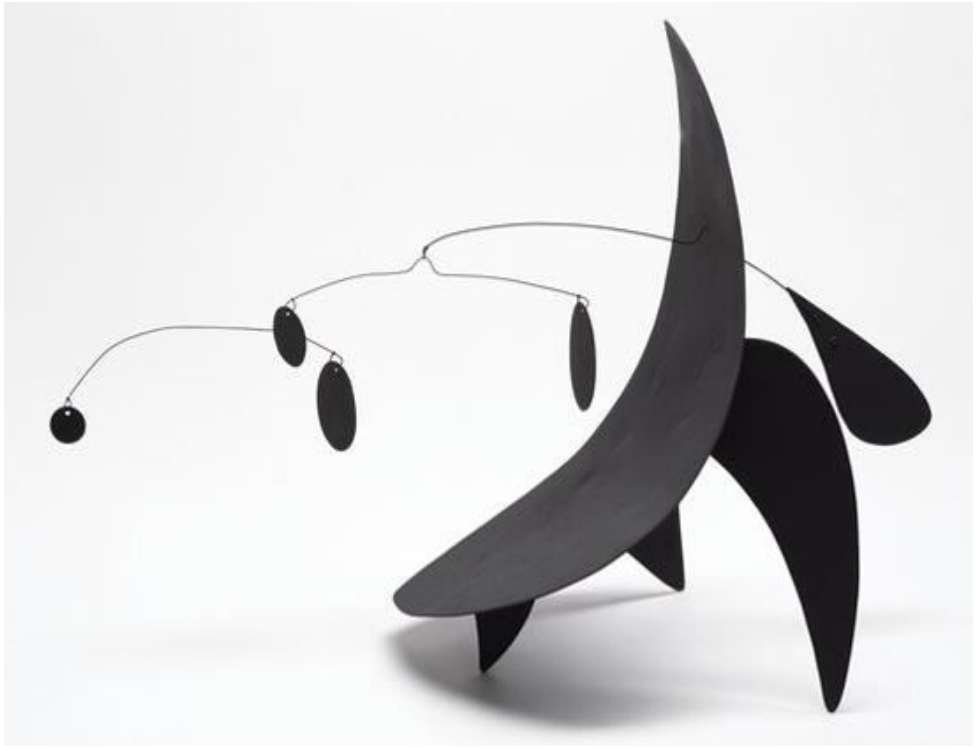
The Mobiles – Alexander Calder

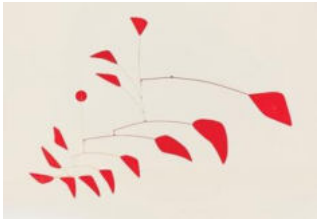
Ref images : https://www.google.co.in/search?q=calder



Calder was an American sculptor best known as the inventor of the mobile, a type of kinetic sculpture made with delicately balanced or suspended components which move in reaction to motor power or air currents

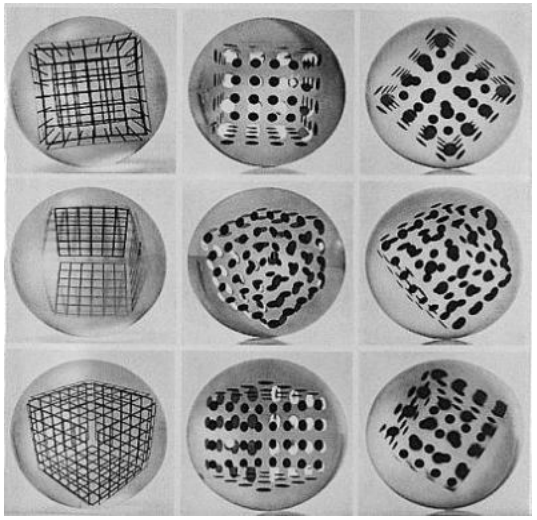
Figures in this page show the works of Calder.



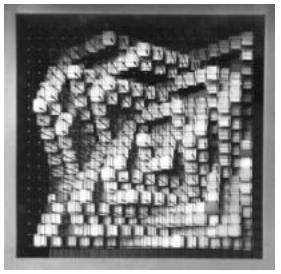


MOVEMENT AND USE OF DIFFERENT MATERIALS

Aluminum surfaces were used a lot by *Getulio Alviani*



Enzo Mari's **aluminum structures**



One more characteristic of research into virtual movement is related to the reflection of light upon metallic surfaces or through transparent material- in the second case an entire kind of different types of glass and plastic provides the necessary effects. *This sort of technique was invented and developed by the constructivists Gabo, Pevsner and Moholy-Nagy.*

Aluminum surfaces were made use of a lot by *Getulio Alviani*, an Italian painter ,which he concealed with identical curved signs, alike in their origin, but of altered heights and relative orientations. A component of spectator contribution comes here, for the surfaces reflect 'lines of light' which differ with respect to the spectator's angle of view.

Enzo Mari also is concerned with **aluminum structures**, either painted black or retaining their natural metallic colour. He uses them to generate a type of honey-comb, in which each internal space is considered successively as full or empty.

Surfaces of while polyester were used by the Swiss painter and draughtsman, *Andreas Christen*

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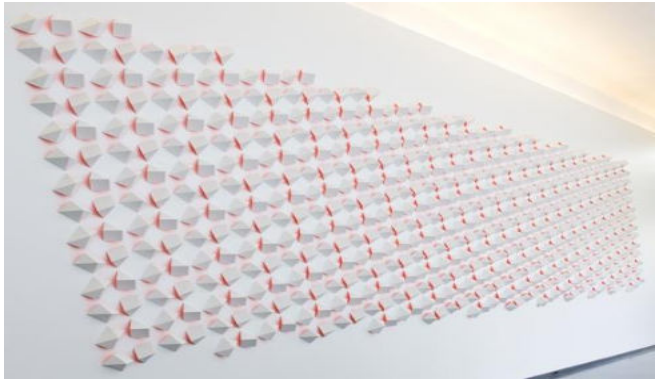
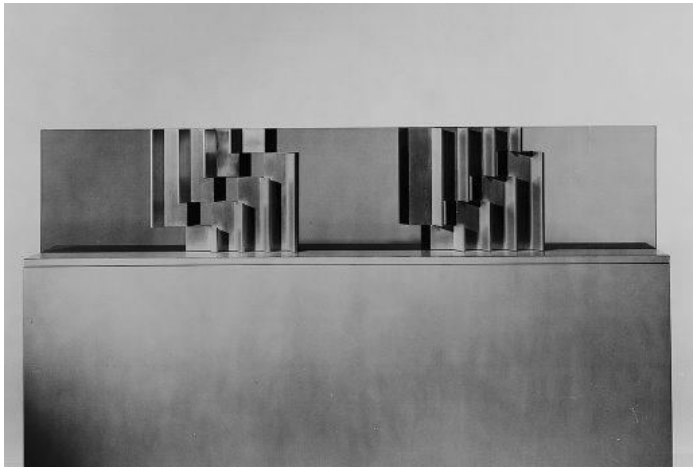


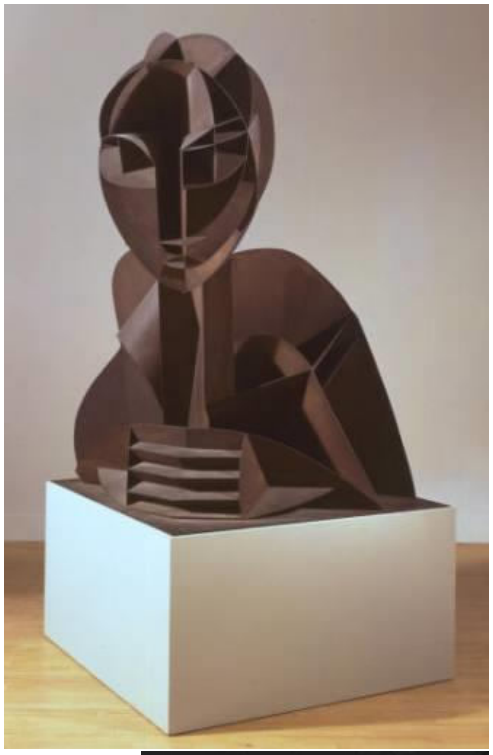
Louis Tomasello who uses the reflection of elements

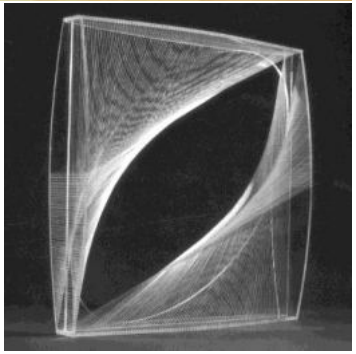
Surfaces of while polyester were used by the Swiss painter and draughtsman, *Andreas Christen* which expose plastic elements such as points and lines in a precise condition of light. There is a progression of development in the objects which get displayed the instant it is passed from the second to the third dimension. Light is used for visual message.

