

An abstract graphic composed of several overlapping, semi-transparent blue shapes that radiate from the right side of the page towards the center. These shapes include long, thin lines and larger, more complex polygons, creating a sense of dynamic movement and depth. The colors range from a deep, vibrant blue to a lighter, almost white blue.

GENERAL HARMONICS INTERNATIONAL INC.

Presents

# D9NAMIC

Acoustic Intelligence

# Acoustic Intelligence

## D9namic AI

# Acoustic Intelligence Explained

## Introduction



General Harmonics International Inc. (“GH”) has constructed a new AI architecture that deals specifically with harmonic structures. The AI developed by GH analyzes harmonic structures, assigns values to the information within the harmonic structures and records the information in a logical hierarchical format. The information contained in a harmonic structure is stored in a set of associative connections that exist between the data and allows for new models of data manipulation, including encoding, retrieval, delivery, consumption and other unique applications that are not currently possible with conventional technologies and methods. This new technology stack developed by GH has been built upon a decade of research and is based on a patented process called Multi Structural Multi Level Information Formalization (“MSML”).

There is no single or universal architecture for general AI. Each AI model is designed and built to make very specific decisions and a great deal of effort is required to create a system of networks and algorithms that can successfully and reliably make educated decisions. Large amounts of data are required and the AI system must learn how to analyze that data in order to make predictions or decisions. The AI must be trained when it has made a correct decision and when it has made an incorrect decision. Many iterations of this feedback loop (training cycles) are required before any type of intelligence becomes apparent. The AI designed by GH and deployed by PulsBeat Media Inc., consists of multiple neural networks that have been trained over millions of trials. We refer to these neural networks and other AI components contained within the D9namic Cloud as “Acoustic Intelligence”.

The technologies developed by GH, including Acoustic Intelligence, redefine the way in which machines store, process, identify, and work with information. With Acoustic Intelligence, digital information has become a fluid, dynamic, and ever- adapting entity within a storage medium, where information is no longer a finite rigid copy of itself, but a series of schemas, that shrink and grow with each processing pass. This new paradigm allows information to evolve with the processing systems around it and has the ability to be completely searchable, distributed, and transparent when combined with blockchain technology

## AI Applications for PulsBeat Media Inc.

The D9namic Cloud combines artificial intelligence, advanced harmonic analysis, cognitive technologies and chaos information processing to create a completely new and proprietary methodology to manage, consume, exchange, present and interact with music and digital media.

# Hierarchical Associative Connections

## D9namic

## Data Encoding & File Conversion

The MSML data reduction protocol provides a file conversion process by performing a computational analysis of all the information in an audio file. The MSML protocol groups the data contained in the file into information objects, assigns values to these data sets and structures them in a hierarchical format based on the assigned values and the associative connections between the information. As a result, the data is logically and hierarchically organized, allowing more efficient and effective data processing when compared to conventional technologies. We refer to this new audio file as the AudioDNA file.

MSML ranks the information in a file from a low value to a high value. The method by which MSML determines these relative values is the subject of the Patent and relies on other GH technologies that remain corporate secrets. The MSML process relies on complicated areas of physics and mathematics such as non-linear dynamic systems, chaos theory, evolutionary algorithms and others.

The MSML process is instrumental for establishing a comprehensive understanding of the “meaning” of a file. “Meaning” in this context relates to the accuracy of the audio file reproduced by the MSML process and can be understood by examining the fidelity of the resulting AudioDNA file. When the MSML process understands the meaning contained in the original file, the result will be a new audio file that is significantly smaller while providing high fidelity when compared to the original audio file. A listener would not be able to distinguish between the original audio file and the MSML constructed file even though this new AudioDNA file will be significantly smaller.

# MSML Data Reduction

## D9namic

## Data Reduction

Assigning information values to the data, as discussed above, allows the MSML process to identify those bits of data with high information values. Only those bits of data that have high information value are required to construct the AudioDNA file and only those high information bits are necessary to communicate the fidelity of the original file (fidelity). In this manner, the MSML protocol does not need to rely on all of the data contained in the original file to communicate the meaning of the original file. Currently, GH technology only requires 1/20th of the bits of data from the original CD quality file to understand its meaning and to reproduce the fidelity of the original file within accepted parameters. The data set that represents high information value data has been named “audioDNA”. The D9namic Cloud maintains a record of every bit of this audioDNA and has the ability to extract all or a portion of this data depending on the particular task requested.

