Nano Implant in the Brain

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***Abstract*— Computer scientists says that next twenty years neural interfaces will be designed that not only increase the dynamic range of senses, but also enhance memory and enable "cyberthink" invisible communication with others. This technology make easy to reliable and constant access to information when and where it is needed. The moral evaluation in this paper focus on issues of safety and knowledgeable permission, manufacturing and scientific responsibility, anxieties about the psychological nature of human impacts, worries about possible usage in childrens and old aged peoples, worries about privacy and autonomy. In this technology is changing human nature, for attack of privacy and for legislative control of individuals, public discussion about its benefits and burdens should be initiated, rather than left to coincidence, experts and vagaries of the gainful market. The paper is on the above topics, about the evolutionary events towards this skill, the achievement attain till today in the field, the benefits of implant chips,**

Index Terms — Brain chips, evolutionary events, Neural Networks, achievements, benefits.

I. INTRODUCTION

The progression and growth of mankind began held before thousands and thousands of years ago. now our intelligence, our brain is a resultant of a long developmental period. Technology also has been on the trail of developmental phase . since when man appeared. But today, technology is entering a phase where it will outwit man in intelligence as well as efficiency. Man has now to find a way in which he can keep in speed with skill, and the main developments in this view is the brain chip implants. Brain chips are made with a view to enhance or increase the memory of human beings, to help paralyzed patients, and also intended to serve military purposes. It is likely that implantable brain chips acting as sensors or actuators, may soon support not only fading memory, but also increase the confidence in a new language. The progress already made in remedial devices, in prosthetics and in computer science it indicates that it may feasible to develop the direct interfaces between the brain and the computers.This technology is now only under the developmental phase,although many implants have already been made on the human brain for experiments. Let's take a look at this developing technology.

II. EVOLUTION TOWARDS IMPLANTABLE BRAIN CHIPS

In Worldwide there are at least three million or above peoples living with the artificial implants. In particular, the research on the topic cochlear implant and retinal vision have furthered the development of interfaces between neural tissues and silicon substrate micro probes. There are many researches in order to increase or enable the technology of implanting chips in the brain to expand. Some of them are mention below.

Fig 1: brain chip

A. The Study of the Brain

The study of the human brain is the most complicated area of research. When we enter a debate on this topic, the works of JOSE MANUEL RODRIGUEZ DELGADO need to be mentioned. Delgado stepped into the ring with a bull which had had a stimoceiver implanted within its brain. The bull stimulating Delgado, who press a remote control button which caused the bull to stop its blame. Always one for theatrics, he tape this stunt and it can be seen today. Much of the work taking lay at the NIH, Stanford and in another place is built on research done in the 1950s, Jose Delgado implanted electrodes in animal brains and attached them with a "stimoceiver" under the cranium. This device transmit radio signal throughout the electrodes in a technique is called the electronic stimulation of the brain, and culminate in a now-legendary discharge, in the early 1960s, of Delgado scheming a live bull with an electronic screen .

Fig 2: Delgado Controls An Angry Bull
by Electrical Stimulation of the Brain

According to Delgado, "One of the potential with brain transmitters is that it influence citizens so that they match to the political system. Autonomic and somatic functions, a person and community behavior, emotional and mental response, maintain, customized, or reserved, both animals and man, by inspiration of specific intellectual structures. Physical power of brain functions is established . It is even possible to track intention, the growth of jose delgado' thinking and illustration experiences. monkeys and cats like ―little electronic toys that yawn, hide, brawl, play, mate and go to sleep on rule. we can only provide the control they will take action like that . The person is weak against direct treatment of the brain [Delgado, *Physical Control*]. [3]
Such experiments were done even on human beings. study in human subjects with fixed electrodes have established that electrical stimulation of the depth of brain we can induce pleasant manifestation, as evidence by the natural verbal reports of patients, the facial appearance and common performance, and their want to repeat the experience. With such experiments, he extended many of the mysteries of the BRAIN, which contribute to the development in brain insert technology. For e.g.: he understand how the feeling of pain could be reduced by interesting the forward lobes of the brain.
Delgado was born in Rondo, Spain, he is not a medical doctor or even a vet, but merely a biologist with a degree from Madrid University. He, however, became an specialist in neuro behavioral investigate and by the time he published his book (*Physical Control of the Mind)* in 1969, he had more than 200 publishing credit to his name. His investigate was sponsored by Yale University, basics Fund for investigate in psychoanalysis, United States Public Health Service1, Office of Naval Research2, United States Air Force 657-1st Aero medical Research Laboratory3, Neuro investigate base, and the Spanish Council for Scientific learning,
among others.[3]