A great number of artists of this generation used the methods of relief to acquire the effects of virtual movement. These fluctuate with the materials employed. Venezuelan artist, *Debourgh* creates **relief in wood.** *These reliefs , with their diagonal planes interact with the light in a way that is determined by the geometrical organization*. Another artist is *Louis Tomasello* uses the reflection of elements in relief on a white surface. *These elements that are bowed away are painted in primary colours and makes.*



Anthony hill makes use of a wide range of natural and synthetic materials such as **aluminum ,p.v.c., copper** etc.





Naum Gabo's work

chromatic shadows on the adjacent surface according to the angle of the natural of artificial light as well as according to the movement of the spectator. English artist, Anthony Hill uses a wide array of natural and synthetic materials such as **aluminum ,p.v.c., copper** etc.

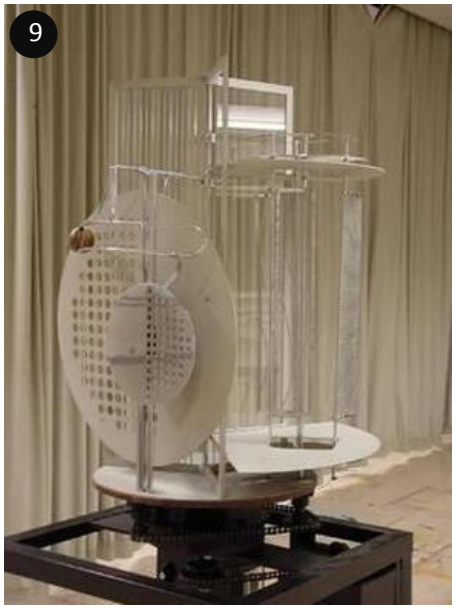
Naum Gabo , a prominent Russian sculptor in the Constructivism movement and a pioneer of Kinetic Art., was also inventive in his works and used **plastics, fishing line, bronze, sheets of Perspex, and boulders**. In his work, Gabo used time and space as structural elements and in them solid matter develops and becomes stunningly surreal and ethereal. His sculptures induce a link between what is perceptible and imperceptible, amongst what is basic in its realism and the limitless opportunities of instinctive imagination. Creative as Gabo was, his realism lent itself to the formation and fabrication of his works. He developed systems of creation which were employed for his classily extravagant sculptures and were viable for architecture as well.

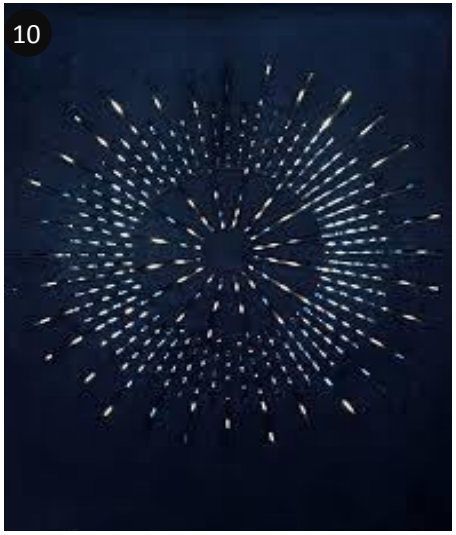
LUMINO - KINETIC ART

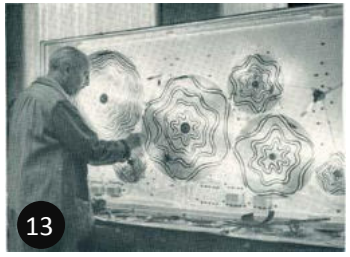
Most of the kinetic works created on plane surfaces bring white or colored light into play. We may consequently allocate them broadly to the field of '**luminous movement**', or more accurately to the grouping of 'light and movement'. *There are three primary sources for this group of works : colored organs, the early history of photography and cinema, and finally theatrical projections. It was the convergence of these 3 lines of research which gave rise originally in 1920 and for a second time in 1950- to an entirely distinct art of moving light.*

Lumino Kinetic art encompasses **light and movement**. It is a subset of the more recognized kinetic art. The Historian of Art Frank Popper opinions the evolution of this type of art as indication of "aesthetic preoccupations linked with technological advancement" and an initiating-point of the high-technology art .László Moholy-Nagy (1895-1946), a member of the Bauhaus, and influenced by constructivism can be regarded as one of the fathers of Lumino kinetic art. Light sculpture and moving sculpture are the components of his Light-Space Modulator (1922–30), one of the initial Light art pieces which also include kinetic art.

The geneses of the term itself are numerous. *There was an early cybernetic artist, Nicolas Schöffer, who created walls of light, prisms, and video circuits under the term in the 50s. Artist/engineer Frank Malina came up with the Lumidyne system of lighting (CITE), and his work Tableaux mobiles (moving paintings) is an example of Lumino Kinetic art of that period. Later, artist Nino Calos worked with the term "Limino-kinetic paintings. (CITE). Artist György Kepes was also experimenting with lumino-kinetic works.*







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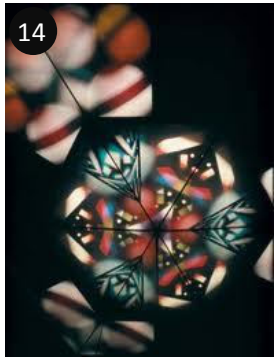

Ellis D Fogg is also associated as a "lumino kinetic sculptor". In the 1960s various exhibits involved Lumino Kinetic art, inter alia Kunst-Licht-Kunst at the Stedelijk Van Abbemuseum in Eindhoven in 1966, and Lumière et mouvement at the Musée d'Art Moderne de la Ville de Paris in 1967.

Lumino Kinetic art was also associated with Op art in the late 60s since the moving lights were outstandingly intoxicating and psychedelic.

Frank Popper observes it as an 'art historical term' in the context of kinetic art. He states that "there is no lumino kinetic art after the early 70s; it stands as a precursor to other contemporary cybernetic, robotic, new media-based arts, and is limited to a very small number of (male) European avant-garde artists (part of the New Tendencies movement)".

Fig 10-13-works of frank malina

Fig 12-14- nicolas schoffer

Fig 9-11- laszlo moholy nagy- light space modulator

3-D WORKS IN MOVEMENT

We now reach the class of works which encompass real movements - *movements that take place in space as opposed to those which utilize the effects of moving light on a plane surface*. The very element that theses works involve actual alterations in space, differentiates them from those which simply designate the existence of space in a representative or illusionic way.

The key distinction within this system is between predictable and unpredictable movement. The classification may appear capricious but from the point of view of the spectator it is of utmost importance. *Does the spectator experience a sensation of predictability in his contemplation of the work in movement or does he not?* The genuine reason of the movement is appropriate in this connection. Most of the works which move instinctively either by human impetus or through an intermediate of a man-made machine fall within the predictable category.

The contrary is accurate in the case of works which are rearranged in motion by natural forces with no human involvement. This category would comprise the large class of mobiles which react to wind heat and other forces outside of the direct control of humans.

