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# Non Invasive Brain Injury Evaluation - A New Simulation and Visualisation Image Technology for Clinical Neurosurgery

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***Abstract -*** A growing field of interest is the neuronic engineering or neuroengineering originating from collaboration between medicine and technology focusing on more advanced computerized technology for clinical neuroscience. *Non-Invasive Brain Injury Evaluation*, NIBIE, is a new technology for measuring and evaluating strain, intracranial pressure and stress from CT and MRI scans following diseases to the central nervous system. Basic research on finite element modeling of the human head and neck can be used for medical applications in combination with medical diagnostic imaging data. The primary purpose of NIBIE is to introduce a new diagnostic image tool for screening patients with traumatic brain injury, stroke, hydrocephalus and observation of intensive care patients with neurosurgical disorders such as haematoma, cerebral oedema or tumours. NIBIE was created as a result of interdisciplinary research between engineers at the Royal Institute of Technology and neurosurgeons at the Karolinska University Hospital, Stockholm, Sweden.