**Friday, October 28, 2016**

**Electronic Warfare Patents || Directed Energy Weapon Patents || v2k Patents**

Directed Energy Weapon and Electronic Warfare Relevant Patents:

[Art of Transmitting Electrical Energy through the Natural Mediums.](http://www.google.com/patents/US787412)
Patent #: US787412 A
Publication date: Apr 18, 1905
Filing date: May 16, 1900
Inventors: Nikola Tesla

Abstract:
N/A

[Apparatus and Method for Remotely Monitoring and Altering Brain Waves](http://www.google.com/patents/US3951134)
Patent #: US3951134 A
Publication date: Apr 20, 1976
Filing date: Aug 5, 1974

Abstract:

Apparatus for and method of sensing brain waves at a position remote from a subject whereby electromagnetic signals of different frequencies are simultaneously transmitted to the brain of the subject in which the signals interfere with one another to yield a waveform which is modulated by the subject's brain waves. The interference waveform which is representative of the brain wave activity is re-transmitted by the brain to a receiver where it is demodulated and amplified. The demodulated waveform is then displayed for visual viewing and routed to a computer for further processing and analysis. The demodulated waveform also can be used to produce a compensating signal which is transmitted back to the brain to effect a desired change in electrical activity therein

[Method and Device for Producing a Desired Brain State](http://www.google.com/patents/US6488617)
Patent #: US6488617 B1
Publication date: Dec 3, 2002
Filing date: Oct 13, 2000

Abstract:

A method and device for the production of a desired brain state in an individual contain means for monitoring and analyzing the brain state while a set of one or more magnets produce fields that alter this state. A computational system alters various parameters of the magnetic fields in order to close the gap between the actual and desired brain state. This feedback process operates continuously until the gap is minimized and/or removed.

[Remote Detection of Electronic Devices](https://www.google.com/patents/US8275334)
Patent #: US8275334 B1
Publication date: Sep 25, 2012
Filing date: Apr 9, 2009

Abstract:

An apparatus and method for detecting solid-state electronic devices are described. Non-linear junction detection techniques are combined with spread-spectrum encoding and cross correlation to increase the range and sensitivity of the non-linear junction detection and to permit the determination of the distances of the detected electronics. Nonlinear elements are detected by transmitting a signal at a chosen frequency and detecting higher harmonic signals that are returned from responding devices.

Description:

The first two terms in the expansion of this expression are: I=I0(qV/kT+½(qV/kT)2), the second term being responsible for generating the second-harmonic (doubled) frequency which is determinative of the RF radiation from the sought electronics. It is this frequency which is detected as an indicator of the presence a nonlinear or semiconductor junction associated with electronics. In the presence of a RF field, the voltage, V, is determined by the applied field (the transmitted power). When it exceeds the bias voltage, current I flows through the device and may be re-radiated. Because the current is a nonlinear function of the applied voltage, the re-radiated energy contains harmonics of the fundamental applied RF frequency. In its simplest form, then, a nonlinear junction detector irradiates an area using frequency f, and detects returning electromagnetic radiation at frequency 2f (and possibly 3f, etc.).

[Pulsative Manipulation of Nervous Systems](http://www.google.com/patents/US6091994)
Patent #: US6091994 A
Publication date: Jul 18, 2000
Filing date: Aug 31, 1998

Abstract:

Method and apparatus for manipulating the nervous system by imparting subliminal pulsative cooling to the subject's skin at a frequency that is suitable for the excitation of a sensory resonance. At present, two major sensory resonances are known, with frequencies near 1/2 Hz and 2.4 Hz. The 1/2 Hz sensory resonance causes relaxation, sleepiness, ptosis of the eyelids, a tonic smile, a "knot" in the stomach, or sexual excitement, depending on the precise frequency used. The 2.4 Hz resonance causes the slowing of certain cortical activities, and is characterized by a large increase of the time needed to silently count backward from 100 to 60, with the eyes closed. The invention can be used by the general public for inducing relaxation, sleep, or sexual excitement, and clinically for the control and perhaps a treatment of tremors, seizures, and autonomic system disorders such as panic attacks. Embodiments shown are a pulsed fan to impart subliminal cooling pulses to the subject's skin, and a silent device which induces periodically varying flow past the subject's skin, the flow being induced by pulsative rising warm air plumes that are caused by a thin resistive wire which is periodically heated by electric current pulses.

[Multifunctional Radio Frequency Directed Energy System](http://www.google.com/patents/US7629918)
Patent #: US7629918 B2
Publication date: Dec 8, 2009
Filing date: Dec 15, 2005

Abstract:

An RFDE system includes an RFDE transmitter and at least one RFDE antenna. The RFDE transmitter and antenna direct high power electromagnetic energy towards a target sufficient to cause high energy damage or disruption of the target. The RFDE system further includes a targeting system for locating the target. The targeting system includes a radar transmitter and at least one radar antenna for transmitting and receiving electromagnetic energy to locate the target. The RFDE system also includes an antenna pointing system for aiming the at least one RFDE antenna at the target based on the location of the target as ascertained by the targeting system. Moreover, at least a portion of the radar transmitter or the at least one radar antenna is integrated within at least a portion of the RFDE transmitter or the at least one RFDE antenna.

[Method and Device for Implementing the Radio Frequency Hearing Effect](http://www.google.com/patents/US6470214)
Patent #: US6470214 B1
Publication date: Oct 22, 2002
Filing date: Dec 13, 1996

Abstract:

A modulation process with a fully suppressed carrier and input preprocessor filtering to produce an encoded output; for amplitude modulation (AM) and audio speech preprocessor filtering, intelligible subjective sound is produced when the encoded signal is demodulated using the RF Hearing Effect. Suitable forms of carrier suppressed modulation include single sideband (SSB) and carrier suppressed amplitude modulation (CSAM), with both sidebands present.

[Apparatus for Audibly Communicating Speech Using the Radio Frequency Hearing Effect](http://www.google.com/patents/US6587729)
Patent #: US6587729 B2
Publication date: Jul 1, 2003
Filing date: Apr 24, 2002

Abstract:

A modulation process with a fully suppressed carrier and input preprocessor filtering to produce an encoded output; for amplitude modulation (AM) and audio speech preprocessor filtering, intelligible subjective sound is produced when the encoded signal is demodulated using the RF Hearing Effect. Suitable forms of carrier suppressed modulation include single sideband (SSB) and carrier suppressed amplitude modulation (CSAM), with both sidebands present.

[[RF Energy] Hearing Systems](http://www.google.com/patents/US3629521)
Patent #: US3629521 A
Publication date: Dec 21, 1971
Filing date: Jan 8, 1970

Abstract:

The present invention relates to the stimulation of the sensation of hearing in persons of impaired hearing abilities or in certain cases persons totally deaf utilizing RF energy. More particularly, the present invention relates to a method and apparatus for imparting synchronous AF or ""acoustic" signals and so-called "transdermal" or RF signals. Hearing and improved speech discrimination, in accordance with one aspect of the present invention, is stimulated by the application of an AF acoustical signal to the "ear system" conventional biomechanism of hearing, which is delivered to the brain through the "normal" channels of hearing and a separate transdermal RF electrical signal which is applied to the "facial nerve system" and is detectable as a sensation of hearing. Vastly improved and enhanced hearing may be achieved...