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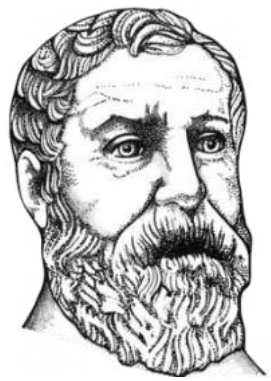

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Machines

In association with kinetic machines we must firstly mention the earthenware articulated statuettes of ancient Egypt and bone ware figurines(fig 15-16) from Greece which were used as cult objects. Reference should also be made of Hero of Alexandria who lived around 100 AD. Hero(fig 17) used procedures and systems like displacement of water, compressed air(fig 18), turntables and flames which were alternately ablaze and extinguished. Later the Arabs used types of automata to entertain guests at a feast. *The Arabs also devised a kind of water clock which seems to have been the origins of the armed figure used to sound the hour in medieval clocks and led eventually to the construction of whole scenes illustrating religious or profane subjects towards the end of the fourteen century.*

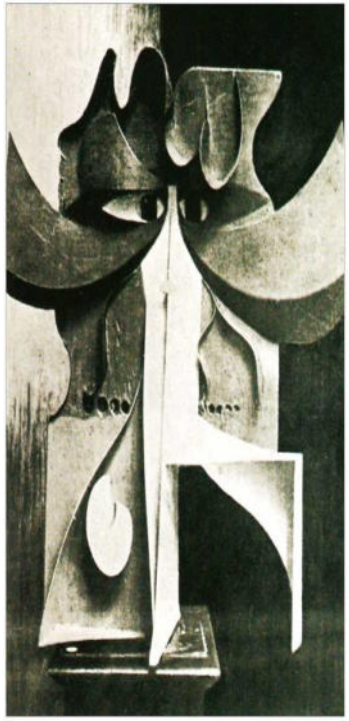
We see the development of a new phenomenon, in the 17th century -the human or animal mechanization which emulates life like appearances. During 18th century, the taste for mechanical toys, marionettes and automata which had already existed in the classical times was nurtured in princely and noble circles. *At the same time an exciting development took place ie. Travelling fairs offered the optical marvels of the phantasmagoria.*

- Which is a type of animated tableau that made use of illuminated figures in total darkness. Pictures with musical accessory got ahead of the animated paintings in the 19th century. At the same time motorized toys based on spring force grew more widespread. All these techniques were accessible for the communication of a language which floated between the areas of the artist and the craftsman.

In 1912 Larionov, Giacomo Balla, Archipenko and Duchamp all prepared experiments of this type - incorporating movement by the use of electric motor or leaving it to manual control. Balla's attentiveness in movement goes way deeper and his effort at incorporating real movement within work can be seen in the portrait of the Marchesa Casati. Archiepenko created the Archipentuar in 1924 – a contraption that was designed to form an impression of movement in a illustrative subject through methods akin to cinema.

Marcel Duchamp's kinetic experiments in 3-D are from a very different point of view. His works are governed by electric motor which makes them rotate and thus gives the visual effect of circles shifting into spirals.

Giacomo Balla



The top left picture is a self portrait of Balla. The picture below that is of the theater artist Casati and the picture above is his representation of Marchesa Casati which dates from 1915.

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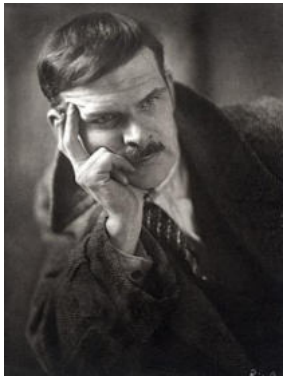
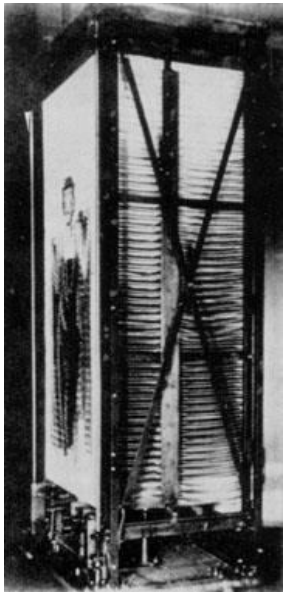
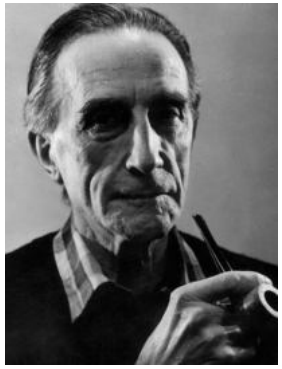




Alexander Archipenko

His research into the opportunities of real movement began in 1912 at Paris when he created a juggler out of wood glass and wire which he called Medrano. This work stands between virtual and real movement since the juggler's arms are mobile but the 3 discs and balloons show movement in a representative way.(picture above) The picture on the bottom left is called Archipentura an actual contraption which was envisioned to produce illusion of movement in a pictorial subject like in cinema. Electric motor was used to get the desired effect.



Marcel Duchamp

Duchamp styles 3D movement with a different point of view. The picture above shows the use of pure movement in an attempt to demystify art.

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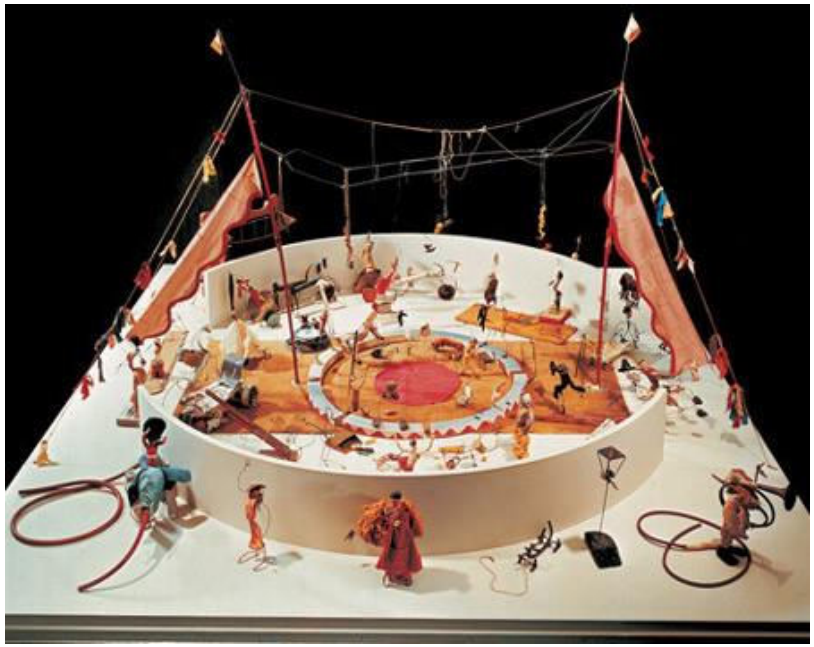

