

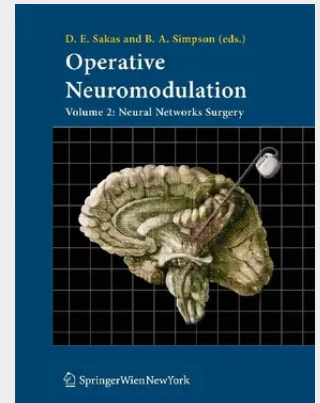
Operative Neuromodulation

Volume 2: Neural Networks Surgery

Neuromodulation is a rapidly evolving multidisciplinary biomedical and biotechnological field. The two volumes present the state-of-the-art in established and emerging applications for pain, spasticity, movement disorders, bladder and bowel dysfunction, cardiovascular disease, epilepsy, psychiatric illness, impairment of hearing and vision, and computational neuromodulation. Experts describe the neural networks involved and the appropriate surgical approaches, provide clinical guidelines, technical descriptions of implanted devices, proposals for refinements and personal views on future prospects of the field. The immense therapeutic potential is highlighted which arises from the close collaboration of biomedical scientists and biotechnological engineers in this area and signifies the transition from the conventional "resective" surgery to functional neuroprosthetic surgery (Vol. I) and neural networks surgery (Vol. II) which uses neuro-engineering to improve impaired neural function.

Vol. 2 describes the techniques and procedures applied by direct a) contact with the central nervous system or cranial nerves, in order to modulate the function of neural networks as in the case of motor cortex stimulation for pain or vagus nerve stimulation for epilepsy, or b) in deeply located structures inside the nervous system, in order to alter the function on specific networks as in the case of deep brain stimulation for Parkinson's disease.

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