[Microwave Hearing Device](http://www.google.com/patents/US4858612)
Patent #: US4858612 A
Publication date: Aug 22, 1989
Filing date: Dec 19, 1983

Abstract:

A method and apparatus for simulation of hearing in mammals by introduction of a plurality of microwaves into the region of the auditory cortex is shown and described. A microphone is used to transform sound signals into electrical signals which are in turn analyzed and processed to provide controls for generating a plurality of microwave signals at different frequencies. The multifrequency microwaves are then applied to the brain in the region of the auditory cortex. By this method sounds are perceived by the mammal which are representative of the original sound received by the microphone.

[[Microwave] Hearing System](http://www.google.com/patents/US4877027)
Patent #: US4877027 A
Publication date: Oct 31, 1989
Filing date: Jun 6, 1988

Abstract:

Sound is induced in the head of a person by radiating the head with microwaves in the range of 100 megahertz to 10,000 megahertz that are modulated with a particular waveform. The waveform consists of frequency modulated bursts. Each burst is made up of ten to twenty uniformly spaced pulses grouped tightly together. The burst width is between 500 nanoseconds and 100 microseconds. The pulse width is in the range of 10 nanoseconds to 1 microsecond. The bursts are frequency modulated by the audio input to create the sensation of hearing in the person whose head is irradiated.

[Communication System and Method Including Brain Wave Analysis and/or use of Brain Activity](http://www.google.com/patents/US6011991)
Patent #: US6011991 A
Publication date: Jan 4, 2000
Filing date: Dec 7, 1998

Abstract:

A system and method for enabling human beings to communicate by way of their monitored brain activity. The brain activity of an individual is monitored and transmitted to a remote location (e.g. by satellite). At the remote location, the monitored brain activity is compared with pre-recorded normalized brain activity curves, waveforms, or patterns to determine if a match or substantial match is found. If such a match is found, then the computer at the remote location determines that the individual was attempting to communicate the word, phrase, or thought corresponding to the matched stored normalized signal.

[Thought Transmission Unit Sends Modulated Electromagnetic Wave Beams to Human Receiver to Influence Thoughts and Actions without Electronic Receiver](https://www.google.com/patents/DE10253433A1?cl=en&dq=subliminal+telepathy&hl=en&sa=X&ved=0ahUKEwjf_4jVjKvUAhXH3SYKHba2DEYQ6AEIIjAA)
Patent #: DE10253433 A1
Publication date: May 27, 2004
Filing date: Nov 11, 2002

Abstract:

A thought transmission unit sends modulated electromagnetic wave beams over long distances to a human receiver to influence the thoughts, actions or perceptions of the organism with or without their consent but without them requiring an electronic receiver.

[Method and Apparatus for the Detection of Objects Using Electromagnetic Wave Attenuation Patterns](https://www.google.co.uk/patents/US7952511)
Patent #: US7952511 B1
Publication date: May 31st 2011
Filing date: April 7th 1999

Abstract:

A method for detecting an object, comprising the steps of defining expected characteristics of scattered electromagnetic radiation to be received at a receiver; attenuating at least a portion of electromagnetic radiation received at the receiver by a presence of an object within a path of electromagnetic information; and detecting the attenuation to indicate a presence of the object. The object may be a low radar profile object, such as a stealth aircraft. The electromagnetic radiation is preferably microwave, but may also be radio frequency or infrared. By using triangulation and other geometric techniques, distance and position of the object may be computed.

[Method and Apparatus for Associative Memory](https://www.google.com/patents/US5995954)
Patent #: US5995954 A
Publication date: Nov 30, 1999
Filing date: Mar 18, 1992

Abstract:

A method and apparatus for an electronic artificial neural network, which serves as an associative memory that has a complete set of N-dimensional Hadamard vectors as stored states, suitable for large N that are powers of 2. The neural net has nonlinear synapses, each of which processes signals from two neurons. These synapses can be implemented by simple passive circuits comprised of eight resistors and four diodes. The connections in the neural net are specified through a subset of a group that is defined over the integers from 1 to N. The subset is chosen such that the connections can be implemented in VLSI or wafer scale integration. An extension of the Hadamard memory causes the memory to provide new Hadamard vectors when these are needed for the purpose of Hebb learning.

[Thermal Excitation of Sensory Resonances](http://www.google.com/patents/US5800481)
Patent #: US5800481 A
Publication date: Sep 1, 1998
Filing date: Dec 28, 1995

Abstract:

In man, autonomic and cortical resonances of the nervous system can be excited by inducing subliminal heat pulses in the skin by means of a resistive heat patch, laser, heat lamp, or microwave radiation, or through a slow air jet that carries a small periodic fluctuation in temperature. Deeply subliminal skin temperature oscillations of frequency near 1/2 Hz induced in a subject by any of these means cause sleepiness, drowziness, relaxation, a tonic smile, ptosis of the eyelids, a tense feeling, sudden loose stool, or sexual excitement, depending on the precise pulse frequency used. For certain higher frequencies, the induced subliminal skin temperature oscillations cause fractured thought and a slowing of certain cortical processes. The method and apparatus can be used by the general public as an aid to relaxation, sleep, or arousal, and clinically for the control and perhaps treatment of tremors, seizures, and emotional disorders. There is further application in the form of nonlethal weapons, involving a pulsed infrared laser or a pulsed microwave beam, tuned to a sensory resonance pulse frequency.

[Method and Device for Interpreting Concepts and Conceptual Thought from Brainwave Data and for Assisting for Diagnosis of Brainwave Disfunction](https://www.google.com/patents/US5392788)
Patent #: US5392788 A
Publication date: Feb 28, 1995
Filing date: Feb 3, 1993

Abstract:

A system for acquisition and decoding of EP and SP signals is provided which comprises a transducer for presenting stimuli to a subject, EEG transducers for recording brainwave signals from the subject, a computer for controlling and synchronizing stimuli presented to the subject and for concurrently recording brainwave signals, and either interpreting signals using a model for conceptual perceptional and emotional thought to correspond EEG signals to thought of the subject or comparing signals to normative EEG signals from a normative population to diagnose and locate the origin of brain dysfunctional underlying perception, conception, and emotion.

[Conducting Polymer Nanowire Brain-Machine Interface Systems and Methods](https://www.google.com/patents/US8406889?dq=brain+to+brain+interface&hl=en&sa=X&ved=0ahUKEwi3nPiK66rUAhUD7CYKHVL3ClQQ6AEIRTAF)
Patent #: US8406889 B2
Publication date: Mar 26, 2013
Filing date: Sep 28, 2010

Abstract:

The present invention relates to conducting polymer nanowires and their use in a brain-machine interface which is secure, robust and minimally invasive. In accordance with a first aspect of the present invention, a vascular-based brain-machine interface comprising conducting polymer nanowires is disclosed.

[Dream State Teaching Machine](http://www.google.com/patents/US5551879)
Patent #: US5551879 A
Publication date: Sep 3, 1996
Filing date: Sep 16, 1994

Abstract:

A device for enhancing lucidity in the dream state of an individual. The device includes electronic circuitry incorporated into a headband for the user to wear while sleeping. The circuitry includes a detector for fitting adjacent to the eye of the sleeping individual, for detecting Rapid Eye Movement (REM), which occurs during the dream state. The detector emits a signal that is evaluated by additional circuitry to determine whether or not REM sleep is occurring. If REM sleep is occurring, a signal is generated to operate a recorded, which typically plays prerecorded messages through the headphones engaging the ear of the sleeping individual.