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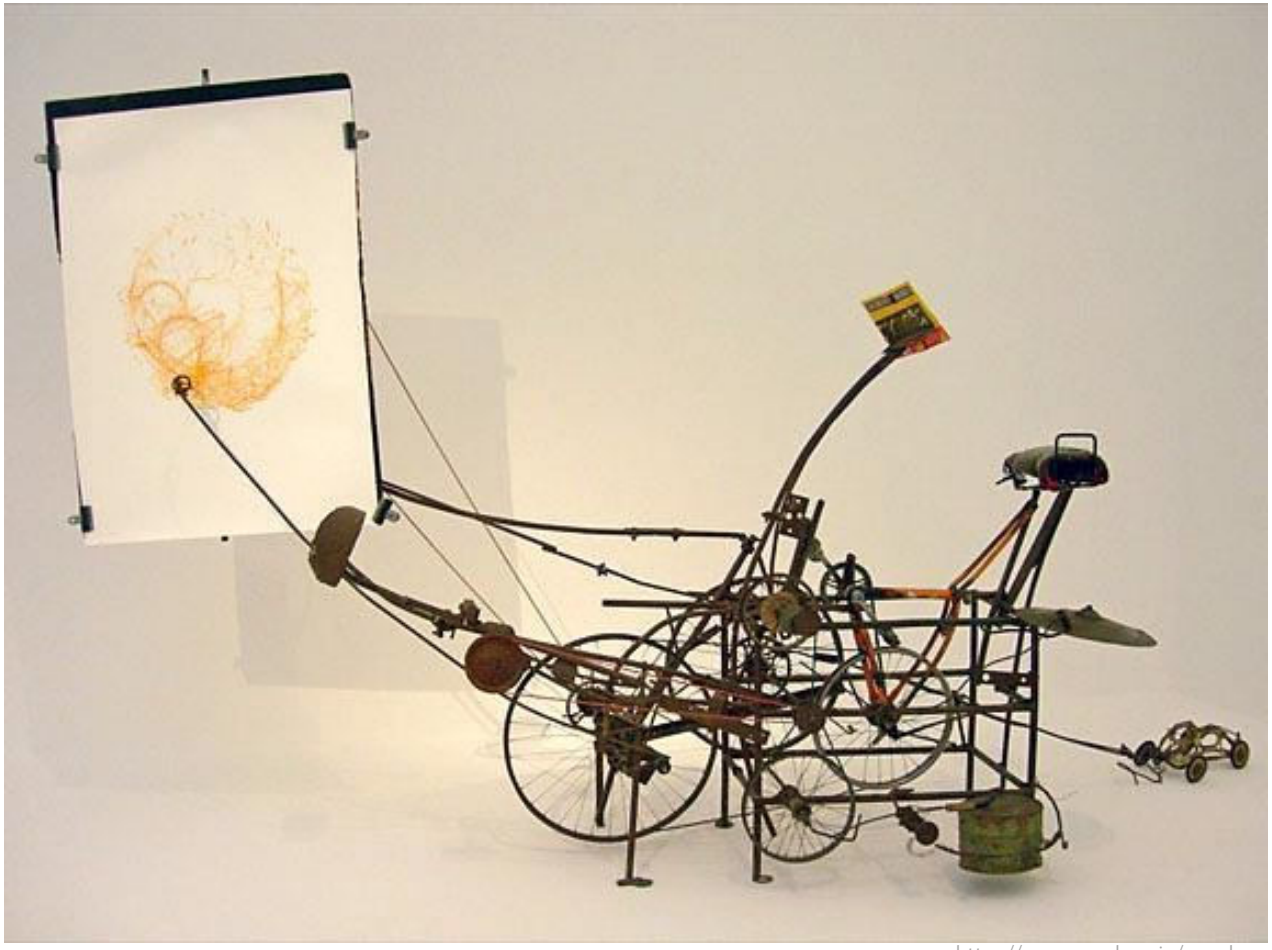
Works driven by hand

The works which are governed by continuous human force, chiefly by that of the hand as in the case of marionettes, can be traced before 1920 in the context of the modern movement. The most significant pioneer was Alexander Calder who created a Miniature Circus of animated toys at about 1925, before proceeding to his mobiles.

Works driven by electricity

*Munari's Tetracono is made up of **4 cones** which occupy the total capacity and each cone is colored in two equal parts of red and green which results in an optical vibration when the power of four motors is applied.*

Another one of the first artists to commence on a series of work which was governed by the use of electric motors was the Belgian - Pol Bury. Enthralled by Calder's work, Bury began his explorations with the creation of '**mobile planes**'. *These constructions were set in motion with the help of small motors. The flat pieces were attached with a cog wheel of different diameter, and each had a different speed of rotation. The result was a kind of mixture of forms as the flat surfaces turned very slowly and transformed the composition of the picture almost without the spectators knowledge.*



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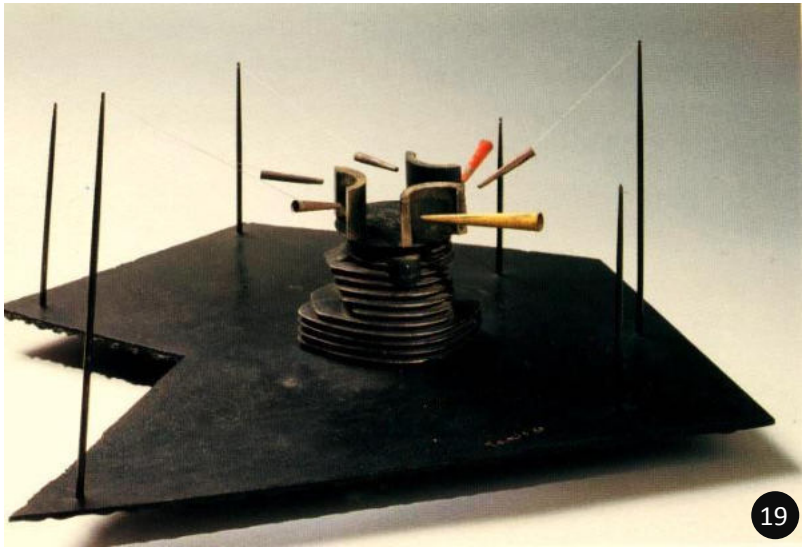
Works driven by electricity and the user

Tinguely in 1948 started to tryout with automated movements. He created a work which was driven by a motor secure to the ceiling. The motor was intended to revolve in a random way. *From Tinguely's point of view, the machines which he devises are living creatures which inspire him at one stage with fear and at another with astonishment or admiration. He expects this so to be for the spectator as well.*

German artist Harry Kramer was swayed by Tinguely's early reliefs. He explored the delicate opportunities offered by exceptionally judged creations with a varied assortment of movements. His tiny pulleys which have a choreographic and a purely motorized purpose help to make up a meticulous movement of the wire sculptures.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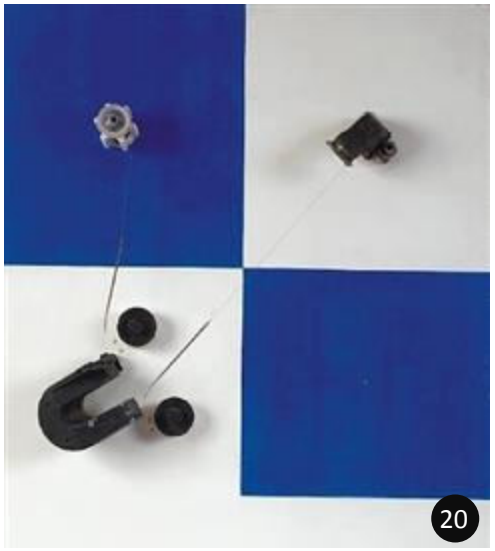
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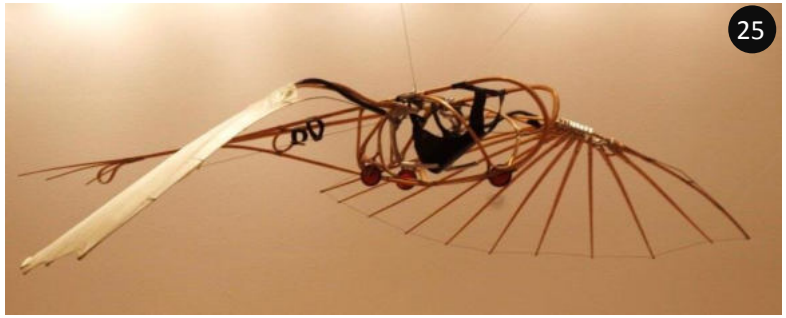
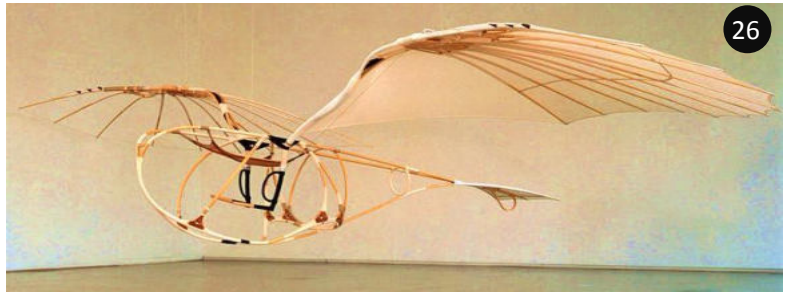
Works driven by Magnetic Force

Greek artist Takis discovered the possibilities of Magnetism. Since 1959 he has been creating Telesculptures which make straight and evident use of this force. He began to use vibratory movement(fig 19) from 1955. For some time he focused chiefly on these fine creations in iron and steel which depend on unplanned currents of air to set them in motion and gave greatly fascinating effects when juxtaposed on one another. Takis is consequently trying to arrest the natural forces (fig 20)which lie concealed in metals, and to disclose the energy that is around us. Few of his most successful works are determined by his capability to control and combine two types of movement as *when he allows white balls to hang suspended over upturned magnets, hovering and darting about in response to the conflicting forces of gravity and magnetism.*

Magnetism has also captured the attention of the Italian artist Davide Boriani, a member of the Group T of Milan. In 1961, Boriani created a series of Magnetic surfaces(fig 21-22) which required magnets being secured behind the turning planes: *the planes were covered with a thin layer of metal dust which formed extraordinary patterns in response to the alternate attraction and repulsion of the magnets.*





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Mobiles

It is most hard to put forward a firm point of origin for the class of 3D works whose movement is changeable. Possible backgrounds can be traced in the wind clocks and turning lamps of China.

