

## dance

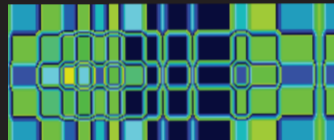
Trajectories can also be defined by following the movement of the body segments of a dancer and transcribing this into a time sequence of spatial coordinates using motion capture, MOCAP. The human form has limited movement joints which restricts, say the forearm, to a limited series of trajectories. It can't have 180 degrees of movement around the elbow for example. Using dance we can limit the otherwise infinite possible trajectories of gTAG to a definable abstract concept i.e. the class of constrained trajectories of a two armed biped. In the first example we see the dancer, a computer generated avatar and the graphic and gTAG defined by the right hand. We also use the altitude of the left hand as a volume control. This is followed by a more complex sequence following the right hand. The third example takes the danced audio and using a MIDI recognition system converts dance to MIDI grand piano with a generated musical score. Fourth example takes the MIDI score and is arranged into an orchestration for electronic or human playback :- performing arts of transcendent structure.

Dance and MIDI arrangement: Thomas Freundlich [www.freundlich.org](http://www.freundlich.org). MOCAP equipment [wwwxsens.com](http://wwwxsens.com)

## studies on transcendent form - a multi sensory approach

The Greek philosopher Plato, 429-347 BC, asserted that a transcendent world of forms is the highest and most fundamental kind of reality. The material world of change, known to us through sensations, is not real but only mimics portions of these pure forms. We perceive only shadows of the higher realm. Two and a half millennia later I am now exploring a transcendent domain showing perfect order and composition. The conceptual process of abstracting geometric shadows to our senses, whilst formidable, appears to hold a natural aptitude of our sentient awareness. We embrace the concepts of aspatial, beyond space, abstracting in many spacial dimensions and atemporal, beyond time, without beginning or end, where size of structure becomes arbitrary in context. To the eye we see geometry, almost cypher like, inviting the viewer to interpret a meaning. To the ear we hear composition as the ringing of a complex bell. Simultaneous experience with integrated sound and vision offer us a synergy to perceiving form and its underlying complexity. My working tools range from custom computers graphics techniques to HD video and multi channel surround sound. However, this technological base does not exclude rendering transcendent form onto more traditional materials such as "giclée" prints, stone and metals.

## Studies on Transcendent Form



## A Multi Sensory Approach

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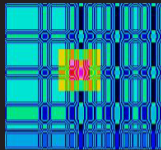
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## introduction

In this presentation you will see graphics originating from a discrete, point like transcendent structure which has also been rendered into sound using a technique called gTAG, graphic Trajectory Audio Generation. In its simplest form, gTAG represents each pixel of an image as a loudspeaker where colour represents frequency. We listen to an enclosed section of the graphic, the audio generation zone, as the zone travels along a trajectory. More complex gTAG uses the graphic geometry local to the zone to add more timbral depth. The viewer/listener experiences a series of audio visual essays through simple two dimensional form, into three dimensions and presents conceptual four dimensional graphics and 4D gTAG. It concludes with the inclusion of dance by defining the trajectory from the position of body segments acquired from a dancer equipped with very advanced motion capture ,MOCAP, equipment. In the examples the sensing zone is seen as a lighter rectangular zone.



**2D** Starting with some simple objects:- the sound of a simple square, a square within a square, a more complex square to a complex rectangle. Next we view a larger more complex rectangle passing through the generation zone followed by a large static graphic with the zone moving. A stepped example demonstrates the path needn't be a continuous line but can also be a series of steps like playing a 2 dimensional keyboard. The final 2D example is of a graphic which has also been rendered to a piece of slate. This can be touched during play for an audio-visual-tactile sensation.

**3D** 3D objects are composed of coloured cubes and the first example shows simple 3D gTAG. The next example presents the conceptual issues of trying to perceive a volumetric form composed of over a thousand million elements. As the video progresses the size of each individual volume element reduces to a zero size point, except the last layer of blocks.

**4D** Geometry above three dimensions pose some conceptual issues to us, however, transcendent structure has no limit on the number of dimensions studied, be it three or thirty or three thousand. To aid our study into 4-space we imagine a 2-space plane extruding as a series of lines, a 3-space cube extruding as a series of planes and a 4-space hypercube extruding as a series of cubes. The gTAG is 4D and in this example the technique to blend the trajectory has been turned off so we can hear the complex movement between lines, planes and volumes.

This multi coloured layer is quantised into a simpler arrangement of five colours which are then separated at different velocities in the perpendicular to display a complex interlocking geometry. The gTAG is generated from this layer and the sensing "cube" displays a richer tonal quality above its 2D cousin.