[Non-contact Vital Signs Monitor](http://www.google.com/patents/US4958638)
Patent #: US4958638 A
Publication date: Sep 25, 1990
Filing date: Jun 30, 1988

Abstract:

An apparatus for measuring simultaneous physiological parameters such as heart rate and respiration without physically connecting electrodes or other sensors to the body. A beam of frequency modulated continuous wave radio frequency energy is directed towards the body of a subject. The reflected signal contains phase information representing the movement of the surface of the body, from which respiration and heartbeat information can be obtained. The reflected phase modulated energy is received and demodulated by the apparatus using synchronous quadrature detection. The quadrature signals so obtained are then signal processed to obtain the heartbeat and respiratory information of interest.

[Biolayer Interferometry Measurement of Biological Targets](http://www.google.com/patents/US8512950)
Patent #: US8512950 B2
Publication date: Aug 20, 2013
Filing date: Jul 20, 2011

Abstract:

Disclosed are methods and compositions for the ultrasensitive detection of oligonucleotides, proteins, protein complexes, biomolecules, and infectious agents using a peroxidase driven deposition of substrates onto interferometry capable biosensors, coupled to the specific recognition of the target molecules. More specifically, methods are disclosed to specifically immobilize biological target molecules onto the surface of interferometry capable biosensors and to associate the target molecules with peroxidase enzymes. Through the peroxidase driven deposition of substrates onto the interferometry capable biosensors there is the ability to achieve ultrasensitive detection and quantification of specific target molecules.

[Cold Atom Interferometry Sensor](http://www.google.com/patents/US8373112)
Patent #: US8373112 B2
Publication date: Feb 12, 2013
Filing date: Mar 11, 2009

Abstract:

The disclosure relates to a cold atom interferometry sensor that includes: a source of atoms; a dual-frequency laser capable of generating a first Raman dual-frequency laser beam; a reflector arranged so as to reflect the first Raman dual-frequency laser beam in order to generate a second Raman dual-frequency laser beam, the first laser beam and the second laser beam propagating in different directions in order to obtain atomic interference fringes from the emission of cold atoms obtained from the atom source; characterized in that the reflector is further arranged so as to enable multiple reflections of the first beam on surfaces of the reflector, so that the first beam and the multiple reflections thereof allow the capture of atoms from the atom source in order to obtain the cold atoms.

[Apparatus and Method for Detection of Molecular Vapors in an Atmospheric Region](https://www.google.com/patents/US5563982)
Patent #: US5563982 A
Publication date: Oct 8, 1996
Filing date: Nov 19, 1993

Abstract:

Apparatus for detecting molecular vapors in an atmospheric region includes an interferometer which monitors light parameter data signals received and provides an interferometer light parameter signal corresponding to the light parameter data signals at a plurality of frequencies. The apparatus further includes an interferogram detector/converter which records and digitizes the interferometer light parameter signal to generate a plurality of discrete data points wherein each discrete data point corresponds to the interferometer light parameter signal at a specific frequency. The apparatus also includes a Fourier transform circuit for receiving the discrete interferometer light parameter signal and providing a Fourier transformed molecular parameter data signal. The apparatus further includes a probabilistic neural network for receiving and sorting the Fourier transformed molecular parameter data signals without the use of a priori training data.

[Therapeutic Behavior Modification Program, Compliance Monitoring and Feedback System](http://www.google.com/patents/US6039688)
Patent #: US6039688 A
Publication date: Mar 21, 2000
Filing date: Oct 31, 1997

Abstract:

A therapeutic behavior modification program, compliance monitoring and feedback system includes a server-based relational database and one or more microprocessors electronically coupled to the server. The system enables development of a therapeutic behavior modification program having a series of milestones for an individual to achieve lifestyle changes necessary to maintain his or her health or recover from ailments or medical procedures. The program may be modified by a physician or trained case advisor prior to implementation. The system monitors the individual's compliance with the program by prompting the individual to enter health-related data, correlating the individual's entered data with the milestones in the behavior modification program and generating compliance data indicative of the individual's progress toward achievement of the program milestones. The system also includes an integrated system of graphical system interfaces for motivating the individual to comply with the program. Through the interfaces, the individual can access the database to review the compliance data and obtain health information from a remote source such as selected sites on the Internet. The system also provides an electronic calendar integrated with the behavior modification program for signaling the individual to take action pursuant to the behavior modification program in which the calendar accesses the relational database and integrates requirements of the program with the individual's daily schedule, and an electronic journal for enabling the individual to enter personal health-related information into the system on a regular basis. In addition, the system includes an electronic meeting room for linking the individual to a plurality of other individuals having related behavior modification programs for facilitating group peer support sessions for compliance with the program. The system enables motivational media presentations to be made to the individuals in the electronic meeting room as part of the group support session to facilitate interactive group discussion about the presentations. The entire system is designed around a community of support motif including a graphical electronic navigator operable by the individual to control the microprocessor for accessing different parts of the system.

[FM Theta-inducing Audible Sound, and Method, Device and Recorded Medium to Generate the Same](http://www.google.com/patents/US5954630)
Patent #: US5954630 A
Publication date: Sep 21, 1999
Filing date: Sep 14, 1994

Abstract:

An audible sound of modulated wave where a very low-frequency wave of about 20 hertz or lower is superposed on an audio low-frequency wave effectively stimulates Fm theta in human brain waves to improve attention and concentration during mental tasks when auditorily administered. The audible sound is also effective in stimulation of human alpha wave when the very low-frequency wave lies within the range of about 2-10 hertz. Such audible sound is artificially obtainable by generating an electric signal which contains such a modulated wave, and transducing it into audible sound wave.

[Magnetic Excitation of Sensory Resonances](http://www.google.com/patents/US5935054)
Patent #: US5935054 A
Publication date: Aug 10, 1999
Filing date: Jun 7, 1995

Abstract:

The invention pertains to influencing the nervous system of a subject by a weak externally applied magnetic field with a frequency near 1/2 Hz. In a range of amplitudes, such fields can excite the 1/2 sensory resonance, which is the physiological effect involved in "rocking the baby". The wave form of the stimulating magnetic field is restricted by conditions on the spectral power density, imposed in order to avoid irritating the brain and the risk of kindling. The method and apparatus can be used by the general public as an aid to relaxation, sleep, or arousal, and clinically for the control of tremors, seizures, and emotional disorders.

[Electric Fringe Field Generator for Manipulating Nervous Systems](https://www.google.com/patents/US6081744)
Patent #: US6081744 A
Publication date: Jun 27, 2000
Filing date: Jul 17, 1998

Abstract:

Apparatus and method for manipulating the nervous system of a subject through afferent nerves, modulated by externally applied weak fluctuating electric fields, tuned to certain frequencies such as to excite a resonance in neural circuits. Depending on the frequency chosen, excitation of such resonances causes in a human subject relaxation, sleepiness, sexual excitement, or the slowing of certain cortical processes. The electric field used for stimulation of the subject is induced by a pair of field electrodes charged to opposite polarity and placed such that the subject is entirely outside the space between the field electrodes. Such configuration allows for very compact devices where the field electrodes and a battery-powered voltage generator are contained in a small casing, such as a powder box. The stimulation by the weak external electric field relies on frequency modulation of spontaneous spiking patterns of afferent nerves. The method and apparatus can be used by the general public as an aid to relaxation, sleep, or arousal, and clinically for the control and perhaps the treatment of tremors and seizures, and disorders of the autonomic nervous system, such as panic attacks.