In all events, the principal characteristic of all these works which are 'mobiles' is an illusion that the force of gravity is being altered. The mobile reacts to the atmospheric forces - the random pressures of air and heat.

A large number of mobiles are fabricated from light materials and they hang down from the ceiling. Few are a secured to stands and go by the name of 'free-standing mobiles'. *The spectator need not intervene to create the initial movement, but he has the opportunity to do so. The categories become confused at this point and it is perhaps necessary to add that a mobile which lends itself to control by the spectator fulfils precisely the same conditions as the sculptures in virtual movement-requiring participation by the spectator.*

The term mobile is in use from the year 1932 but it is rational to make its use for a custom of works which started as early as 1914-15. Vladimir Tatlin (fig 23)was originally the artist who created a work (fig 24-26)which comprised a succession of suspended reliefs - which gave the illusion of being able to glide easily in space; were his most groundbreaking achievements. He had developed a totally new type of spatial form, a regularity of the interlocking planes whose movements penetrated, cut, embraced, obstructed and pierced space.

But this development took place surrounded by a much more ambitious arrangement of research- a lengthy examination of the interaction between interior and peripheral space which was connected at many points to the utilization of movement.

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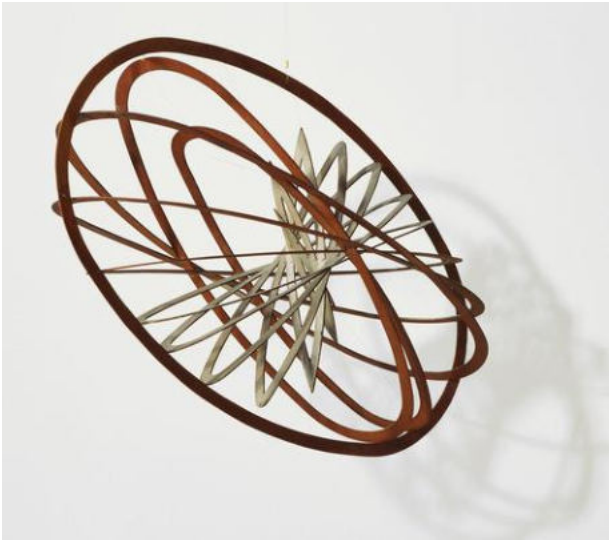


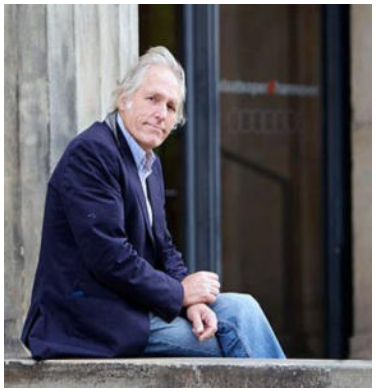
Rodchenko, Tatlin's friend and founder of Non-objectivism persisted on with this specific line of study with his work on the juxtaposition of materials and textures. He used elements of wood, metal and paper mache which were fixed to the wall. His suspended construction was a most impressive wooden mobile as shown in the figures above and to the left.

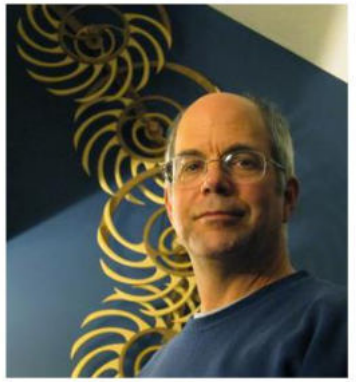
Man Ray, an artist; was also working in this track. His shade from 1919-20 is a spiral cut out paper which hangs from the ceiling and expands and contracts in an unpredictable manner as it rotates. The mobiles of Man Ray had a strong influence on Clader in the 1930's.

CONTEMPORARY ARTISTS

Theo Jansen | Bradley N. Litwin | Nemo Gould | David C. Roy

Reuben Margolin | Chris Coles | U- Ram Choe | Jim La Paso





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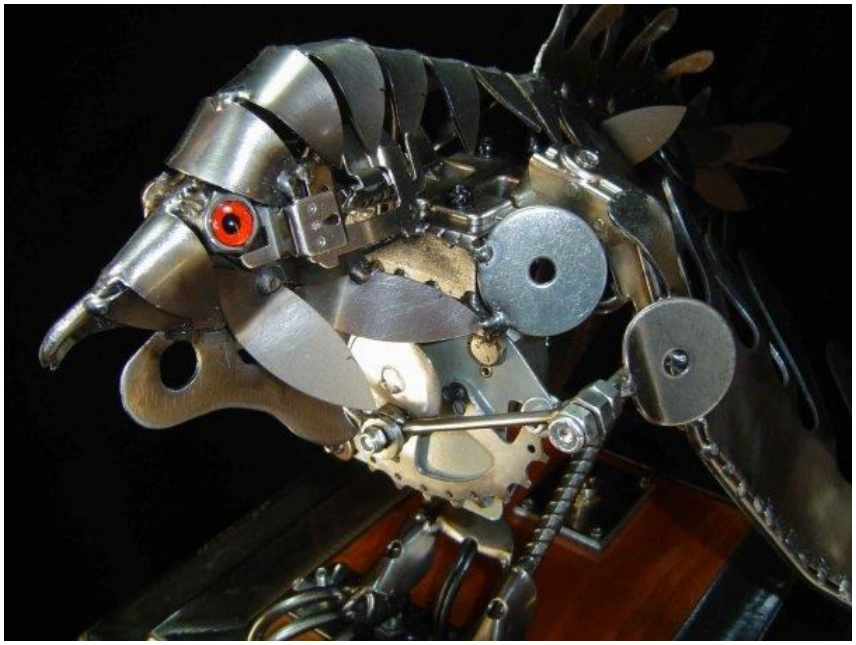

Chris Coles' *sculptures and paintings explore the relationship between the natural world and its industrial counterpart. Gleaning inspiration from the visionaries of the industrial revolution and its steampunk re-emergence. His art is filled with mechanisms that support surreal organisms .*

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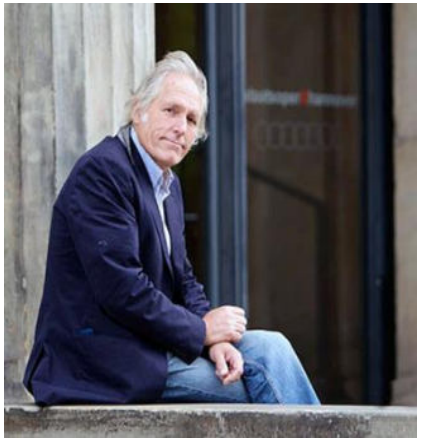

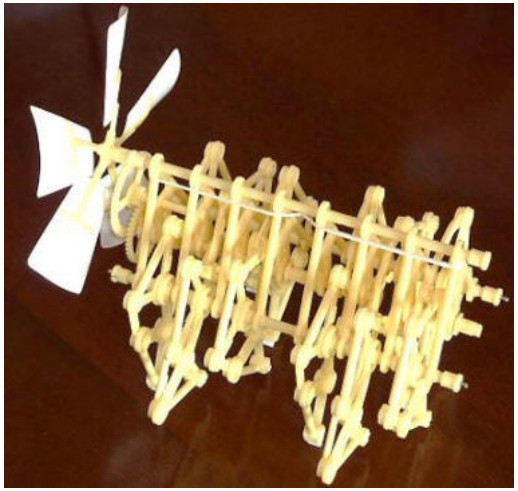

Theo Jansen *(born 1948) is a Dutch artist. In 1990, he began what he is known for today: building large mechanisms out of PVC that are able to move on their own, known only as Strandbeest. His animated works are a fusion of art and engineering. In a car company (BMW) television commercial Jansen says: "The walls between art and engineering exist only in our minds." He strives to equip his creations with their own artificial intelligence so they can avoid obstacles by changing course when one is detected, such as the sea itself.*

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Bradley N. Litwin *is a Philadelphia based, multi-discipline artist, born in 1955. Primarily self-trained, he has been making machinery of one kind or another for over thirty-five years.*
Today, as a sculptor of kinetic automata his most recent projects have involved community outreach and residency programs, sometimes combining both visual and musical arts, throughout the mid Atlantic and Midwest region of the US.

