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Insight Bionic Brain Engineering

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ABSTRACT

Artificial Intelligence and its advanced level integration open path to several new technologies like Bionic and Cyborg. Present work discussed about Bionic hence I am not focus to Cyborg now which is equally emerging research. I have started my working on Bionic since last 13 years and in results came out with several possible solution from those one I am discussing here through developed model. This model specially emphasized Bionic Brain engineering in Humanoid for Human like Natural Intelligence and thinking processing abilities with engineered Ultra Artificial Intelligence (UAI).

Keywords: *Bionic, BMM Model, AI, Humanoid, UAI;*

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.

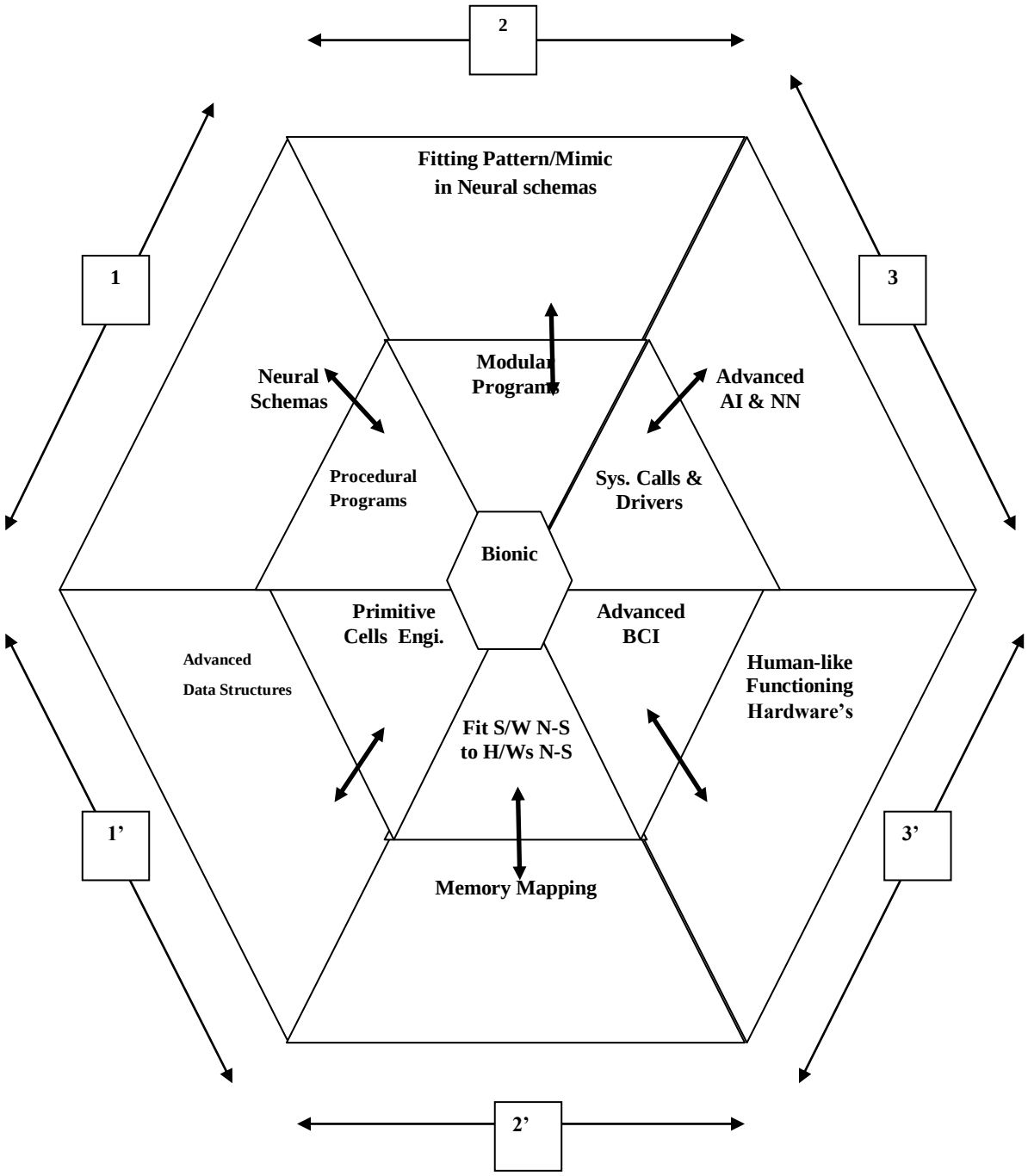
In spite of some restrictive use of the term 'bionics' in popular culture, as well as the unfulfilled promises in the fields of neural networks, artificial intelligence, soft computing and other 'oversold' areas, it was agreed that the name *bionics* as defined above is the right one for the emergent 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 [1,5].