[Brain Wave Inducing System](http://www.google.com/patents/US5954629)
Patent #: US5954629 A
Publication date: Sep 21, 1999
Filing date: January 31, 1997

Abstract:

Sensors are provided for detecting brain waves of a user, and a band-pass filter is provided for extracting a particular brain waves including an .alpha. wave included in a detected brain wave. The band-pass filter comprises a first band-pass filter having a narrow pass band, and a second band-pass filter having a wide pass band. One of the first and second band-pass filters is selected, and a stimulation signal is produced in dependency on an .alpha. wave extracted by a selected band-pass filter. In accordance with the stimulation signal, a stimulation light is emitted to the user in order to induce the user to relax or sleeping state.

[Brain Wave Inducing Apparatus](http://www.google.com/patents/US5330414)
Patent #: US5330414 A
Publication date: Jul 19, 1994
Filing date: Feb 11, 1992

Abstract:

A random signal generator outputs a random noise signal to a band pass filter which selectively passes frequency components in the frequency range of a desired brain wave from a subject. The output of the band pass filter is supplied to an automatic level controller. The automatic level controller sets the output of band pass filter to a predetermined amplitude. Then, the output of the automatic level controller is fed to a stimulating light generator, which converts the output of the automatic level controller into a light signal for stimulating the subject in order to induce the desired brain wave from the subject. The light signal is then emitted into the subject's eyes.

[Method and an Associated Apparatus for Remotely Determining Information as to Person's Emotional State](http://www.google.com/patents/US5507291)
Patent #: US5507291 A
Publication date: Apr 16, 1996
Filing date: Apr 5, 1994

Abstract:

In a method for remotely determining information relating to a person's emotional state, an waveform energy having a predetermined frequency and a predetermined intensity is generated and wirelessly transmitted towards a remotely located subject. Waveform energy emitted from the subject is detected and automatically analyzed to derive information relating to the individual's emotional state. Physiological or physical parameters of blood pressure, pulse rate, pupil size, respiration rate and perspiration level are measured and compared with reference values to provide information utilizable in evaluating interviewee's responses or possibly criminal intent in security sensitive areas.

[Method of and Apparatus for Inducing Desired States of Consciousness](http://www.google.com/patents/US5356368)
Patent #: US5356368 A
Publication date: Oct 18, 1994
Filing date: Mar 1, 1991

Abstract:

Improved methods and apparatus for entraining human brain patterns, employing frequency following response (FFR) techniques, facilitate attainment of desired states of consciousness. In one embodiment, a plurality of electroencephalogram (EEG) waveforms, characteristic of a given state of consciousness, are combined to yield an EEG waveform to which subjects may be susceptible more readily. In another embodiment, sleep patterns are reproduced based on observed brain patterns during portions of a sleep cycle; entrainment principles are applied to induce sleep. In yet another embodiment, entrainment principles are applied in the work environment, to induce and maintain a desired level of consciousness. A portable device also is described.

[Method and Apparatus for Analyzing Neurological Response to Emotion-inducing Stimuli](http://www.google.com/patents/US6292688)
Patent #: US6292688 B1
Publication date: Sep 18, 2001
Filing date: Feb 28, 1996

Abstract:

A method of determining the extent of the emotional response of a test subject to stimului having a time-varying visual content, for example, an advertising presentation. The test subject is positioned to observe the presentation for a given duration, and a path of communication is established between the subject and a brain wave detector/analyzer. The intensity component of each of at least two different brain wave frequencies is measured during the exposure, and each frequency is associated with a particular emotion. While the subject views the presentation, periodic variations in the intensity component of the brain waves of each of the particular frequencies selected is measured. The change rates in the intensity at regular periods during the duration are also measured. The intensity change rates are then used to construct a graph of plural coordinate points, and these coordinate points graphically establish the composite emotional reaction of the subject as the presentation continues.

[Nervous System Manipulation by Electromagnetic Fields from Monitors](http://www.google.com/patents/US6506148)
Patent #: US6506148 B2
Publication date: Jan 14, 2003
Filing date: Jun 1, 2001

Abstract:

Physiological effects have been observed in a human subject in response to stimulation of the skin with weak electromagnetic fields that are pulsed with certain frequencies near ½ Hz or 2.4 Hz, such as to excite a sensory resonance. Many computer monitors and TV tubes, when displaying pulsed images, emit pulsed electromagnetic fields of sufficient amplitudes to cause such excitation. It is therefore possible to manipulate the nervous system of a subject by pulsing images displayed on a nearby computer monitor or TV set. For the latter, the image pulsing may be imbedded in the program material, or it may be overlaid by modulating a video stream, either as an RF signal or as a video signal. The image displayed on a computer monitor may be pulsed effectively by a simple computer program. For certain monitors, pulsed electromagnetic fields capable of exciting sensory resonances in nearby subjects may be generated even as the displayed images are pulsed with subliminal intensity.

[Psycho-Acoustic Projector](http://www.google.com/patents/US3566347)
Patent #: US3566347 A
Publication date: Feb 23, 1971
Filing date: Apr 27, 1967

Abstract:

A system for producing aural psychological disturbances and partial deafness in the enemy during combat situations.

[Multi-User Remote Health Monitoring System with Biometrics Support](https://www.google.com/patents/US8407063)
Patent #: US8407063 B2
Publication date: Mar 26, 2013
Filing date: Aug 25, 2006

Abstract:

A method for monitoring a physiological condition of a user with an apparatus in a computer network is disclosed. The method generally includes the steps of (A) storing authorization information in a nonvolatile condition within the apparatus, the authorization information being suitable for identifying at least one of (i) one or more authorized patients among a plurality of medical patients of a health monitoring service and (ii) one or more authorized types among a plurality of patient types of the health monitoring service, (B) sensing biometric data from the user of the apparatus and (C) identifying the user as a particular patient from at least one of (i) the authorized patients and (ii) the authorized types in response to matching the biometric data to the authorization information.

[Method of Inducing Harmonious States of Being](http://www.google.com/patents/US6135944)
Patent #: US6135944 A
Publication date: Oct 24, 2000
Filing date: Nov 6, 1998

Abstract:

A method of inducing harmonious states of being using vibrational stimuli, preferably sound, comprised of a multitude of frequencies expressing a specific pattern of relationship. Two base signals are modulated by a set of ratios to generate a plurality of harmonics. The harmonics are combined to form a "fractal" arrangement.

[Method and System for Altering Consciousness](http://www.google.com/patents/US5123899)
Patent #: US5123899 A
Publication date: Jun 23, 1992
Filing date: Jan 17, 1991

Abstract:

A system for altering the states of human consciousness involves the simultaneous application of multiple stimuli, preferable sounds, having differing frequencies and wave forms. The relationship between the frequencies of the several stimuli is exhibited by the equation

g=sn/4 ·f

where:
f=frequency of one stimulus;
g=frequency of the other stimuli of stimulus; and
n=a positive or negative integer which is different for each other stimulus.

