

Man-Machine interface: Challenges & Opportunities

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Man-Machine interface in the loop of cyber physical systems promises a range of applications from welfare to warfare. Since the creation of this beautiful planet, humans have continuously tried to build a relationship with the nature to gain harmony. The more he understands, the more he tries to control it. Initially it was completely physical. But with the advent of technology, it became more and more instrumental. With the integration of physical system and the real time computational capabilities, the synergy is more practical and various technologies have been developed to facilitate this relation like hand gesture control, mobile communication, voice based control system and smart avionics etc. In spite of recent advances in robotics, the design and control of autonomous robots remains a challenge. Unlike human decision making strategy, the machines can't take top-level decisions and also poor in their local realizations. In this ocean of technological interface, Brain machine interface (BMI) is a powerful and rapidly evolving technology. In the healthcare arena, there has been a significant interest in creating assistive technology for the disabled in the form of system integration with wheelchair control, development of neuro-controlled motor prosthesis, environmental control like smart homes and other applications. In my talk, I will introduce various existing technology in the domain of man-machine interfacing and their limitations. I will also demonstrate some of the state of art methods in this pipeline and future opportunities to the audience.