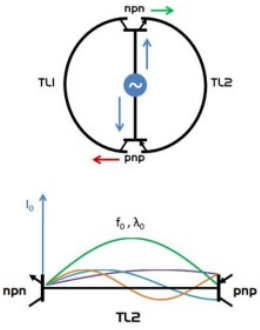
Principle of Operation

- The ENL produces resonances in a closed feedback loop architecture.
- The central resonant frequency is defined by the physical length L and speed of transmission v_s of the two identical transmission lines.

$$f_0 = \frac{n}{4}\frac{v_e}{L}$$

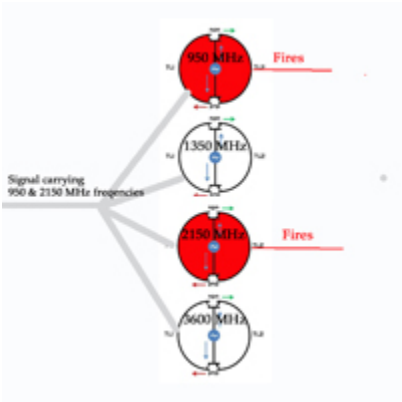


Variance Dynamical, Inc., was founded by physicist Paul Goodwin, PhD (deceased 2008) when he arrived at the conclusion that he had worked out the fundamental circuit of the biological brain and this could be mirrored through current technology. The most fundamental element is the Electronic Neural Loop (ENL), for which Variance was awarded a US Patent in 2009[1]. Shortly later Variance obtained a US patent on the Automatic Fourier Analyzer (AFA).[2] Chief Scientist Dr. Andreas Tziolas took up where Dr. Goodwin left off and has produced a number of prototypes demonstrating the breakthrough represented by the ENL in electronics, signal processing and computing.

The key to understanding Dr. Goodwin's invention is that biological beings, as a rule, do not calculate, they recognize. This is what the ENL and AFA do. It is the way to process information that allows the common fly, with only 200,000 neurons, to land on the rim of a cup just 1/16th of an inch wide, dodge repeated swats, and then swoop up vertically and land upside down on a ceiling. The fly and all biological creatures perform such feats through an analog, not a digital, process. Using ENLs to perform the complex types of functions the fly can perform is in the future, but the ENL already represents a tremendous advance for certain electronics, telecommunications, and computing functions.

Specifically, the ENL is a tuned circuit, based on the wavelength of the target frequency, which will produce an output voltage only when a signal contains the frequency to which that ENL has been tuned. In essence, the ENL "recognizes" and can almost instantly isolate the frequency. The AFA, consisting of multiple ENLs, performs almost instantaneous Fourier transforms through its analog process using physics never before applied to electronics.

Knowing what frequency(ies) exist in a given signal and being able to isolate them is very important in certain current electronics applications. A massive number of digital computations are currently used to perform a Fourier analysis to determine or approximate the presence of frequency(ies), or even use physical crystals that vibrate at the desired frequencies. The ENL/AFA simply does it.



By using multiple ENLs tuned to different frequencies, it is possible to determine which, if any of desired frequencies exist in a given signal. Thus, a 4 ENL circuit can recognize 16 frequency combinations as depicted to the right and below. Each combination can be represented by a single "Signalture;" in the depicted case, 16.

[1] US Patent No. 7,474,973 issued on January 6, 2009.
[2] US Patent No. 7,539,582 issued May 26, 2009.

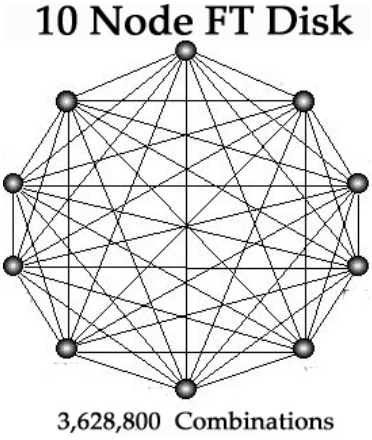
406G Street, Suite 206, Anchorage, AK 99501 – (907) 274-7686 – info@VarianceDynamical.com

Signalture®	Freq 1	Freq 2	Freq 3	Freq 4
1	Yes	No	No	No
2	Yes	Yes	No	No
3	Yes	Yes	Yes	No
4	Yes	Yes	Yes	Yes
5	No	Yes	No	No
6	No	Yes	Yes	No
7	No	Yes	Yes	Yes
8	No	No	Yes	No
9	No	No	Yes	Yes
10	No	No	No	Yes
11	No	No	No	No
12	No	Yes	No	Yes
13	Yes	Yes	No	Yes
14	Yes	No	Yes	Yes
15	Yes	No	No	Yes
16	Yes	No	Yes	No

In addition to being able to recognize frequencies in a signal, it is possible to assign frequencies for various conditions, run them through an ENL array, and almost instantly resolve what combinations exist. This is an analog algorithm or "logic gate." In other words, it can determine which combinations of conditions exist virtually instantaneously. This can form the basis of a new way of computing—one that is not limited to a binary system.

Combinations equaling the square of the number of ENLs in an array can be recognized. In other words, a 10 ENL array can recognize 100 separate combinations. This, itself, is very powerful. However, if one connects them the way neurons in the brain are connected, where each neuron has one and only one synaptic connection to other neurons, the number of combinations is factorial.

Thus, 10 ENLs connected in this manner, called an FT Disk, can resolve 3,628,800 combinations. This is why a fly with only 200,000 neurons can do what it can do. This demonstrates the potential power of using ENLs for signal processing and recognizing multifactorial conditions.



It is for these reasons, Variance believes its technology, properly developed and exploited, is ground breaking and can significantly advance telecommunications, electronics, and computing. The ENL/AFA is an invention analogous to the transistor in that there are a myriad of uses representing a tremendous advance over current technologies.

There are many $100 million or even $Billion markets that it is believed Variance technology will perform better at lower cost. Just a few of the potential applications include:

- Bandpass and other Electronic Filters
- Automatic Fourier Analysis/Direct Frequency Component Decomposition (DFCD)
- Spectrometers
- Other Signal Processing
- Real-Time Speaker and Face Recognition,
- Optical Flow
- Critical Path Analysis
- Massive Airflow/Fluid Modeling,
- Real Time Mechanical Vibration Monitoring for Aircraft
- Power Grid Efficiency Monitoring
- Biometrics
- Medical Imaging
- Sonar
- Oil & Gas Exploration
- Impenetrable encryption.

In addition to Variance Proprietary Literature (VPL) available from Variance, there is a link to a video of Dr. Tziolas explaining the technology at variancedynamical.com. This video is a must see to understand the ENL and its fantastic value.

Variance is seeking manufacturers interested in developing and licensing the ENL/AFA as well as an equity investor with electronics and marketing expertise.

Contact Variance Dynamical at 406 G Street, Suite 206, Anchorage, AK 99501 – (907) 274-7686 – info@VarianceDynamical.com, if interested in exploiting the ENL/AFA.