[Silent Subliminal Presentation System](http://www.google.com/patents/US5159703)
Patent #: US5159703 A
Publication date: Oct 27, 1992
Filing date: Dec 28, 1989

Abstract:

A silent communications system in which nonaural carriers, in the very low or very high audio frequency range or in the adjacent ultrasonic frequency spectrum, are amplitude or frequency modulated with the desired intelligence and propagated acoustically or vibrationally, for inducement into the brain, typically through the use of loudspeakers, earphones or piezoelectric transducers. The modulated carriers may be transmitted directly in real time or may be conveniently recorded and stored on mechanical, magnetic or optical media for delayed or repeated transmission to the listener.

[Subliminal Acoustic Manipulation of Nervous Systems](http://www.google.com/patents/US6017302)
Patent #: US6017302 A
Publication date: Jan 25, 2000
Filing date: Oct 31, 1997

Abstract:

In human subjects, sensory resonances can be excited by subliminal atmospheric acoustic pulses that are tuned to the resonance frequency. The 1/2 Hz sensory resonance affects the autonomic nervous system and may cause relaxation, drowsiness, or sexual excitement, depending on the precise acoustic frequency near 1/2 Hz used. The effects of the 2.5 Hz resonance include slowing of certain cortical processes, sleepiness, and disorientation. For these effects to occur, the acoustic intensity must lie in a certain deeply subliminal range. Suitable apparatus consists of a portable battery-powered source of weak subaudio acoustic radiation. The method and apparatus can be used by the general public as an aid to relaxation, sleep, or sexual arousal, and clinically for the control and perhaps treatment of insomnia, tremors, epileptic seizures, and anxiety disorders. There is further application as a nonlethal weapon that can be used in law enforcement standoff situations, for causing drowsiness and disorientation in targeted subjects. It is then preferable to use venting acoustic monopoles in the form of a device that inhales and exhales air with subaudio frequency.

[Apparatus and Method of Broadcasting Audible Sound using Ultrasonic Sound as a Carrier](http://www.google.com/patents/US6052336)
Patent #: US6052336 A
Publication date: Apr 18, 2000
Filing date: May 1, 1998

Abstract:

An ultrasonic sound source broadcasts an ultrasonic signal which is amplitude and/or frequency modulated with an information input signal originating from an information input source. If the signals are amplitude modulated, a square root function of the information input signal is produced prior to modulation. The modulated signal, which may be amplified, is then broadcast via a projector unit, whereupon an individual or group of individuals located in the broadcast region detect the audible sound.

[FM Theta-inducing Audible Sound, and Method, Device and Recorded Medium to Generate the Same](http://www.google.com/patents/US5954630)
Patent #: US5954630 A
Publication date: Sep 21, 1999
Filing date: Sep 14, 1994

Abstract:

An audible sound of modulated wave where a very low-frequency wave of about 20 hertz or lower is superposed on an audio low-frequency wave effectively stimulates Fm theta in human brain waves to improve attention and concentration during mental tasks when auditorily administered. The audible sound is also effective in stimulation of human alpha wave when the very low-frequency wave lies within the range of about 2-10 hertz. Such audible sound is artificially obtainable by generating an electric signal which contains such a modulated wave, and transducing it into audible sound wave.

[Apparatus for Electric Stimulation of Auditory Nerves of a Human Being](http://www.google.com/patents/US5922016)
Patent #: US5922016 A
Publication date: Jul 13, 1999
Filing date: Jan 26, 1996

Abstract:

Apparatus for electric stimulation and diagnostics of auditory nerves of a human being, e.g. for determination of sensation level (SL), most conformable level (MCL) and uncomfortable level (UCL) audibility curves, includes a stimulator detachably secured to a human being for sending a signal into a human ear, and an electrode placed within the human ear and electrically connected to the stimulator by an electric conductor for conducting the signals from the stimulator into the ear. A control unit is operatively connected to the stimulator for instructing the stimulator as to characteristics of the generated signals being transmitted to the ear.

[Method and Apparatus for Introducing Subliminal Changes to Audio Stimuli](http://www.google.com/patents/US5215468)
Patent #: US5215468 A
Publication date: Jun 1, 1993
Filing date: Mar 11, 1991

Abstract:

A method and apparatus for introducing gradual changes to an audio signal so that the changes are subliminal. The changes can involve tempo and volume, for example, and can take the form of a gentle gradient having ever increasing/decreasing ramp-like changes over a sufficient duration, or a more complex program involving several gentle gradients. In the preferred embodiment, an enhanced audio play-back device such as a portable audio cassette recorder can be programmed to subliminally alter the characteristics of a standard pre-recorded tape containing music, for example. As a motivational tool during walking, jogging or other repetitive exercise, the tempo is gradually increased over a period of time to encourage a corresponding gradual (and subliminal) increase in physical exertion by a user whose rate of movement is proportional to the tempo of the music. The tempo can be either manually changed in conjunction with a subliminal program, or by itself in an override mode, or by itself in a version of the present-inventive audio play-back device which allows only manual tempo alternation. In an alternate embodiment, a special pre-recorded tape contains subliminal changes in tempo, for example, for play-back on a standard audio cassette recorder (which operates at one speed, only) to cause the same effect as the preferred embodiment.

[Method and Recording for Producing Sounds and Messages to Achieve Alpha and Theta Brainwave States and Positive Emotional States in Humans](http://www.google.com/patents/US5586967)
Patent #: US5586967 A
Publication date: Dec 24, 1996
Filing date: Jun 27, 1994

Abstract:

A method and recording for the use in achieving alpha and theta brainwave states and effecting positive emotional states in humans, is provided which includes a medium having a musical composition thereon with an initial tempo decreasing to a final tempo and verbal phrases recorded in synchrony with the decreasing tempo.

[Ultrasonic Speech Translator and Communications System](http://www.google.com/patents/US5539705)
Patent #: US5539705 A
Publication date: Jul 23, 1996
Filing date: Oct 27, 1994

Abstract:

A wireless communication system undetectable by radio frequency methods for converting audio signals, including human voice, to electronic signals in the ultrasonic frequency range, transmitting the ultrasonic signal by way of acoustical pressure waves across a carrier medium, including gases, liquids, or solids, and reconverting the ultrasonic acoustical pressure waves back to the original audio signal. The ultrasonic speech translator and communication system (20) includes an ultrasonic transmitting device (100) and an ultrasonic receiving device (200). The ultrasonic transmitting device (100) accepts as input (115) an audio signal such as human voice input from a microphone (114) or tape deck. The ultrasonic transmitting device (100) frequency modulates an ultrasonic carrier signal with the audio signal producing a frequency modulated ultrasonic carrier signal, which is transmitted via acoustical pressure waves across a carrier medium such as gases, liquids or solids. The ultrasonic receiving device (200) converts the frequency modulated ultrasonic acoustical pressure waves to a frequency modulated electronic signal, demodulates the audio signal from the ultrasonic carrier signal, and conditions the demodulated audio signal to reproduce the original audio signal at its output (250).

[Apparatus Particularly for use in the Determination of the Condition of the Vegetative part of the Nervous System](https://www.google.com/patents/US5522386)
Patent #: US5522386 A
Publication date: Jun 4, 1996
Filing date: Apr 29, 1992

Abstract:

Apparatus for use in the determination of the condition of the vegetative part of the nervous system and/or of sensory functions of an organism, i.e. a human being or animal. The apparatus comprises devices for generating and supplying to said organism at least one sensory stimulus chosen from a group of sensory stimuli, such as visual, sound, olfactory, gustatory, tactile or pain stimuli, and devices for measuring the skin potential and the evoked response of the organism to a stimulus. The measured data are processed by processing devices for automatically controlling the supply of at least one stimulus for providing a non-rhythmical sequence of stimuli. Preferably, pairs of stimuli are supplied for developing a conditioned reflex.

