BreakThru-Technologies

Data Mining

Fractal Compression

Crystal Data Storage

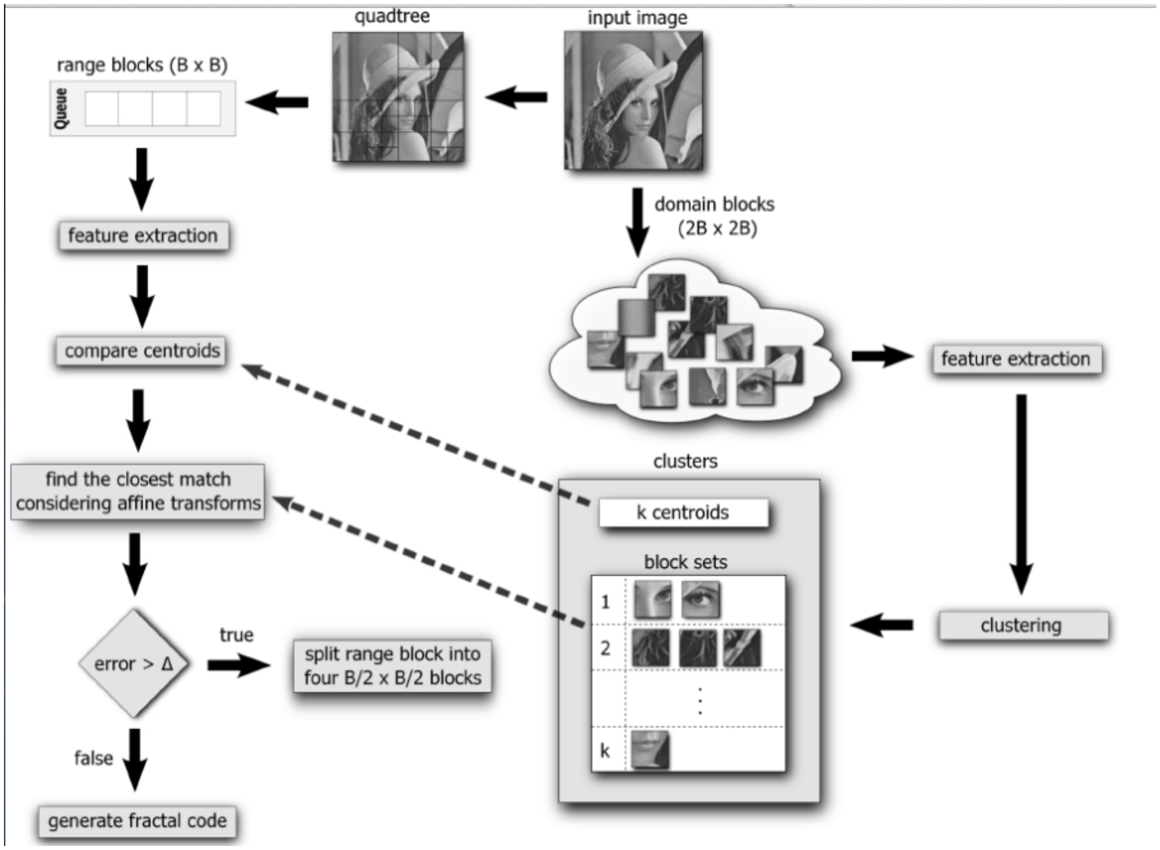
Computer Tech

This section addresses the data and computer technologies. These are comprised of two:

1) Fractal compression and storage.
2) Crystal data storage.

These can be used together or separately. The fractal compression is robust and lossless, and has compression ratios of 100:1 or more.

The crystal system can either use embedded phonon standing wave components composed of frozen sound (longitudinal) compression waves, or actual encoded crystal domains that represent physical data.



Fractal Compression

History:

Iterated Systems introduced a fractal compression system in the 1990's based on an algorithm that took self-similar data in pictures and video and did intense processing on this—representing the data as compact equation sets. They achieved compression ratios of 100:1 or more, and it proved to be lossless. Unlike the standard jpeg images where zooming in 2 or 3 levels results in pixellation and serious loss of resolution, this system allows one to zoom in 9 or 10 levels without loss of resolution. After Iterated Systems ceased operation, it sold the algorithm to a Japanese company that then sold it to other software vendors. The criticism of the system was it required massive processing power at the time, and this was a time when the fastest consumer grade machines were running at 8-10 MHz. It took a long time for encoding, and lossy compressors were "quick and dirty" and the logic was that the consumer really didn't notice the difference, and so the JPEG and MPEG compressors were adopted that took less processing time.

