

Rice Pattern Recognition IP

Disruptive Aspects of the IP Tech Base

What is Unique?

The subject Intellectual Property (IP) is a disruptive technology in the field of pattern recognition. Affected industries include internet, entertainment, communications and information processing. The IP is currently in Provisional Patent Application and Trade Secret status.

The “disruptive” nature of the IP is attributed to the following qualities:

- 1) ability to compress a multiplicity of data patterns (including those derived from parametric description of multi-media information) into a proprietary form
- 2) the inherent capability to conserve memory space (in digital storage) or bandwidth (in transmission) of said form
- 3) the power to identify patterns at extremely high speeds, by virtue of this form and in conjunction with additional proprietary methods and structures.

Point #1 above invites clarification, to avoid being incorrectly construed as a claim of random data compression. Such is not the case. This is explained as follows.

Random data compression is impossible, in that random patterns cannot be generally compressed and subsequently recovered in a lossless (i.e. perfect) fashion.

However, the proprietary IP allows patterns to be compressed to a high degree into specialized forms. These allow recognition of enormous volumes of compressed data patterns, even while the explicit structure of said patterns is not recoverable.

A metaphor of this phenomenon is the human mind, which assimilates (remembers) large volumes of imagery. However, a person may typically have difficulty recalling or describing the explicit structure of an image (even the face of a familiar person). But upon seeing a known image, the person recognizes it based on numerous detailed features. Hence the colloquialism, “I can’t describe it, but I’ll know it when I see it”. The subject IP has certain functional similarities.

How Does it Help?

The Company employs specialized methods and embodiments that render a form of “Spread Spectrum Data Storage” (or SSDS). This allows superposition of numerous data patterns into a common physical space. The Company’s IP allows the recognition of large volumes of pre-stored patterns, within a greatly compressed storage area.

The compression of random data is an impossibility, and Shannon's law's concerning communications constraints are inviolable. Accordingly, the Company's technologies regarding SSDS are a unique opportunity to gain relief from basic physical constraints, within the realm of certain applications.

The Company claims no violation of Shannon's laws, nor the ability to compress random information. In fact, the SSDS capabilities can be shown to be consistent with Shannon's principles.

Are There Analogies?

Analogies in the physical world do exist. For instance, radar systems and communication systems may discern one signal pattern in the presence of many (even at negative SNRs). Corollaries even exist in the animal world; where bats, whales and dolphins may identify signals in a sea of noise and interference.

However, Rice Electronics has modified, refined, augmented and embodied such concepts in a unique way, so as to transfer them to the world of data storage. In so doing, highly advanced pattern recognition technology is achieved.

IP Status Summary

Rice Electronics is currently pursuing patent protection for the IP in various areas of internet applications, speech recognition and communications.

The Company's existing Provisional Patent Applications describe methods, embodiments, architecture and utility of the IP. The Trade Secrets include processing technology for optimal implementation of the IP. The processing structures are a disruptive technology in their own right, achieving at least 10X cost/performance benefit over any existing digital signal processing (DSP) equivalent.