[Method of Inducing Mental, Emotional and Physical States of Consciousness, Including Specific Mental Activity, in Human Beings](http://www.google.com/patents/US5213562)
Patent #: US5213562 A
Publication date: May 25, 1993
Filing date: Apr 25, 1990

Abstract:

A method having applicability in replication of desired consciousness states; in the training of an individual to replicate such a state of consciousness without further audio stimulation; and in the transferring of such states from one human being to another through the imposition of one individual's EEG, superimposed on desired stereo signals, on another individual, by inducement of a binaural beat phenomenon.

[Silent Subliminal Presentation System](http://www.google.com/patents/US5159703)
Patent #: US5159703 A
Publication date: Oct 27, 1992
Filing date: Dec 28, 1989

Abstract:

A silent communications system in which nonaural carriers, in the very low or very high audio frequency range or in the adjacent ultrasonic frequency spectrum, are amplitude or frequency modulated with the desired intelligence and propagated acoustically or vibrationally, for inducement into the brain, typically through the use of loudspeakers, earphones or piezoelectric transducers. The modulated carriers may be transmitted directly in real time or may be conveniently recorded and stored on mechanical, magnetic or optical media for delayed or repeated transmission to the listener.

[Method and Apparatus for Inducing and Establishing a Changed State of Consciousness](https://www.google.com/patents/US5151080)
Patent #: US5151080 A
Publication date: Sep 29, 1992
Filing date: Aug 28, 1990

Abstract:

An electroacoustic device includes a sound generator as well as a system for producing synthetic human speech, connected to a modulation stage for superimposing the output signals thereof. The superimposed output signals are applied via an amplifier stage to one of a headphone system or loudspeaker system.

[Method and Apparatus of Varying the Brain State of a Person by means of an Audio Signal](http://www.google.com/patents/US5135468)
Patent #: US5135468 A
Publication date: Aug 4, 1992
Filing date: Aug 2, 1990

Abstract:

A method of varying the brain state of a person includes the steps of supplying the first audio signal to one ear of the person, supplying a second audio signal to the other ear of the person, and substantially continuously varying the frequency of at least one of the first and second audio signals to vary the brain state of the person.

[Method and Apparatus for Changing Brain Wave Frequency](https://www.google.com/patents/US5036858)
Patent #: US5036858 A
Publication date: Aug 6, 1991
Filing date: Mar 22, 1990

Abstract:

A method for changing brain wave frequency to a desired frequency determines a current brain wave frequency of a user, generates two frequencies with a frequency difference of a magnitude between that of the current actual brain wave frequency and the desired frequency but always within a predetermined range of the current actual brain wave frequency, and produces an output to the user corresponding to the two frequencies. One apparatus to accomplish the method has a computer processor, a computer memory, EEG electrodes along with an amplifier, a programmable timing generator responsive to the computer processor for generating the two frequencies, audio amplifiers and a beat frequency generator driving a visual frequency amplifier.

[Non-invasive Method and Apparatus for Modulating Brain Signals through an External Magnetic or Electric Field to Reduce Pain](http://www.google.com/patents/US4889526)
Patent #: US4889526 A
Publication date: Dec 26, 1989
Filing date: Nov 13, 1987

Abstract:

This invention incorporates the discovery of new principles which utilize magnetic and electric fields generated by time varying square wave currents of precise repetition, width, shape and magnitude to move through coils and cutaneously applied conductive electrodes in order to stimulate the nervous system and reduce pain in humans. Timer means, adjustment means, and means to deliver current to the coils and conductive electrodes are described, as well as a theoretical model of the process. The invention incorporates the concept of two cyclic expanding an collapsing magnetic fields which generate precise wave forms in conjunction with each other to create a beat frequency which in turn causes the ion flow in the nervous system of the human body to be efficiency moved along the nerve path where the locus of the pain exists to thereby reduce the pain. The wave forms are create either in one or more coils, one or more pairs of electrodes, or a combination of the two.

[Method and Apparatus for Translating the EEG into Music to induce and Control Carious Psychological and Physiological States and to Control a Musical Instrument](http://www.google.com/patents/US4883067)
Patent #: US4883067 A
Publication date: Nov 28, 1989
Filing date: May 15, 1987

Abstract:

A method and apparatus for applying a musical feedback signal to the human brain, or any other brain, to induce controllable psychological and physiological responses. A signal representing the ongoing electroencephalographic (EEG) signal of a brain preferably is obtained from the electrode location on the scalp known as CZ or P3 in clinical notation. A signal processor converts the ongoing EEG into electrical signals which are converted into music by synthesizers. The music is acoustically fed back to the brain after a time delay calculated to shift the phase of the feedback in order to reinforce specific or desired ongoing EEG activity from the scalp position of interest. The music is comprised of at least one voice that follows the moment-by-moment contour of the EEG in real time to reinforce the desired EEG activity. The music drives the brain into resonance with the music to provide a closed loop or physiological feedback effect. Preferably, the musical feedback comprises additional voices that embody psychoacoustic principles as well as provide the content and direction normally supplied by the therapist in conventional biofeedback. The invention contemplates numerous applications for the results obtained.

[Method for Stimulating the Falling Asleep and/or Relaxing Behavior of a Person and an Arrangement Therefor](http://www.google.com/patents/US4573449)
Patent #: US4573449 A
Publication date: Mar 4, 1986
Filing date: Mar 8, 1983

Abstract:

A method and apparatus is provided with which a person suffering from sleeplessness can be more easily relaxed and may more rapidly fall asleep. In particular, sound pulses are emitted by an electro-acoustic transducer, according to the cadence of which, the person seeking to fall asleep is induced to breathe in and out over a predetermined period of time. By suitably selecting the pulse sequence frequency, the pitch and the amplitude of the sound pulses may be adjusted thereby enhancing the process of falling asleep.

[Shadow Generating Apparatus](https://www.google.ch/patents/US4508105)
Patent #: US4508105 A
Publication date: Apr 2, 1985
Filing date: Feb 8, 1983

Abstract:

Disclosed is an apparatus for inducing various brain wave patterns through visual stimulation. The apparatus comprises a pair of spectacles or other viewing apparatus having a liquid crystal display embedded in each lens. By repetitively activating and deactivating the liquid crystals, shadows are generated which are perceived by the subject individual wearing the viewing apparatus. Responding to the frequency of shadow generation, the subject's brain is thereby induced to generate sympathetic brain wave frequencies. The apparatus finds particular utility in the generation of alpha waves. Because learning is enhanced when the brain is in the alpha state, activities such as listening to tapes or lectures and the like can be carried out with greater facility. Shadow generation is accomplished through the use of a timing mechanism for each liquid crystal display and the frequency for each is adjustable over a wide range, permitting synchronous or asynchronous timing.