Then HD came along, and they realized that the industry had shot itself in the foot. Now they had faster processors, and a sloppy compressor that barely handled the HD format. However, like a dinosaur stumbling about in a snow drift, it was too slow to make a decision, or admit that it made the wrong one to begin with. So here we are stuck with an obsolete compression algorithm.

Or are we?

Description of Operation:

The data is processed to generate the fractal format file, or FIF. It can be a picture, video, or quite possibly sound as well. There have been numerous complaints from audiophiles about the inadequacy of the current mpeg format. They can hear the difference. Those doing audio analysis work find mpeg files completely useless for data extraction due to their losses in translation. Raw audio files are huge, but have the data and richness of frequency response.

On the player side, decoding is faster than mpeg. It is only the producers of the content that wanted to minimize processing and thus the profit margin with a substandard product.

Materials and Equipment Needed:

Multi-core computer, encoder.

Development Path

Once the proof of concept is done, there will be three phases for development:

Phase 1

Promotion of FIF and related fractal compression protocols as opposed to the current mpeg. Hiring of a programmer to rework the encoder for audio. Demo of the audio to select companies for initial adoption. Development of fractal data compression for internet providers. New modems would include processing capability for 100:1 compression and decompression. This would raise effective throughput two orders of magnitude, and a common modem throughput of 4 megabits per second now becomes 400 megabits per second. Altering fractal compression protocols allows for a lossless and nearly uncrackable data flow (bad news for the NSA).

Large resistance is anticipated from governments that are actively involved in spying activities due to this reason.

Phase 2

Incorporation of FIF protocols for 3D files for printing. Standard STL files can run up to 70 megabytes. This allows for compression to 700K. The Fractal modem protocols are set to auto-detect FIF files so these are not further compressed to save processing time.

Phase 3

The next 3D printing protocols will be molecular and quantum-scale. These files are gigabytes to terabytes in size. Higher compression scales are employed to bring these files to manageable size. With 1,000,000:1 compression ratios, a quantum scale file shrinks from 10^{12} to 10^{6} bytes.

Resistance to the adoption of this protocol is once again anticipated from both governments as well as industry as it threatens profit margins. When 3D printing reaches this stage we are on the brink of a new economy.

Crystal Data Storage

History:

The late Jerry Gallimore proposed that it is possible to encode data into a crystalline matrix. This was an outgrowth of his crystal experiments with quartz and titanate structures, relating to the Kowsky-Frost experiment. There are two levels:

1) “Freezing” of standing wave phonon structures into the crystal. It is unknown how long this effect will remain stable.

2) Growing the crystal and encoding the information as a part of its physical structure. This is the most stable. Within this protocol, it is also possible to encode the data holographically. Thus if the crystal is damaged or shattered, the data remains intact.

Without compression, 10^{18} bytes per cubic centimeter is possible. With high fractal compression (10^6:1) 10^{24} bytes per cubic centimeter is possible. This would be sufficient for storage of quantum scale 3D printing image files.

Description of Operation:

The two protocols differ:

1) A high energy mix of longitudinal waves as well as transverse alters the structure of the crystal for recording (pump wave matrix). Data is read with a low-energy laser similar to CD or DVD recordings.
2) Crystal is grown, and as the growth progresses, a pump wave matrix is applied to the crystal. This is permanent and un-alterable. Holographic encoding is done to the entire body of the crystal at once while growth takes place instead of during the draw from the crucible. Data is once again read with a low-energy laser and detector set.

Materials and Equipment Needed:

Various crystal growth materials and apparatus: Quartz, barium titanate, lithium niobate. Radio Frequency equipment to induce energy density differentials inside the crystals during the growth phase.

Development Path

Once the proof of concept is done, there will be three phases for development:

Phase 1

Incorporation of crystalline storage into archival data applications. Due to the process of recording, systems for encoding will tend to be limited in nature at this point in time.

Phase 2

Inclusion of processing elements into the holographic storage protocols: this allows for embedded computing systems for decoding fractal-encoded crystal units.

Phase 3

Integration of the technology into large-scale computing systems, and miniaturization of recording systems for real-time storage for Holographic Algorithmic Logic (Fractal) computing systems. With this protocol in place, we will see speed increases of perhaps 6 orders of magnitude.

This technological leap is necessary, and will be more robust than quantum computing, which will prove to be less stable than anticipated.

INVESTMENT ENQUIRES:

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