B. Neural Networks

Neural networks are freely model on the networks of
neurons in organic systems. They can learn to perform complex jobs. They are especially useful at recognizing patterns, classify data, and giving out noisy signals. They have a distributed associative recall which gives the ability to learn and simplify.
The learning of artificial neural networks has also added to the data required to make brain chips. They rudely imitate the fundamental properties of the brain. Researchers are working in both biological and engineering field to extra decipher the key mechanisms of how man learn and react to daily experience. The physiological evidence from the brain are follow to make these networks. Then the model is analyzed and replication and compare with the brain. If any inconsistency is marked between the model and brain, the initial theory is changed and model is modified. This process is repeat until the model behave in the same method as the brain. When finally a network model which resemble the brain in every feature is shaped, it will be a main advance in the evolution towards implantable brain chip.[6]

III. ACHIEVEMENTS IN THE FIELD

The achievements in the field of implantable chips, bio chips, so distant are important. Some of them are mention below:

A. Brain "Pacemakers"

Researchers at the turning point of medicine and electronics are developing implantable silicon neurons that one day could take away the functions of a part of the brain that has been injured by stroke, epilepsy or Alzheimer's disease. The U.S. Food and Drug management have approve implantable neurostimulators and drug pumps for the treatment of chronic pain, spasticity and diabetes, according to a anchor for Medtronic Inc. (Minneapolis). A sponsor of the Capri meeting, Medtronic says it is by now delivering profit in neural engineering through its Activa therapy, which use an implantable neuro stimulator, commonly called a brain pacemaker, to treat symptom of Parkinson's disease.
Surgeons implant a lean, insulated, coiled wire with four electrodes at the list, and then thread an extension of that wire under the skin from head, down the neck and into the upper chest. That wire is attached to the neuro stimulator, a tiny, preserved patient-controlled device that produces electrical pulses to motivate the brain. These implants have helped patients suffering from Parkinson's disease to a large scope.[1]

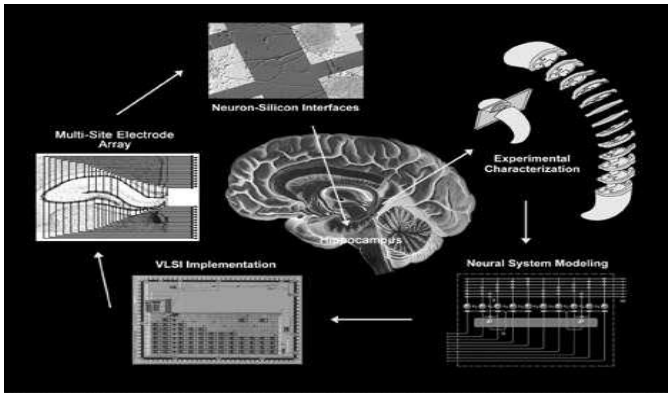

Fig 3 :Computer chip model of neural function for implanted brain prostheses

B. At Emory University – The Mental Mouse:

Dr. Philip R. Kennedy, an [sic] clinical Ass. professor of neurology at Emory University in Georgia, reported that a paralyzed man was proficient to manage a cursor with a cone-shaped, glass implant. Each [neuro trophic electrode] consists of a empty glass cone about the size of a fountain pen tip.
The implants…have an electrode that pick up impulse from the nerve ending. Before they are implanted, the cones are covered with chemicals — empty from tissue within the patients' own knees — to support nerve growth. The implants are then placed in the brain's motor cortex — which
manage body movement — and over the path of the next few months the chemicals give confidence nerve cells to grow and connect to the electrodes. A transmitter just inside the

skull pick up the signals from the cones and translate these into pointer commands on the computer. [4]