[Method and Apparatus for Repetitively Producing a Noise-like Audible Signal](http://www.google.com/patents/US4191175)
Patent #: US4191175 A
Publication date: Mar 4, 1980
Filing date: Jan 16, 1978

Abstract:

A digital pulse generator and shift register repetitively produce bursts of digital pulses at a first adjustable repetition frequency. The repetition frequency of the pulses in each burst is also adjustable. A pink noise filter accentuates the lower burst frequency components near 7 hz and substantially attenuates all frequency components of the bursts above a first cut-off point near 10 Khz. A tunable band pass amplifier having a center frequency adjustable over a preselected range of frequencies optimally detectable by the average human ear accentuates the pink noise filter output near 2.6 Khz. The tunable amplifier drives an audible signal source with noise-like pulses of varying amplitudes and frequency components. A low pass amplifier may be connected to the pink noise filter to generate a train of pulses having a repetition frequency near 7 hz which pulses a light source in synchronism with the audible noise-like signal.

[Noise Generator and Transmitter](http://www.google.com/patents/US4034741)
Patent #: US4034741 A
Publication date: Jul 12, 1977
Filing date: Feb 17, 1976

Abstract:

An analgesic noise generator employs a circuit that can be switched to provide a variable waveform from an active noise source out of an integrated circuit amplifier.

[Multichannel System for and a Multifactorial Method of Controlling the Nervous System of a Living Organism](http://www.google.com/patents/US3967616)
Patent #: US3967616 A
Publication date: Jul 6, 1976
Filing date: Sep 5, 1974

Abstract:

A novel method for controlling the nervous system of a living organism for therapeutic and research purposes, among other applications, and an electronic system utilized in, and enabling the practice of, the invented method. Bioelectrical signals generated in specifictopological areas of the organism's nervous system, typically areas of the brain, are processed by the invented system so as to produce a sensory stimulus if the system detects the presence or absence, as the case may be, of certain characteristics in the waveform patterns of the bioelectrical signals being monitored. The coincidence of the same or different characteristics in two or more waveform patterns, or the non-coincidence thereof, may be correlated with a certain desired condition of the organism's nervous system; likewise, with respect to the coincidence or non-coincidence of different characteristics of a single waveform pattern. In any event, the sensory stimulus provided by the invented system, typically an audio or visual stimulus, or combination thereof, is fed back to the organism which associates its presence with the goal of achieving the desired condition of its nervous system. Responding to the stimulus, the organism can be trained to control the waveform patterns of the monitored bioelectrical signals and thereby, control its own nervous system. The results of the coincidence function permit results heretofore unobtainable.

[Method of Inducing and Maintaining Various Stages of Sleep in the Human Being](http://www.google.com/patents/US3884218)
Patent #: US3884218 A
Publication date: May 20, 1975
Filing date: Sep 30, 1970

Abstract:

A method of inducing sleep in a human being wherein an audio signal is generated comprising a familiar pleasing repetitive sound modulated by an EEG sleep pattern. The volume of the audio signal is adjusted to overcome the ambient noise and a subject can select a familiar repetitive sound most pleasing to himself.

[System and Method for Controlling the Nervous System of a Living Organism](http://www.google.com/patents/US3837331)
Patent #: US3837331 A
Publication date: Sep 24, 1974
Filing date: Oct 24, 1972

Abstract:

A novel method for controlling the nervous system of a living organism for therapeutic and research purposes, among other applications, and an electronic system utilized in, and enabling the practice of the invented method. Bioelectrical signals generated in specific topological areas of the organism's nervous system, typically areas of the brain, are processed by the invented system so as to produce an output signal which is in some way an analog of selected characteristics detected in the bioelectrical signal. The output of the system, typically an audio or visual signal, is fed back to the organism as a stimulus. Responding to the stimulus, the organism can be trained to control the waveform pattern of the bioelectrical signal generated in its own nervous system.

[Method for Obtaining Neurophysiological Effects](https://www.google.com/patents/US3835833)
Patent #: US3835833 A
Publication date: Sep 17, 1974
Filing date: Sep 21, 1972

Abstract:

A method and apparatus for obtaining neurophysiological effects on the central and/or peripheral systems of a patient. Electrodes are suitably positioned on the body of the patient and a composite electric signal is applied at the electrodes. The composite signal is formed by the superpositioning of two signals: a first signal which is a rectified high-frequency carrier modulated in amplitude to about 100 percent by substantially square-shaped pulses whose duration, amplitude and frequency are chosen according to the neurophysiological effects desidered, and a second signal which has a relatively white noise spectrum. The mean value of the first electric signal has a predetermined sign which is opposite the sign of the mean value of the second electric signal.

[Apparatus for the Treatment of Neuropsychic and Somatic Diseases with Heat, Light, Sound and vhf Electromagnetic Radiation](http://www.google.com/patents/US3773049)
Patent #: US3773049 A
Publication date: Nov 20, 1973
Filing date: Nov 13, 1970

Abstract:

An apparatus for the treatment of neuropsychic and somatic disorders wherein light-, sound-, VHF electromagnetic field-pulses and radiation from light-, sound-, VHF electromcagnetic field- and heat-sources, respectively, are simultaneously applied by means of a control unit to the patient's central nervous system with a predermined repetition rate. The light radiation and sound radiation sources are made so as to exert an adequate and monotonous influence of the light-and sound-radiation on the patient's visual analyzers and auditory analyzers, respectively.

[Hearing Aid for Producing Sensations in the Brain](https://www.google.com/patents/US3766331)
Patent #: US3766331 A
Publication date: Oct 16, 1973
Filing date: Nov 24, 1971

Abstract:

A pulsed oscillator or transmitter supplies energy to a pair of insulated electrodes mounted on a person's neck. The transmitter produces pulses of intensity greater than a predetermined threshold value and of a width and rate so as to produce the sensation of hearing without use of the auditory canal thereby providing a hearing system enabling otherwise deaf people to hear.

[Electronic System for the Stimulation of Biological Systems](http://www.google.com/patents/US3727616)
Patent #: US3727616 A
Publication date: Apr 17, 1973
Filing date: Jun 15, 1971

Abstract:

A receiver totally implanted within a living body is inductively coupled by two associated receiving coils to a physically unattached external transmitter which transmits two signals of different frequencies to the receiver via two associated transmitting coils. One of the signals from the transmitter provides the implanted receiver with precise control or stimulating signals which are demodulated and processed in a signal processor network in the receiver and then used by the body for stimulation of a nerve, for example, while the other signal provides the receiver with a continuous wave power signal which is rectified in the receiver to provide a source of electrical operating power for the receiver circuitry without need for an implanted battery.

[Method and Apparatus for Producing Swept Frequency-modulated Audio Signal Patterns for Inducing Sleep](http://www.google.com/patents/US3712292)
Patent #: US3712292 A
Publication date: Jan 23, 1973
Filing date: Jul 20, 1971

Abstract:

A method of producing sound signals for inducing sleep in a human being, and apparatus therefor together with REPRESENTATIONS thereof in recorded form, wherein an audio signal is generated representing a familiar, pleasing, repetitive sound, modulated by continuously sweeping frequencies in two selected frequency ranges having the dominant frequencies which occur in electrical wave patterns of the human brain during certain states of sleep. The volume of the audio signal is adjusted to mask the ambient noise and the subject can select any of several familiar, repetitive sounds most pleasing to him.

