



Short Communication

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Artificial Intelligence Engineering for Cyborg Technology Implementation



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Keywords: Artificial intelligence; Cyborg technology; Neuron command operating devices; Cyborg intelligence; Brain computer interfaces; Cyborg analysis design; Bionic organs; Medical robotics domains; Human biology

Abbreviations: CAD: Cyborg Analysis Design; BCI: Brain Computer Interfaces; NCOD: Neuron Command Operating Devices; CI: Cyborg Intelligence

Introduction

As humans live longer there is a growing need for availability of organs for transplant however shortage in donations necessitates the development of artificial alternatives with AI often called "Bionic". Advances in medicine have led to the availability of artificial blood, replacement joints, heart valves, and heart-lung machines that are common implanted using AI for Bionic organs. One of the primary and utilitarian goals of artificial intelligence research is to develop machines with human-like intelligence. Great progress has been made since the start of AI as a field of study. One dominating research paradigm in AI has been based on the assumption that various aspects of human intelligence can be described and understood well enough to the extent that it can be simulated by computer programs through smart representational frameworks and generic reasoning mechanisms. Now a day's fusion take place Biological beings and computer systems share some common physical foundations. Communication in both biological nervous systems and computer systems, for example, depends on electrical signals. Yet, the gap between these two classes of vastly different systems is obvious and bridge with "Cyborg Intelligence".

Since researchers and practitioners confused between Bionic/AI and Cyborg, let me clear in last attempt to it. As I discussed already Bionic is biological functions, methods, systems and procedures mimic electronically with neuron interfacing but Cyborg is another possibility in Medical Robotics domains. Cyborg "Cybernetic organism" is a being with both organic and Biomechatronic body parts using which human can increase their power in all means and branch of study is "Cyborgology".

Modeling

Cyborg analysis design (CAD) model

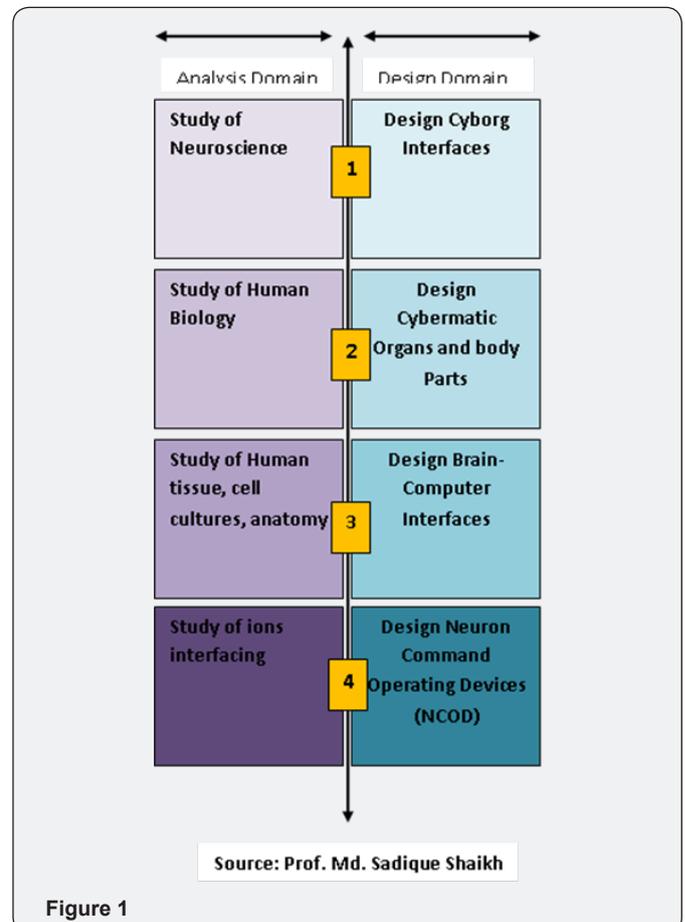


Figure 1

This is first model and with the help of this display I want to clarify the fundamental analysis and designing issues for Cyborg engineering. This model based on four tiers 1 to 4 with further split each stage Analysis domain and Design domain. At first stage detail studies need to carry of Neuroscience theory to analyzed Cyborg with intention what you want to engineer and in design domain design Cyborg interfaces accordingly. At the stage two researchers have to study very first human biology and anatomy and functions of biological organs to interface and synch with Cybermatic parts and at design domain devices engineer and fabricated accordingly. At stage three studies of bio-membranes, tissues, cells and anatomy have to make to design “Brain Computer Interfaces (BCI)” with ions-electrons commands and signals exchange to establish communication between biological and electronic system. In last stage bio-potential and how to interface ions with electronic devices need to carry to engineer “Neuron Command Operating Devices (NCOD)” /Cybermatic devices (Figure 1) [1].

Cyborg interface support model

In continuation of first model this is second exhibit “Cyborg Interface and Support” engineering model to implement Cyborg Intelligence. It is based on four criterions with further division into two domains (Figure 2) [2,3].

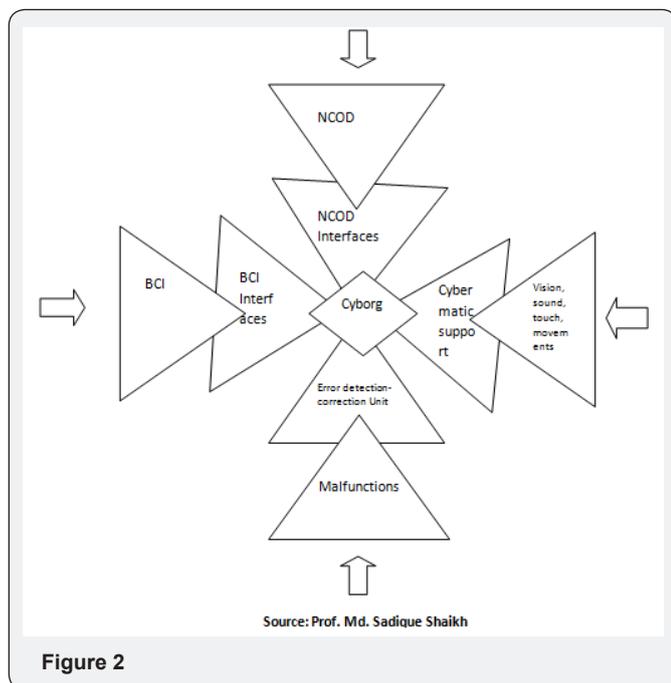


Figure 2

Instead of sequential it is random model but covered four most important designing issues to implement Cyborg Intelligence (CI). We need to design strong Brain Computer Interface with depth BCI engineering and how to synch biological system with electronic system in short precise system engineering need. Another aspect is How to design Neuron Command Operating Devices (NCOD) and how to interface NCOD with biological system. Next important thing is how to analyze and design Vision, Sound, touch and Movements with NCOD for Cybermatic support engineering. The last important engineering issue which we can not neglect, since Cybermatic devices 24 hours functional with human body lot of chances of malfunction due to continuous processing hence “Error detection and correction” engineering is important for continuous accurate error free working [4,5].

Conclusion

With the help of this short communication I tried to understand what engineering parameters and steps are important and where have to change from routine AI engineering for Cyborg technology implementation with discussing two models Cyborg Analysis Designing model and Cyborg Interfaces Support model lucidly.

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