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Reuben Margolin *is a kinetic sculptor, crafting beautiful pieces that move in the pattern of raindrops falling and waves combining. He makes wave-like sculptures that undulate, spiral, bob and dip in gloriously natural-seeming ways, driven by arrays of cogs and gears. Inspired by the movement of a little green caterpillar, he began trying to capture movements of nature in sculptural form.*

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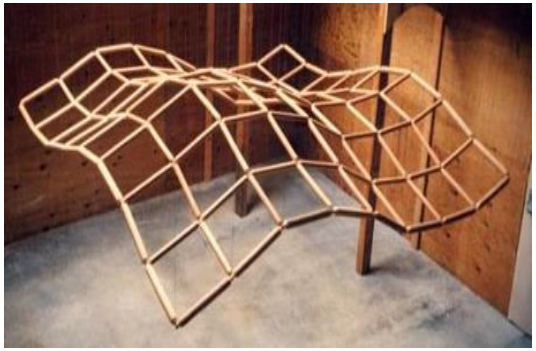

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U- Ram Choe

Choe was born in Seoul, South Korea. He is a contemporary artist who works with kinetic sculpture. It was while working on a light project , that I came across his work and it has motivated me to understand the background of this kind of art. His kinetic sculptures are astoundingly surrealistic and rich. His kinetic sculptures are known to simulate forms and motions found in nature.

Choe uses various metals, motors, gears, and custom CPU boards to control the precise motions of each sculpture that are at times perfectly synchronized and other times completely random. With names like "Unicus – cavum ad initium" and "Arbor Deus Pennatus" it's clear the artist treats each new work like a brand new species.

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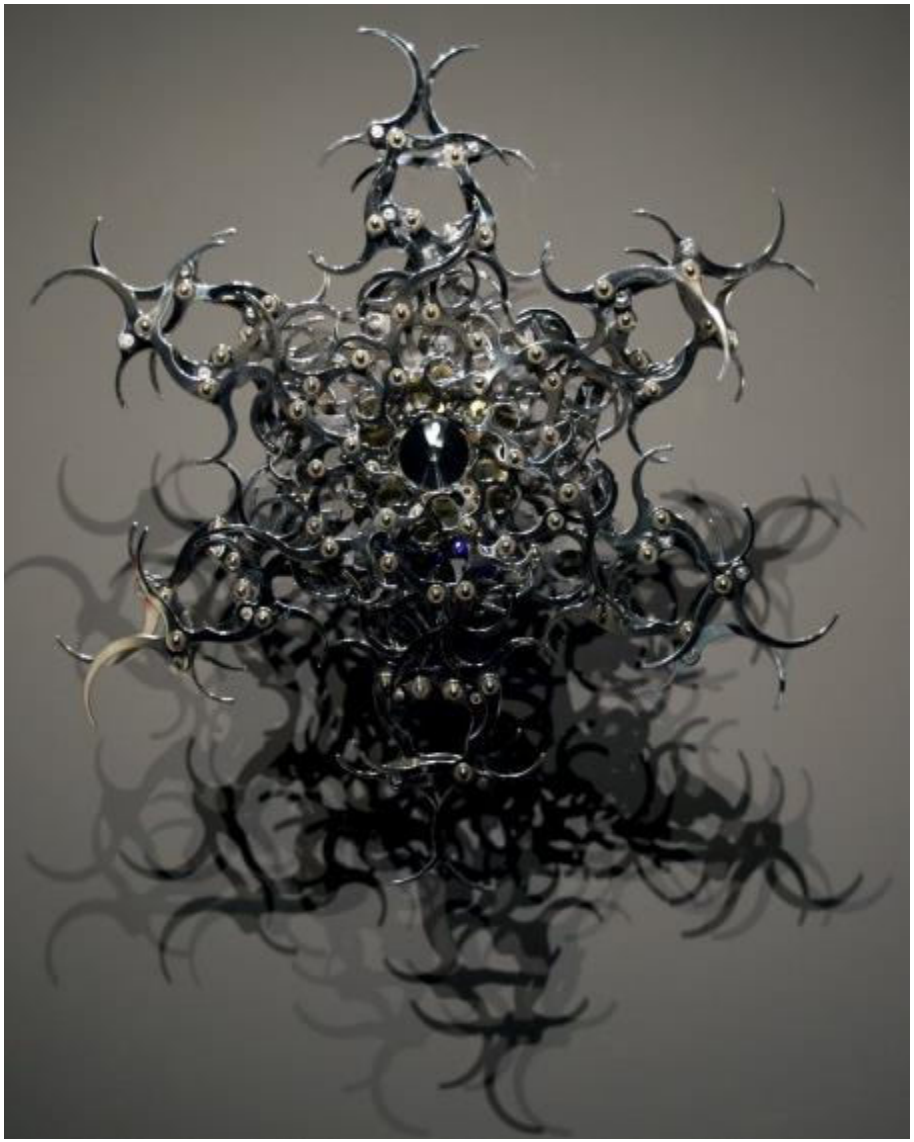

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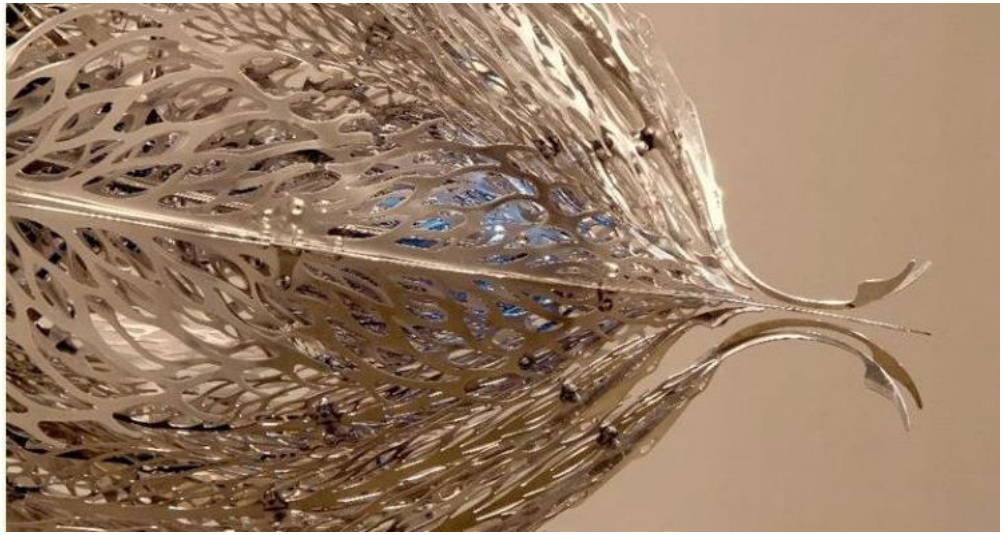

