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Replacement of Human Organs with Artificial Organs Using Cyborg Technology

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***Abstract*: In depth of the 21 century there is a major trend to enhance the body with "cyborg technology". cyborg, is the man of and machine and in scope from creating computers that have human attributes, such as independent thinking and the ability to learn, to the artificial organs like heart, lungs, and a variety of synthetic implants. Cyborg that in the future mankind will use science and technology to transform into a virtually immortal being but still they are human, but with machine parts that perfect natural organs, muscles, and bone. In this society, cyborgs have taken on a new meaning, particularly as computers have become more powerful and ubiquitous. In the future while religious and any ethical questions about cyborgs remain, people no longer fear machines that out think, outperform, and are physically very powerful than humans. Science fiction, movies, portraying the cyborg-driven future have not only dispelled fear, but actually set expectations for further advances in providing computers with human attributes and vice versa for the betterment of both.**

***Keywords*: Cyborg, Artificial Organs, Technology of Cyborg, Man Machine.**

1. Introduction

Cyborgs is only a human machine every one of the pieces of the people organs will be supplanted with machine. The term Cyborg signifies 'Computerized Organs'.

It is the interdisciplinary investigation of the structure of the administrative framework. Computer science is firmly identified with control hypothesis and framework hypothesis. Robotics started with the investigation of associating the fields of electrical system hypothesis, mechanical designing, rationale model, developmental science, neuroscience and so forth. Cyborgs are started from the idea of computer science, which is alluded as a blend of both creature and innovation. At the point when a life form is half machine and half human then it calls as Cyborg. The procedure of every one of these things turning into a cyborg is known as Cyborgation. Dr. Kelvin Warwick is the heads the Cyborgs living today. The Cybernetics Department at the University of Reading in the United Kingdom and has made the principal strides on this way, utilizing himself as a test getting the subject, by careful activity, innovative inserts associated with his focal sensory system, and Brain capacities. The world's first Cyborg was a white guinea pig, the program held in the late of 1950's at New York's Rockland State. The white rodent had embedded in its body a minor osmotic siphon that infused correctly controlled dosages of synthetic concoctions, adjusting a few of its physiological parameters now it was part creature, part machine like this in future the people will be seen.

2. Evolution

The Evolution of the Cyborg The replacement of parts of the human body with machines has been simplified and schematized in a model of four stages, The following

1. Stage I Cyborg: Replacement or augmentation of the human skeleton.
2. Stage II Cyborg: Replacement or augmentation of muscle.
3. Stage III Cyborg: Replacement or augmentation of parts of the peripheral nervous system, autonomic nervous system.
4. Stage IV Cyborg: Replacement for augmentation of parts of the central nervous system.

3. Cyborg future technologies and innovations

A. 3D printed bones

Hyper elastic bone is a "3D-printed manufactured framework," comprising essentially of bone mineral like hydroxyapatite and a broadly utilized biocompatible material like polyglycolic corrosive. Hyper elastic bone comprises of a mind boggling latticework, it is essentially used to planned and to help the development and recovery of new bone. It [TO1] can be rapidly and reasonably delivered utilizing current 3D printing equipment stages and is pliable enough to be press-fit or cut into shape during medical procedure.

Enhancement	Description	Significant Example
I. General External Enhancements to the Body		
Prostheses to Replace or Restore Lost Functions		

Prostheses are becoming more controllable through the use of control theory principles, and are integrally connected to the body, upgradable, and under some circumstances controlled by thought via a brain– computer interface (which may or may not be wireless).

Limb Prostheses to Restore Mobility	Artificial limb replacement with multiple degrees of freedom, more and more controllable by thought	• DEKA Arm's, among other, myoelectric and brain-controlled prosthesis. See also 'modifying the brain' in part III of this table.
Retinal Prosthesis to Restore Vision.	Rectify visual sense degradation; provide enhancement to visual sense.	Implantable Miniature Telescope for treatment of AMD (age-related macular degeneration)

Computing Attachment as Enhancement

Increasing our computational resources through technology directly integrated with our bodies allows us to scale our capabilities, senses, and interaction with our environment and with external technology. Insomuch as wearable computing integrates with our senses and responds to our thoughts, it represents a significant move towards becoming a cyborg.

Computing Device Worn by the Body.	Extraneous computing directly integrated with prosthetic part.	Jerry Jalava's USB Fingertip.
Computing Grafted onto the Body.	Attached computing device providing sensory input .	Neil Harbisson's "Eyeborg" auditory-augmented vision, allows color to be heard.
Epidermal Enhancement	Epidermal printed circuits • on the surface of the skin	Biostamp digital tattoo interacts with smartphones

II. Enhancement Technology Implanted Within Body

Passive Implant

Cyborg technology implanted within the body, such technology might not interact with the body through a feedback loop but be worn by the body, either collecting or storing information.

Interactive implanted chips/LEDs	LED tattoos' programmable lights

Interfacing with Nervous System

This class of implants are more thoroughly integrated with the body and provide higher levels of integration with the wearer. Through this integration, the feedback loops their systems create can be considered artificial extensions of our own body's.

Direct Nervous System Interfacing	Nerve to nerve and nerve to machine communication	Kevin Warwick's proof-ofconcept research allowing him to control a robot arm and to create artificial sensation (Warwick also experimented with BrainGate technology which is a neural interface allowing movement of an external device using thought)
Recreating Sensation	Computer generated sensation transmitted to nerves	"Bionic" fingertip creates sensation of roughness in amputee
III. Brain Enhancement or Modification		

Neuron Control

Technologies that directly interface with the brain are the height of cyborg integration. This first class deals with interfaces with the least specificity, generally used to suppress large groups of neuron clusters affected by disease.