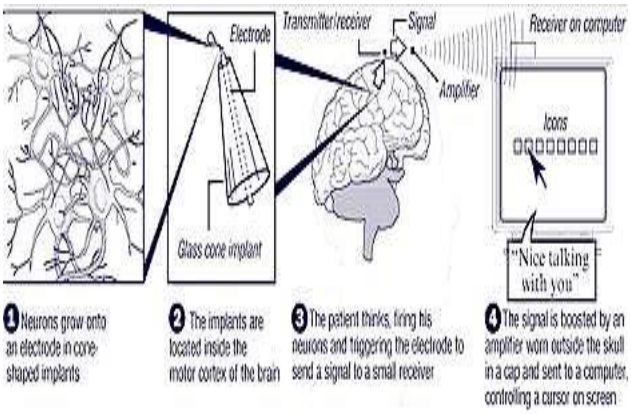

Fig 4 : Glass cone implants

IV. BENEFITS OF IMPLANTABLE CHIPS

The future may well engage the realism of science fiction cyborg, persons who have developed some close and rarely association with a machine. It is probable that implantable computer chips acting as sensors, or actuators, may soon assist not only weakening memory, but even give confidence in a new language, or facilitate "recognition" of formerly unmet persons. The improvement already made in therapeutic devices, in prosthetics and in computer science indicates that it may well be possible to expand direct interface between the brain and computers. Computer scientists guess that within the next twenty years neural interfaces will be designed that will not only increase the active range of senses, but will also improve the memory and allow "cyberthink" — invisible announcement with others. This technology will make easy to dependable and constant access to information when and where it is needed. The connection of smaller, lighter, and more powerful computer systems with radio technologies will allow users to access information and commune anywhere or anytime. [5]

A. Benefits

1) It will raise the dynamic range of mind, enabling, for example, seeing IR, UV, and chemical spectra;
2) It will improve memory;
3) It will allow "cyberthink" — hidden communication with others when making decisions
4) It will allow reliable and stable access to information where and when it is needed.

For many enhancements will create major improvements in the excellence of life, or their survivability, or their act in a job. The first prototype devices for these improvements in human functioning should be available in five years, with the military prototypes opening within ten years, and information workers using prototypes within fifteen years; general acceptance will take approximately twenty to thirty years. The brain chip will most likely function as a prosthetic cortical implant. The user's image cortex will receive inspiration from a computer based moreover on what a camera sees or based on an artificial "window" interface. give completely paralyzed patients full mental control of robotic limbs or communiqué devices has extended been a dream of those working to free such persons from their imprisoned state. Now this dream is on the edge of reality[2]

V. CONCLUTION

"Neuroscience," was wrote author Tom Wolfe in *Forbes* magazine a couple years ago, "is on the threshold of a united theory that determination have an collision as controlling as that of Darwinism a hundred years ago." Wolfe is wowed by the mixture of powerful imaging and tracking technologies that now allow scientists not only to watch the brain "as it functions"-- not only to identify center of feeling "lighting up" in response to stimuli, but to trail a thought as it proceeds along neural pathways and traverses the brainscape on its way to the great.

As we become more needy on biotechnology, the standards of what is "alive" will be up for grabs. Take a seem at The Tissue Culture and Art Project's semi livelihood concern dolls, refined in a bioreactor by increasing living cells on imitation scaffold, or the Pig Wings project, It will be several years before we see a sensible application of the technology we've discussed. Let's hope such technologies will be used for restoring the affluence and peace of the world and not to give the world a appalling end.

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