

# Modeling of bionic brain for humanoid robotics application

## Abstract

Bionic Brain Engineering using Ultra artificial Intelligence (UAI) like Natural Intelligence (NI) for Humanoid became one of the biggest research areas in the field of AI and Robotics. Hence for human-like intelligence human brain mimic electronically strongly required called “Bionic” Biological like Electronic Brain with mapping and engineering exactly Natural Intelligence NI (God made) into Artificial Intelligence AI (Man made). In this direction I have developed and discussed two models “Bionic Diamond” and “Bionic Brain Engineering Model” in this article.

**Keywords:** bionic brain, ultra artificial intelligence, artificial intelligence, natural intelligence, bionic diamond, bionic brain engineering model

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## Bionic

*BIONICS* is a common term for bio-inspired information technology, typically including three types of systems, namely:

- Bio-morphic (eg neuromorphic) and bio-inspired electronic/optical devices,
- Autonomous artificial sensor-processor-activator prostheses and various devices built into the human body, and
- Living-artificial interactive symbioses, e.g. brain-controlled devices or robots.

In spite of some restrictive use of the term ‘bionics’ in popular culture, as well as the unfulfilled promises in the fields of neural networks, artificial intelligence, soft computing and other ‘oversold’ areas, it was agreed that the name *bionics* as defined above is the right one for the emergent technology also described as bio-inspired information technology (some people are suggesting *info-bionics*). There are numerous programs at several funding agencies which are supporting parts of this field under various other names.<sup>1,5</sup>

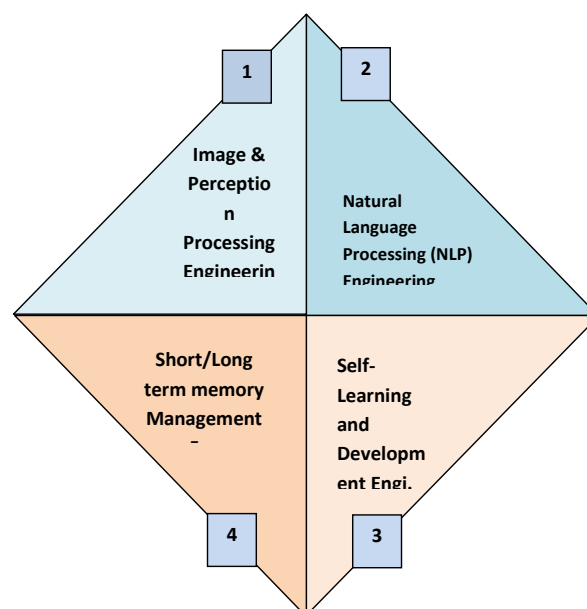
## Bionic brain

Bionic Brain stand for “Biological-like-Electronic” Brain with Mimic Natural Intelligence, Artificially on Silicon Chip which gives similar functioning to Humanoid (Human like Robots) like Biological Brain of human being (Refer my complete paper mentioned in reference no.2 for depth).

## Modeling

### Bionic diamond

This is my first purposed model using which I want to understand to young researchers what are very important at fundamental level engineering in Bionic Brain for Humanoid as shown in Bionic Diamond. It is based on four essential parameters are Image & perception processing engineering to engineer human like sensation using artificial cognition.<sup>6</sup> The second is Natural language Processing (NLP) as similar like human being with proper interpretation and lexical. Another two important aspects are self-learning and development engineering with short/long term memory management units (Figure 1).

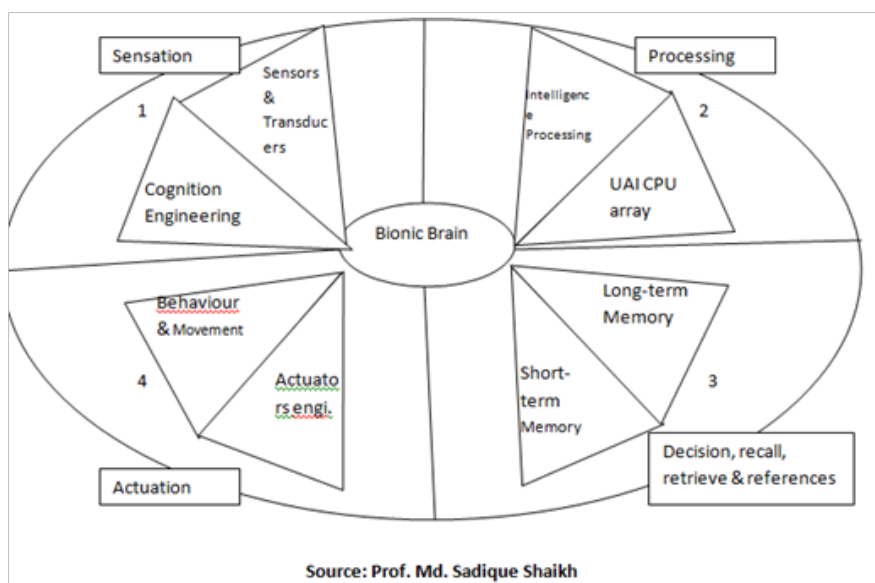


Source: Prof. Md. Sadique

**Figure 1** Bionic diamond.

### Bionic brain engineering model

In above exhibit I display four important domains Sensations, Processing, decision, retrieve and references and actuation for Bionic Brain Modeling with classified each into two sub criteria's. The first designing issue is sensation split as Cognition and sensors & transducers engineering for biological/environmental inputs with precise calibrations. Processing is further segmented to carry engineering on two factors intelligence and UAI-CPUs array which the main brain of overall humanoid. At third level Decision, recall, retrieve and references engineering required with Long/Short term memory management and at forth for responsiveness and human-like action from humanoid genuine engineering need at actuation with two domains Actuators and motors engineering and behavior & Movement engineering (Figure 2).



**Figure 2** Bionic brain engineering model.

## Conclusion

In present paper I discussed very lucidly how we can analyzed and engineer Bionic Brain using UAI like NI with help of Bionic Diamond and Bionic Brain Engineering Model. This piece of research would be very useful who want to start research in the direction of Bionic Brain, Humanoid and Ultra Artificial Intelligence (UAI).

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## Conflicts of interest

The author declares there are no conflicts of interest.

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