Suppressing Neuron Activity	Implants to control neuron groups	Deep brain stimulation for treatment of movement disorders
	External brain stimulation	Transcranial direct-current stimulation for treatment of depression (and others)

Reading the Mind

To interface with the brain, technology is required to observe neuron activity and technology is required to affect specific neuron groups. Neuron activity is first measured, then translated by a computer, and finally sent as some form of output, the most compelling of which are affective of other neuron groups—that is, a direct mind link. Telepathy, new sensations, and expanded senses are all resultant technologies from this area of cyborg enhancement.

Interacting with Technology	Linking thoughts of movement with limbs	Battelle Memorial Institute partially restores motor control in paralyzed hand via brain chip
		Similar techniques can be used to control a robotic arm
Modifying the Brain	Linking thoughts between subjects	Electroencephalogram linked minds coordinated in virtual game
	Linking sensory areas between subjects	Miguel Nicolelis directly linked senses between two animal subjects

Influencing Memory

The specificity required to read and create neuron activity in relation to senses and thought can also be applied to memory, the recursive core of the human self. Cyborg technologies that influence memory can create and dismantle identity as well as cure degenerative disease, assist in learning, and expand knowledge bases.

Memory Encoding	Aid in memory creation	Theodore Berger's artificial hippocampus
	Aid in memory retrieval	DARPA Restoring Active Memory program
Memory Content	Memory modification	MIT's Ramirez & Liu creating false memories in lab mice

B. Chipim plants

A human microchip embed is normally a distinguishing incorporated circuit gadget or RFID transponder encased in silicate glass and embedded in the body of a person. This kind of subdermal embed normally contains a one of a kind ID number that can be connected to data contained in an outer database, for example, individual ID, law authorization, medicinal history, prescriptions, sensitivities, and contact data.

C. Bio printed organs

Bio printers work on the equal concept as 3-d printers. The key difference among the two is that bio printers deposit layers of biomaterial instead, which might also consist of living cells, to build complex structures like blood vessels or skin tissue. To try this the specified cells are taken from the patient after which cultivated till there are enough to create the bio-ink, which is then loaded into the printer.

D. Brain to computer interface

Brain–computer interfaces or BCI are systems that use alerts recorded from the brain to permit communication and manipulate applications for individuals who have no longer paired the function. This has developed to the factor that it's far now being used by those who can without a doubt benefit from this technology. However, there are numerous variety of issues that save you enormous use. These encompass the convenience of acquiring incredible recordings with the aid of the home users, the rate, and the accuracy of contemporary devices and adapting various programs to the desires of the user.

E. Replica nose

In the Netherlands, the e-Nose Company has developing a replica human nostril that can correctly carry out artificial olfaction – in different words, smelling without a real organic nostril. This programs encompass screening illnesses through frame order evaluation and equipping regulation enforcement teams with the nasal sensitivity of sniffer puppies.

F. Enhanced immune systems

The stronger immune device is a bunch defense system as compared to the numerous organic structures and strategies within an organism that protects in opposition to several disorder. To characteristic well, The immune gadget need to hit upon a widely numerous sorts of marketers, referred to as pathogens, from viruses to parasitic worms, and distinguish them from the organism's very own wholesome tissue.

G. Bioniceye's

It's a synthetic eye which provide visible experience to the brain. It encompasses electronic structures having photo sensors, microprocessors, receivers, radio transmitters and retinal chips and also diverse sorts of lens. This technology assists to the blind people to get imaginative and prescient again. It encompasses a laptop chip that's saved inside the again of effected character eye and linked with a mini video camera built into glasses. Then a picture captured by using the camera are focused to the chip which converts it into electronic sign that mind can interpret. The snap shots produced by way of Bionic eye were no longer be too much best but they will be clean enough to apprehend the matters.

H. Cochlear implants

It is a small digital tool that electrically stimulates the cochlear nerve mean nerve for listening to. The cochlear implant has external and internal parts the outside element sits behind the ear. It picks up sounds with a microphone. Then it processes the sound and transmits it to the inner a part of the cochlear implant.

I. Exoskeletons

The exoskeletons or external skeleton that supports and protects an animal's frame, in comparison to the internal skeleton or endoskeleton of, as an example, a human. In usage, some of the bigger styles of exoskeletons are called "shells". An examples of animals with exoskeletons consist of bugs which include grasshoppers and cockroaches, and crustaceans including crabs and lobsters.

J. Designer babies

In the simple manner, a designer toddler is a GM human embryo with appropriate traits that have been formed as per the

instructions received from their mother and father. These cuts are restored through nonhomologous cease joining or may be homologous recombination that result in the favored edits. By the usage of molecular scissors, cuts may be made at positive places of the genome baby. Specifically, fashion designer babies had been conceived so that youngsters could be unfastened from any lifestyles-threatening disorder and additionally the genetic disorders.

4. Conclusion

Finally, I would like to say that if the future is full of intelligent robots than to protect mankind we will must need some TERMINATORs. They all are CYBORGS. Because by making human CYBORGS we may have following extra ordinary capabilities… I think by 2070 we're going to see people able to communicate between each other by thought signals alone, so no more need for old fashioned signaling like mobiles, computers, etc. we'll be able to think to each other via implants. Linking myself up via an implant to a computer, my nervous system, electronic signals connected to the electronic.

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