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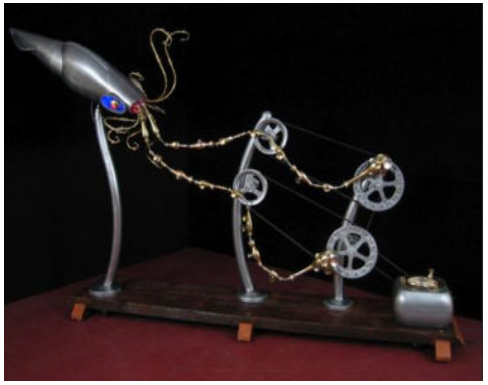
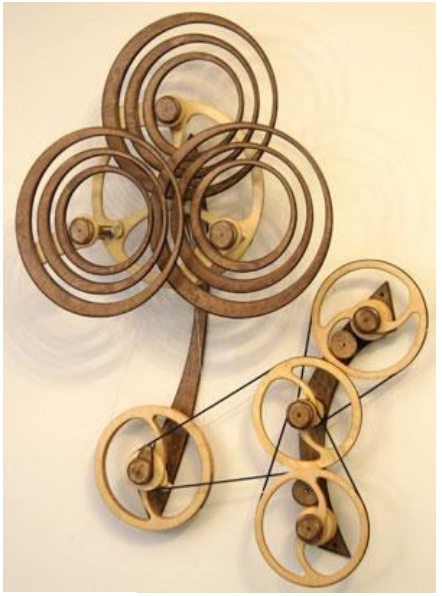
Nemo Gould *is an American artist and sculptor known widely for his kinetic found-object sculpture as well as two-dimensional graphic work. Much of his work presents whimsical aluminum and wooden robotic and sci-fi creatures of as-yet unnamed and threatening genus and species. He cites Clayton Bailey as an early and inspirational influence.*



David C. Roy, a kinetic sculptor was captivated with machines and mechanics. *Roy studied physics, engineering and chemistry at Boston University and graduated with a degree in physics in 1974. His intuitive understanding of motion and mechanics combined with the artistic influences of his wife, Marji, led Roy to the creation of kinetic sculptures. In 1975 the couple started "Wood That Works" and he became a full time sculptor. Since that time, Roy has exhibited in numerous juried, invitational and group events. His work is displayed in galleries and private collections around the world.*



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The recycled kinetic sculptures by designer **Jim La Paso** *are made up of copper, brass, aluminum or stainless steel. The kinetic sculptures use space-age plastic bearings for generations of outdoor use. The bearings never need to be oiled and are impervious to salt water.*

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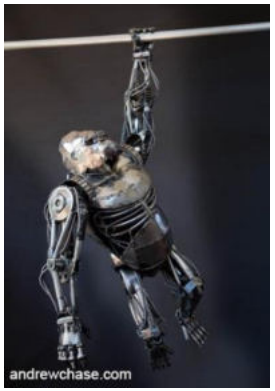
Andrew Chase *is based in Salt Lake City, and is a self-employed commercial photographer, furniture maker and welder – all talents he employs when making his lifelike mechanical animals. Each piece is made of various recycled automobile and plumbing parts and takes between 80 and 120 hours to make.*



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KINETIC ART AS INSTALLATIONS

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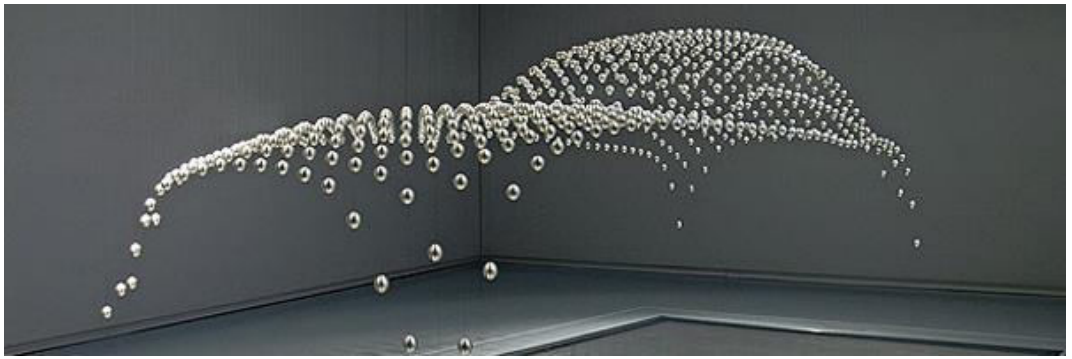
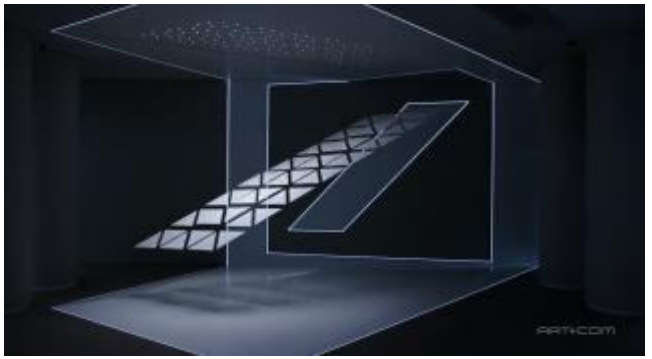
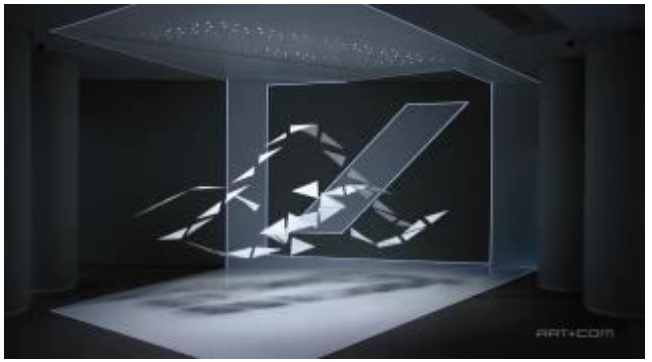


Kinetic Installation for the BMW Museum in Munich, 2008

Kinetic Installation of prosthetic hands, Shanghai World Expo, 2010

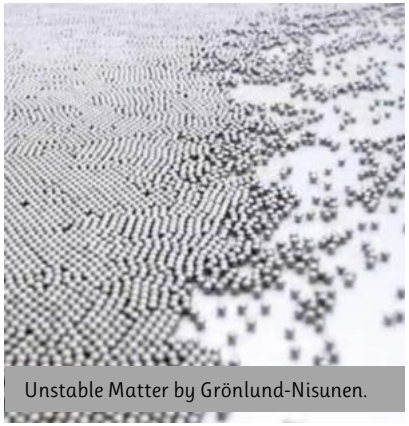




Brand Space designed for Deutsche Bank headquarters in Frankfurt to provide an insight into the bank's history, present, business areas and its brand philosophy

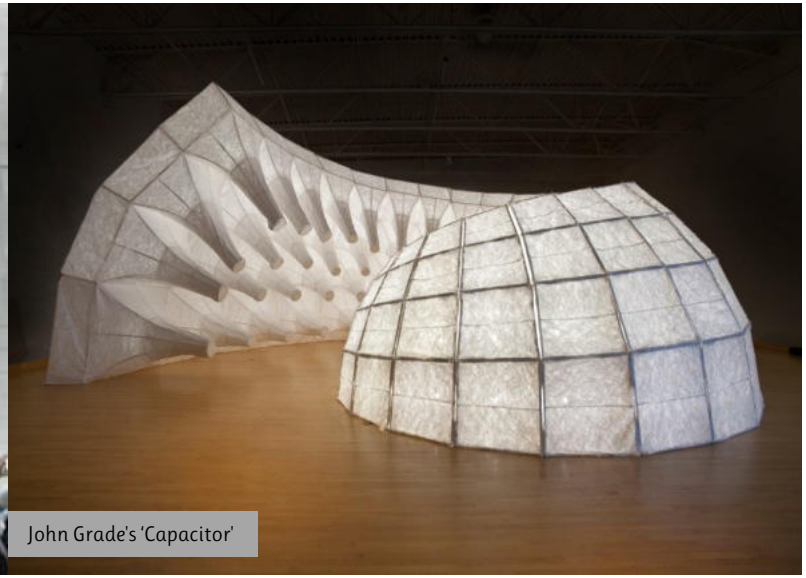
Bury, Pol - Sculpture / Kinetic Art

Glass Curtain Gallery- Colombia College Chicago



Unstable Matter by Grönlund-Nisunen.

