# BCL5

**5th Workshop on Brain, Computation, and Learning**


Dr. Nilesh Kurwale Shaliman

MBBS, M.ch Neurosurgery
(AIIMS New Delhi)


**2 July | 16:00 – 17:30**
**Faculty Hall**

## Research opportunities with stereo EEG recordings in epilepsy patients


**Abstract:** The human brain's remarkable organization and capacity to orchestrate the body's complex functions has long fascinated researchers. Epilepsy surgery, which closely examines brain function in both normal and pathological states, offers a unique opportunity to explore this intricate organ in depth. Surgical treatment of epilepsy requires a comprehensive analysis of seizures—manifestations of abnormal, hypersynchronous neuronal discharges that produce complex involuntary movements and behaviors. Studying seizure semiology and its correlation with the brain's histoarchitecture provides valuable insights into both the functional and topographical organization of neural networks. Such correlations also offer a window into the brain's cellular-level architecture, which is essential for developing external interfaces to connect with the brain. Stereo-electroencephalography (SEEG) is a clinical technique that enables high-resolution mapping of seizure propagation pathways within the brain. This procedure involves implanting fine electrodes to record electrical activity from small populations of neurons, offering precise spatial and temporal information about brain function. Importantly, the electrodes used in SEEG also form the technological foundation for brain-computer interfaces (BCIs). By systematically studying these advanced clinical methods, we gain a detailed view into brain dynamics at high resolution, laying critical groundwork for the development of brain-computer communication technologies.