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NIMHANS adopts DassaultSystÃ¨mesâ?? SIMULIA for schizophrenia patients

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Accurate simulations could potentially help medical professionals forecast challenges and outcomes of treatment procedures for patients with schizophrenia.

Dassault Systèmes has announced that National Institute of Mental Health & Neuro Sciences (NIMHANS), the apex center for mental health and neuroscience education in India, has deployed DassaultSystèmes' SIMULIA applications to predict the efficacy of Transcranial Direct Current Stimulation (tDCS), a non-invasive clinical treatment for schizophrenia patients, virtually before the clinical procedure. The announcement was made at DassaultSystèmes' first ever local edition of its global event Science in the Age of Experience in India that aims to showcase the company's simulation applications in transportation, aerospace and life sciences verticals.

NIMHANS's adoption of SIMULIA applications powered by the 3DEXPERIENCE platform is a first-of-its-kind deployment, where psychiatrists at NIMHANS will be able to leverage simulation technology to forecast challenges and outcomes of the treatment procedure for disorders such as schizophrenia. With SIMULIA applications, the team envisages the potential to develop a conceptual non-invasive method for Deep Brain Stimulation.

Dr. G. Venkatasubramanian, MD PhD, Professor of Psychiatry, Head, Department of Clinical Neurosciences at NIMHANS, "Computational modelling and simulation technologies allow mathematical reconstruction of the impact of tDCS in the treatment of several neuropsychiatric disorders. With multiphysics simulation capabilities on the 3DEXPERIENCE platform, under the WISER Neuromodulation Program at the National Institute of Mental Health and Neurosciences, patient-specific finite element models of the brain are used to accurately estimate the likely impact of electrical stimulation for treating the symptoms of schizophrenia, which, in turn can facilitate personalized neuromodulation."

At the announcement, Samson Khaou, Managing Director, India, DassaultSystèmes said, "The biggest challenge faced today by the healthcare sector in India is the absence of a standard procedure to predict the effectiveness of a treatment for various chronic diseases. As the life sciences industry moves towards more 'personalized healthcare', custom-made simulations allow for more precise analyses and predictions of human body dynamics. With DassaultSystèmes' SIMULIA and BIOVIA applications on the 3DEXPERIENCE platform, we aim to bridge this gap by enabling our customersdevelope new and innovative methods for patients treatment."

Historically, simulation has not played as large a role in life sciences as it has in more traditional engineering industries like automotive or aerospace. In addition, the simulation of human systems and their interaction is considerably more difficult and less evolved than the simulation of metal components. Human tissue response is complex and not easily simulated with simplified models. SIMULIA applications contain a wide variety of materials, procedures and load types to simulate the human body, medical and surgical equipment, and the manner in which the equipment is used.