# D9namic Cloud Data Reduction

## D9namic

### D9namic Cloud Use Case Example:

Music Streaming Data Reduction Benefits for Music Files

File Format	Steaming Rate kbps	MSML Rate kbps	Reduction	MSML Fidelity
MP3	256	70	3.6x	256
MP3	320	70	4.5x	320
FLAC	710	70	10x	710
CD	1,411	70	20x	1,411

# MSML and AudioDNA

## D9namic

### File Storage, Identification and Recall

AudioDNA files are stored in a manner that allows for instant identification, retrieval, bursting (discussed below) and synchronization. Once a particular audio file has been converted into an AudioDNA file, GH technologies have the ability to identify specific audioDNA information within the AudioDNA file regardless of the file format of the original file. This aspect of Acoustic Intelligence allows the D9namic Cloud to locate not only the AudioDNA file, but also to identify the precise moment of the host audio being played and, if requested, instantly and seamlessly replace the original audio file with its high quality representation. This functionality is referred to as “Live Link”, which represents the most advanced music identification and content interaction capabilities.

The unique nature of the AudioDNA file and the logical method of storing the information contained in the file, allows for functionality not possible with conventional technologies. For example, once Live Link has identified a particular audio track, the technology allows the substitution of the original file (lower quality MP3 files) with the AudioDNA file instantly and seamlessly. The AudioDNA file can then be played from the beginning or it can be perfectly synchronized to where the original file was playing at that point in time when the audioDNA was recognized and any time the AudioDNA file is requested. This aspect of Acoustic Intelligence is unique to any other technology and is made possible by the audioDNA sequencing that has been completed with the assistance of the MSML process.

## Data Delivery “Bursting” Technology

### **D9namic**

The D9namic Cloud allows for almost instant data delivery from multiple sources to a single device. We refer to this ability as Data Bursting. Data Bursting is supported by a specialized neural network mapping process within the D9namic Cloud. This process is an integral step for detecting where audioDNA resides, while simultaneously identifying the multiple node locations for the most efficient delivery to a device for user consumption. Data Bursting results in accelerated and reliable data delivery. All inconsistencies and congestion within the Internet are taken into consideration when making these AI decisions. The result is that an entire audio file can be delivered to a device within a second or less, which can only be achieved by using the Acoustic Intelligence within the D9namic Cloud.

During the process of Data Bursting, the D9namic Cloud continuously monitors the sequence at which the audioDNA of a file is assembled delivering seamless playback and assuring that the multiple routing of data will not result in a later part of the audio being received and played before a previous one. The D9namic Cloud prioritizes delivery paths, organizing them in real time to ensure that the user will experience the file from the beginning to the end. This process happens seamlessly and in the background, utilizing multiple Internet routing while being assembled on the device every time the file is requested. “Beam me up, Scottie”! The user will not know that the file came from multiple locations.

## Lyrics, Video Slide Shows all Synchronized to the audio

### **D9namic**

#### Acoustic Intelligence and Synchronization

The unique architecture of the AudioDNA file and applied Acoustic Intelligence allows instant synchronization of the audio to any other related data, such as lyrics on a word by word basis, video related to the audio track and slide shows using the users stored photographs. These synchronization capabilities are possible at any point in time during the audio playback. This extraordinary capability is called “Media Fusion”. It allows the user to create an interactive personal entertainment experience by synchronizing (fusing) lyrics, video, photos, and music games to any MSML processed audio track.

Conventional streaming technologies are unable to provide synchronization capabilities to provide the required synchronization accuracy that is required to produce new immersive experiences for the user (100ms). The D9namic Cloud resolves such media delivery challenges by organizing data in a specially constructed neuro-net, where complex information systems take the form of harmonically structured digital data sets. This provides the ability to simultaneously listen to the same track and watch the same video at two or multiple Internet connected locations with the highest degree of synchronicity. This would be like sharing the left and right earpiece of the same headphones. Acoustic Intelligence provides the ability to “Music Beam” where each participant’s device is fully inter-synchronized with other devices participating in the Beam, allowing multiple participants to listen to the same track over the Internet and across multiple geographically dispersed networks.

# D9namic CLOUD Platform for Media & Entertainment

## D9namic

### Summary



The D9namic Cloud represents a unique set of AI-driven digital ecosystems, which evolve and progress with every new generation. Advancements in each of its modules stem from the innovation provided by the core mechanisms and technologies that employ the MSML principles and take advantage of Acoustic Intelligence to create new disruptive models, unique experiences and opportunities for existing and emerging market verticals.

### The D9 Entertainment Features

- Interactive Lyrics
- Music Player
- Media Fusion
- Liner Notes and News
- Music Beam
- Live Chords
- Data Wallet
- LiveLink
- Stem Mosaic