[Method and System for Simplifying Speech Waveforms](http://www.google.com/patents/US3647970)
Patent #: US3647970 A
Publication date: Mar 7, 1972
Filing date: Aug 29, 1968

Abstract:

A speech waveform is converted to a constant amplitude square wave in which the transitions between the amplitude extremes are spaced so as to carry the speech information. The system includes a pair of tuned amplifier circuits which act as high-pass filters having a 6 decibel per octave slope from 0 to 15,000 cycles followed by two stages, each comprised of an amplifier and clipper circuit, for converting the filtered waveform to a square wave. A radio transmitter and receiver having a plurality of separate channels within a conventional single side band transmitter bandwidth and a system for transmitting secure speech information are also disclosed.

[Sleep-inducing Method and Arrangement Using Modulated Sound and Light](https://www.google.com/patents/US3576185)
Patent #: US3576185 A
Publication date: Apr 27, 1971
Filing date: Jun 19, 1968

Abstract:
N/A

[Nervous System Excitation Device](http://www.google.com/patents/US3393279)
Patent #: US3393279 A
Publication date: Jul 16, 1968
Filing date: Mar 13, 1962

Abstract:

A method of transmitting audio information via a radio frequency signal modulated with the audio info through electrodes placed on the subject's skin, causing the sensation of hearing the audio information in the brain.

[Solid-state Non-lethal Directed Energy Weapon](https://www.google.com/patents/US7784390?dq=directed+energy+weapon&hl=en&sa=X&ved=0ahUKEwjK2peQz6rUAhVJJCYKHfZkC_sQ6AEIOzAD)
Patent #: US7784390 B1
Publication date: Aug 31, 2010
Filing date: Oct 4, 2007

Abstract:

There is disclosed a solid state non-lethal directed energy weapon. The non-lethal weapon may include a solid-state source to generate a high-power millimeter-wave initial wavefront, a main reflector, and a sub-reflector to reflect the initial wavefront to the main reflector. The main reflector may direct the reflected wavefront in a bore-sighted direction toward a target. The wavefront directed by the main reflector may have a power density selected to deliver a non-lethal deterring effect on the target.

[Dual Use RF Directed Energy Weapon and Imager](https://www.google.com/patents/US8049173?dq=directed+energy+weapon&hl=en&sa=X&ved=0ahUKEwjiwbr90KrUAhXDTCYKHUkWA64Q6AEILTAB)
Patent #: US8049173 B1
Publication date: Nov 1, 2011
Filing date: May 17, 2007

Abstract:

There is disclosed an dual use RF directed energy weapon and imager. A generator may provide a first beam of RF electromagnetic energy which may be directed to an object by a beam director. An imager may form an image of the object. The imager may share an aperture defined by the beam director.

[Outer Space Laser-Microwave Gun Tiangong Satellite](https://www.google.com/patents/CN103373478A?cl=en&dq=microwave+weapon&hl=en&sa=X&ved=0ahUKEwjN286M16rUAhUGMSYKHbhjA60Q6AEIMjAC)
Patent #: CN103373478 A
Publication date: Oct 30, 2013
Filing date: Apr 28, 2012

Abstract:

The invention relates to an outer space laser-microwave gun Tiangong satellite. The outer space laser-microwave gun Tiangong satellite comprises a satellite, the front end and the two sides of the satellite are respectively provided with a first laser gun, a second laser gun and a third laser gun; the front end of the satellite is further provided with a microwave weapon; the tail portion of the satellite is provided with a liquid gas tank; the liquid gas tank is connected with a piece of carbon nanofiber cloth; the carbon nanofiber cloth is provided with carbon fiber air tubes; the carbon fiber air tubes are communicated with the liquid gas tank; a layer of solar energy receiving film covers the carbon nanofiber cloth; one side of the carbon nanofiber cloth is provided with a sun aiming device, a horizon finder and a satellite tracker. The outer space laser-microwave gun Tiangong satellite has the advantages that the laser weapons can devastate outer space facilities of an energy, the microwave weapons can throw the outer space facilities of the energy into confusion, so that the outer space laser-microwave gun Tiangong satellite can be used for occupying commanding elevation of outer space warfare to vanquish the enemy and win the warfare.

[Physical Neural Network Liquid State Machine Utilizing Nanotechnology](https://www.google.com/patents/US7392230?dq=nanotechnology&hl=en&sa=X&ved=0ahUKEwin4Ofz4arUAhXIOiYKHeJdCQg4ChDoAQgvMAI)
Patent #: US7392230 B2
Publication date: Jun 24, 2008
Filing date: Dec 30, 2003

Abstract:

A physical neural network is disclosed, which comprises a liquid state machine. The physical neural network is configured from molecular connections located within a dielectric solvent between pre-synaptic and post-synaptic electrodes thereof, such that the molecular connections are strengthened or weakened according to an application of an electric field or a frequency thereof to provide physical neural network connections thereof. A supervised learning mechanism is associated with the liquid state machine, whereby connections strengths of the molecular connections are determined by pre-synaptic and post-synaptic activity respectively associated with the pre-synaptic and post-synaptic electrodes, wherein the liquid state machine comprises a dynamic fading memory mechanism.

[Neuromorphic Event-Driven Neural Computing Architecture in a Scalable Neural Network](https://www.google.com/patents/US20160224886)
Patent #: US20160224886 A1
Publication date: Aug 4, 2016
Filing date: Jan 6, 2016

Abstract:

An event-driven neural network includes a plurality of interconnected core circuits is provided. Each core circuit includes an electronic synapse array has multiple digital synapses interconnecting a plurality of digital electronic neurons. A synapse interconnects an axon of a pre-synaptic neuron with a dendrite of a post-synaptic neuron. A neuron integrates input spikes and generates a spike event in response to the integrated input spikes exceeding a threshold. Each core circuit also has a scheduler that receives a spike event and delivers the spike event to a selected axon in the synapse array based on a schedule for deterministic event delivery.

[Dual Deterministic and Stochastic Neurosynaptic Core Circuit](https://www.google.com/patents/US9558443)
Patent #: US9558443 B2
Publication date: Jan 31, 2017
Filing date: Aug 2, 2013

Abstract:

One embodiment provides a system comprising a memory device for maintaining deterministic neural data relating to a digital neuron and a logic circuit for deterministic neural computation and stochastic neural computation. Deterministic neural computation comprises processing a neuronal state of the neuron based on the deterministic neural data maintained. Stochastic neural computation comprises generating stochastic neural data relating to the neuron and processing the neuronal state of the neuron based on the stochastic neural data generated.

[Self-Focusing Antenna System](http://www.google.com/patents/US3174150)
Patent #: US3174150 A
Publication date: Mar 16, 1965
Filing date: Jun 29, 1962

Abstract:
N/A

[Systems and Methods for Altering Brain and Body Functions
and for Treating Conditions and Diseases of the Same](https://www.google.com/patents/US20090312817?dq=darpa+brain&hl=en&sa=X&ved=0ahUKEwio4dfp8qrUAhXI7SYKHSA3CbsQ6AEIKTAB)
Patent #: US20090312817 A1
Publication date: Dec 17, 2009
Filing date: Oct 26, 2007

Abstract:

The present invention relates to systems and methods for management of brain and body functions and sensory perception. For example, the present invention provides systems and methods of sensory substitution and sensory enhancement (augmentation) as well as motor control enhancement. The present invention also provides systems and methods of treating diseases and conditions, as well as providing enhanced physical and mental health and performance through sensory substitution, sensory enhancement, and related effects.