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). Scientists are beginning to look much more closely at the mechanisms of the brain and the way it learns, evolves and develops intelligence from a sense of being conscious (Aleksander, 2002). For example, AI software designers are beginning to team up with cognitive psychologists and use cognitive science concepts. Another example centers upon the work of the 'connectionists' who draw attention to computer architecture , arguing that the arrangement of most symbolic AI programs is fundamentally incapable of exhibiting the essential characteristics of intelligence to any useful degree. As an alternative, connectionists aim to develop AI t rough artificial neural networks (ANNs). Based on the structure of the nervous system, these 'computational-cognitive models' are designed to exhibit some form of learning and 'common-sense' by drawing links between meanings (Hsiung,2002). ANNs, then, work in a similar fashion to the brain: as information comes in, connections among processing nodes are either strengthened (if the new evidence is consistent) or weakened (if the link seems false) (Khan, 2002).The emergence of ANNs reflects an underlying paradigm change within the AI research community and, as a result, such systems have undeniably received much attention of late. However, regardless of their success in creating interest, the fact remains that ANNs have not nearly been able to replace symbolic AI. As Grosz and Davis (1994) remark: *'[Symbolic AI has] produced the technology that underlies the few thousand knowledge-based expert systems used in industry today.'* A major challenge for the next decade, then, is to significantly extend this foundation to make possible new kinds of high-impact application systems. A second major challenge will be to ensure that AI

continues to integrate with related areas of computing research and other fields (Doyle and Dean, 1996). For example, the kinds of developments described for nanotechnology may go some way to accelerating progress in AI, particularly through the sensor interface. For these reasons, the list of main research areas that follows should be regarded as neither exhaustive nor clear-cut. Indeed, future categorizations will again c [2,4].

BIONIC BRAIN MODELING



SOURCE: *Prof. Md. Sadique Shaikh*

This is my purposed model through which I would like to explain what are the essential conditions and what factors, parameters and domains must have to consider while want to engineer Bionic Brain. I had split this model in to two parts viz. Software and Hardware parts, where Software part subdivide into three sections 1, 2 and 3 and similarly Hardware into

three sections 1', 2' and 3'.To discussing software engineering requirements for Bionic Brain now I assumed major domains need to be engineer precisely are Neural Schemas, Fitting pattern/Mimic in Neural Schemas and Advanced Artificial Intelligence and Artificial Neural Network. These sections further depth and followed by Procedural programs, Modular programs and Sys calls & Drivers respectively. In the section 1 neural schemas analyzed and designed using neuroscience theory from life sciences to make decision what kind of Bionic Brain want to design its copied/mimic from natural intelligence or its own unique and different depend and to achieve its functionality we need strong procedural programming to develop and implement accurate thinking and processing human-like artificial brain model. Another level is how to fit pattern or mimic or copied of biological brain neural network into artificial neural schemas to transfer Natural Intelligence of Biological Brain into Bionic Brain electronically and to obtain this stage also used to Modular programming according to several schemas. The third essential engineering need to implement [3] successful Bionic Brain is Advanced Super/Ultra Artificial Intelligence (S/UAI) and Artificial Neural Network (ANN) where analysis and designing finalized with all decisions and refining stage 1 and 2 at stage 3 and for its functionality must need to design and develop Sys. Calls, Subroutines and Drivers in depth. Second part hardware also classified in similar manner into three sections and first 1' is advanced data structures where data structures must be engineer according and fit/map to neural schemas and to achieve further in depth primitive cells engineering required with treating single primitive as single neuron. The most important stage in hardware side is 2' "Memory mapping" to burn software Neural schemas into Hardware Neural schemas and vise versa engineering need in detail. To work all assembly human-like need to engineer and develop human-like hardware's, movement, NLP, image processing, behaviour, thinking and so on possible to control with enhance engineering in same domain for BCI (Brain Computer Interfacing) at 3'.

Conclusion

Now after discussion I would like to conclude my words. I have communicated how one can get insight to Bionic Brain engineering with special interest to Humanoid with the help of model. I have exhibits all the designing possibilities if one can want start Bionic Brain engineering from fundamental.

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References

[1] NSF/EC Understanding on Co-operation in Information Technologies - Strategic Research Workshops IST-1999-12077.

[2] Md. Sadique Shaikh, " Analysis and modeling of Strong A.I to engineer BIONIC brain for humanoid robotics application" in American Journal of Embedded System and Applications, Published by Science Publishing Group, October 2013, vol.1, No.2, doi: 10.11648/ ajesa. 20130102.11, New York, America (U.S.A) (paper available at URL: www. Science publishing group.com/j/ajesa)

[3] Md. Sadique Shaikh, "Ultra Artificial Intelligence (UAI): Redefing AI fir New Research Dimension" in Advanced Robotics & Automation (ARA), OMICS International, London, April 2017, Pgs.1-3, ISSN No: 2168-9695, Vol. 6, Issue. 2, DOI: 10.4172/2168-9695.100063. (Paper available online at URL: www. Omics online.com

[4] Md. Sadique Shaikh, "Fundamental Engineering for Brain-Computer Interfacing (BCI): Initiative for Neuron-Command Operating Devices" in Computational Biology and Bioinformatics (CBB), Science PG, U.S.A, November 2017, Pgs. 50-56, Vol. 5, No. 4, DOI: 10.11648/ j.cbb.201770504.12, (Paper available online at URL: www.sciencepublishinggroup/j/cbb)

[5] Md. Sadique Shaikh, Defining ultra artificial intelligence (UAI) implementation using bionic (biological-like-electronics) brain engineering insight. *MOJ App Bio Biomech.* 2018;2(2):127–128. DOI: 10.15406/mojabb.2018.02.00054