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A Short Commentary on Bionics

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Short Commentary

The combination of Engineering and Biology enhances the route for Bionics. As we know engineered materials is usually used to comprise design, characterization, production and application of materials and the scope has nowadays been widened to include systems and devices rather than just materials. Bionics is thus defined as design and fabrication of materials, devices and control systems[1-4].Various single-cell-based models have been developed to minimize by implementation in biological and medical problems. Bionics is often stated to be revolutionary because it can be controlled through electric signals for the response of impulse.

However a revolutionary new concept is the combination of the target to specific responsive system with multifunctional biological components such as nervous system [5]. The goal is the create the target specific and furthermore responsive systems that can reach the desired cellular or subcellular target with the help of a defined targeting moiety and that exhibit a controlled, triggered diagnostic signal and therapeutic effect upon activation as response. Combination of sensor and effector function would be possible to generate a definite response of which depends on biological factors at the target site.

Biosensors are added advantage for development using the specificity of a biological molecule to integrate as a physicochemical transducer in the direction of converting a weak signal into a comprehensible electrical signal. There are many types of biopotential electrodes develop that transduces ionic conduction of electronic conduction to facilitate view and/ or storing the bioelectrical signals [6-9].But these bioelectric signals are very weak in amplitude and they are further attenuated by the high impedance offered by the skin. Bioelectric signals are electric currents created by the sum of electric potential differences generated across a specialized tissue, organ or cell system. This electrical activity is mainly expounded by the differences in concentrations of sodium, potassium and chlorine which results in action potential. It is very short lasting event during which the electrical membrane potential of a cell waves as stereo type trajectory. Resultant of these several action potentials produced by combination of different cells engenders bioelectric signals for response [10-14].

Human brain signals are typically generated by the synapses, which can be coupled and communicated by the terahertz (THz) Whispering gallery mode (WGM) signals, where the reflected signals are formed by the coupled signals in the suitable injected THz pulses and synapse signals, which can be detected by the external electronic instruments and the synapse signals can be obtained by using the signal filtering device [15-19]. The brain signals can be connected and acquired by using the PANDA ring array, where each brain signal can be linked by the different WGM wavelengths, finally different human mind commands can be monitored and recognized by the pattern recognitions, which are very useful for response.

The coupling output of synapse and THz WGM signals in this study the synapse signal is modeled as an electrical pulse which is coupled and modulated into the PANDA ring circuit by the THz WGMs that reflects WGM signal obtain via the WGM signal direct detection or the drop port output signals [20-23]. The different

synapses and WGMs signals distinguish by filter device, for the variables such as wavelengths (frequencies), signal amplitudes and signal forms are the calculation and interpretation parameters.

We have described the use of THz WGM within the PANDA ring circuit for humanoid robot pattern recognitions, where the coupling signals between THz WGMs and brain signals can be probed and formed the human mind encoded signals (pattern recognitions). The WGM is generated by the PANDA ring circuit, which is within the THz frequency regime. After coupling, the reflected WGM signals are the moderated signals, where the synapse signals are merged within the WGM carrier signals. The required synapse signals can be probed and filtered to form the human mind and establish the encoded commands [24].

PANDA ring circuit array can also be probed by using brain signals, where the different frequency output signals can be obtained for large volume brain cells, i.e. commands. Applications, this method can be used to form the Bionic system, where the human mind functions can operate to the required destinations i.e. organs faster than typical operation via the direct link, which is required to transfer human mind computer commands to the Bionic system [25-27]. Apart from computer communications, such a proposed technique can also be useful for other brain signal monitoring and detecting applications, for instance, medical diagnosis and therapy, dream and sleeping investigation, blind and disable people communication, psychiatric and crime suspect investigations [28-30]. While simulating the huge number of particles are still an infancy step in many cases.

In addition to the development of bioinspired artifacts for achieving better performance, another dimension of interest is epistemological. The epistemological approach attempts to test and verify biology-based hypothesis by conceiving and implementing specific bioinspired machines [31]. The goal is very clear is to achieve adequate plausibility of these systems in order to render them express in reality. Artificial Intelligence and allied computational techniques are having their impact through their enormous applications in different sector of scientific analysis and applications [32-34].The epistemological dimension may also add “artificial life” or “life-in-silico” [35-39]. Generating immaterial creatures through simulations of artificial life strives to obtain and understand the complex information processing that distinguishes living systems from the lifeless world. The additional contribution of the artificial life resides in investigating not only “life-as-we-know-it” but also “life-as-it-might-be” [40]. A grand challenge of artificial life consists in moving from modeling and simulating to realization of concrete systems.

Progress in this inter-science area of research will only happen through increasing interaction among scientists and engineers operating in different communities through a truly multidisciplinary approach and support to handicapped. The journal aims at providing a forum to exchange the scientific and technical results in order to foster the work on addressing the unsolved problems. The identified grand challenges should encourage to focus on ambitious goal and are not intended to limits other important issues within the different dimensions of bionics [41, 42], Indeed, frequent reassessment of grand challenges will be aimed at keeping up these incentives according to the future scientific findings and the research communities’ stimuli.

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