Kinetic wall by Jonpasang



John Grade's 'Capacitor'

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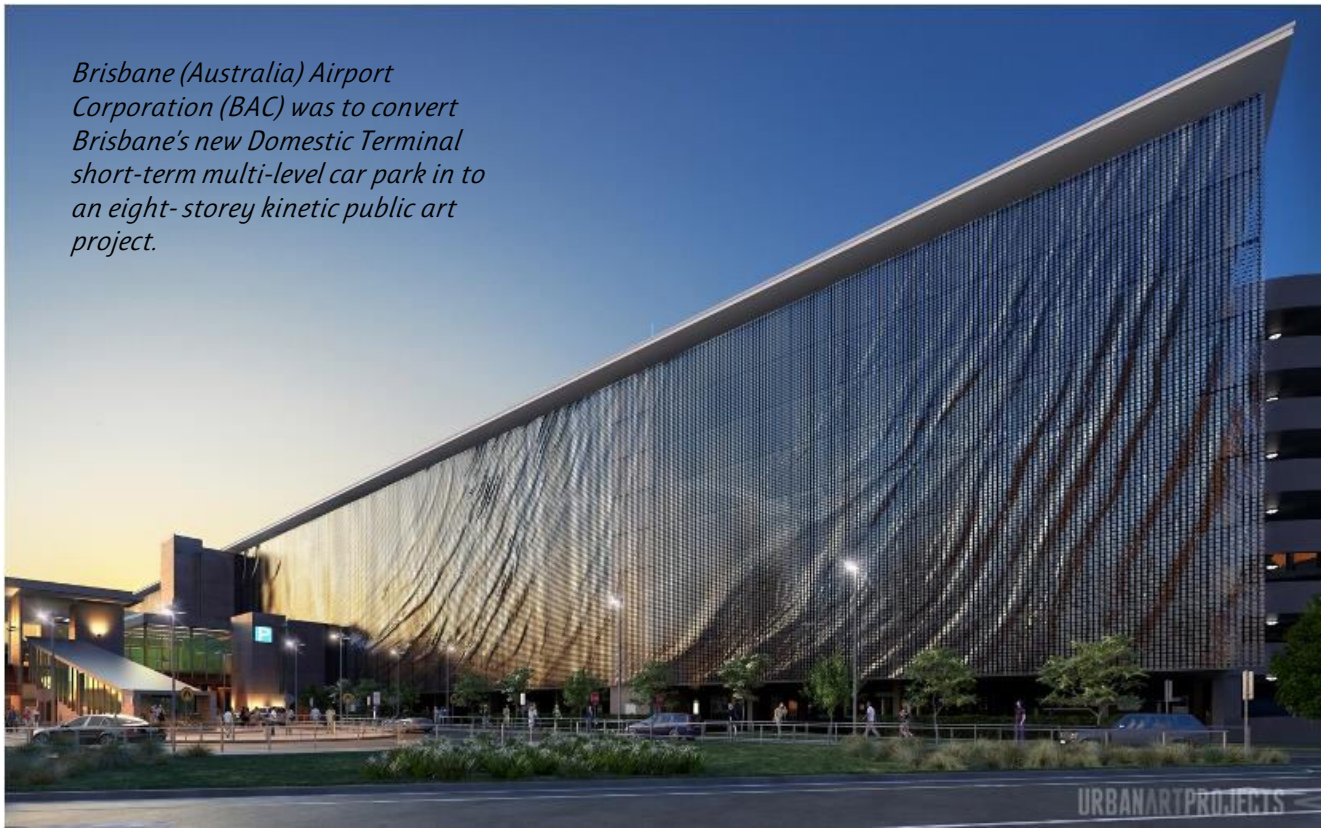
KINETIC ART AS ARCHITECTURE



Brisbane (Australia) Airport Corporation (BAC) was to convert Brisbane's new Domestic Terminal short-term multi-level car park in to an eight- storey kinetic public art project.

In the area of Colonia Juarez (Mexico City, Mexico), a new unusual building, Kiral- Mexican architectural studio Agence Arquitectura , and Movimiento Workshop – is inspired by (kinetic art) and Op Art (optical art).

Santiago Calatrava's design for the Milwaukee Art Museuem

La Rioja, Bodegas Ysios, winery

Santiago Calatrava - Kuwait pavilion

Opera House, Valencia

Kinetower by Kinetura

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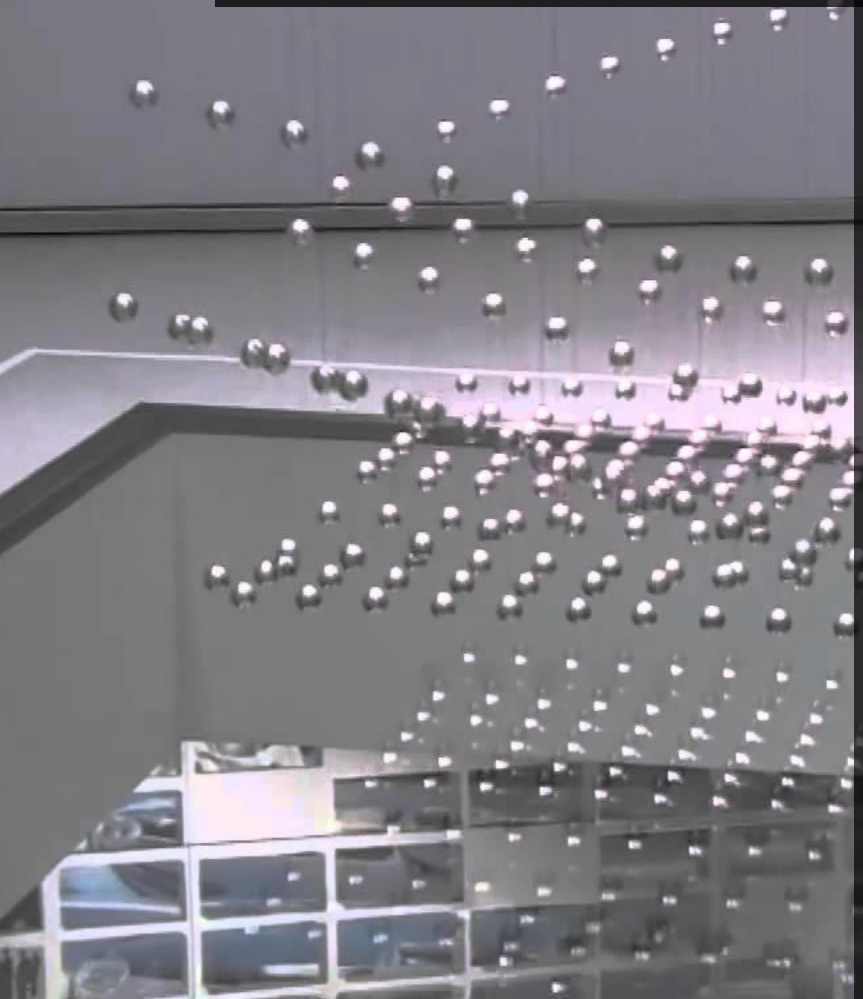
CONCLUSION

"Just as one can compose colors, or forms, so one can compose motions." - Alexander Calder



The knowledge and appearance of movement taken in relation to plastic arts come together after 1860's. Since then till around 1930's four generations of art have arisen and we can see the signs of the emergence of a new art based on the use of movement as a real and free element – kinetic art.

A notion of movement has been recognized with the dynamic contribution of the spectator- by his movement around the work or by controls in the elements associated within the work. Consequently, an association between the artist, the work of art and the spectator has been accepted.

The art-works sometimes require forces to work - be it electricity, magnetic, human forces etc. Natural forces like the wind also aid in making the kinetic sculpture work.

With all the opportunities that we've seen until now ,it can evidently be said that kinetic art will advance more and with the use of newly discovered different materials it can take a possibly whole new dimension in the field of future Architecture , Industry and environment.

This area will be a good scope to explore possibilities with new kinds of materials that are being discovered in this field.

ADDITIONAL DETAILS

- All the statements that have been italicized have been directly referenced from the book – Origins of Kinetic Art by Frank Popper.
- References for the images and details of the contemporary artists have been taken from www.google.com
- The typeface used is Ruluko for Body text and Bellaza for Headings