

BCL 2023

Edition IV



Shabari Girishan

Associate Professor,
Department of Neurosurgery,
Ramaiah Medical College Hospital,
Bengaluru, India

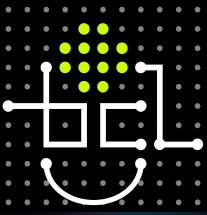


12 Jan | 16:00 - 17:00

Can we understand the neural signals controlling the hand movements and reanimate the paralysed hand ?

Abstract: The technologies for decoding the neural signal are probably replicating along the lines of Moore's law. However, the clinical translation from these technologies in terms of neurorehabilitation for reanimation of paralyzed hand has been suboptimal. That is, the current technology has not been utilized in full potential for the complete recovery of the human hand dexterity in terms of fine, natural, and more 'fluidic' movements. To this day, a totally implantable neuroprosthetic along the line of deep brain stimulation (for Parkinson's disease) is not available to help patients with cervical spinal cord injuries or stroke. This is because of the various challenges faced at various stages of a neuroprosthetic development, starting from decoding the motor signals to encoding it back to the central nervous structure distal to the level of injury. However, in this review the focus is on the utility of currently available implantable cortical arrays in successfully decoding the motor signals good enough to encode it distally to restore the hand dexterity. The discussion will be focused on addressing some of the important concerns in the context of design aspects of the cortical microarray aiming to address the objective of decoding the motor signals. By this the selection of an appropriate decoding sensor for research and sometime in near future for rehabilitative translation, would become easier.

Brief Bio: Dr Shabari Girishan is a consultant epilepsy & functional neurosurgeon in Bangalore with over 10 years of experience in Neurosurgery. After MBBS and specialising in General surgery from Bangalore Medical College, he secured the M.Ch. degree in Neurosurgery from the prestigious institute of Christian Medical College, Vellore, which is the first centre to start Neurosurgical services in India. He continued to work as an assistant professor for 3 years in CMC, Vellore after which, he worked as a consultant in St. John's Medical College, Bangalore. During this period he was actively involved in the neuro oncology and pediatric neurosurgery



BCL 2023

Edition IV



practice. He then completed 2 years of fellowship in the subspeciality of Epilepsy & Functional Neurosurgery at ALL India Institute of Medical Sciences, Delhi, which is ranked as the top medical institute and an institute of national importance under the Central Government ministry of Science and Technology. These fellowships provided a multimodality approach in managing complex epilepsies and movement disorders, head, neck and brain tumours by integrating skills of operative neurosurgery and functional neurosurgery. There are few neurosurgeons in India who can provide both surgical cure for epilepsy and provide relief for movement disorders like Parkinson's disease by deep brain stimulation and he is one among them. He is a member of various national and international neurosurgical societies, holds academic posts and has many indexed publications and book chapters to his credit.

His areas of interest are Epilepsy surgery, Functional Neurosurgery (Deep Brain Stimulation for Parkinson's disease, tremors, dystonia), Pain interventions (Spinal Cord Stimulation), Neuro-oncology-brain and spine tumour surgery, Skull base surgery, and Paediatric Neurosurgery.

He is currently pursuing Ph.D. at Indian Institute of Science by working on a project to help patients with irreversible neurological deficits.

