Haptic glove

- Investigating the Feasibility and Safety of Osseointegration With Neural Interfaces for Advanced Prosthetic Control
- Randomised comparison between navigation and non-navigation-assisted camera control performance in a surgical simulation task using a haptic device interface
- The state-of-the-art of invasive brain-computer interfaces in humans: a systematic review and individual patient meta-analysis
- Interference haptic stimulation and consistent quantitative tactility in transparent electrotactile screen with pressure-sensitive transistors
- Human motor augmentation with an extra robotic arm without functional interference
- Preoperative interactive virtual simulation applying three-dimensional multifusion images using a haptic device for lumbosacral lipoma
- A synthetic model simulator for intracranial aneurysm clipping: validation of the UpSurgeOn AneurysmBox
- Evaluation of Robotic-Assisted Carotid Artery Stenting in a Virtual Model Using Motion-Based Performance Metrics

Smart haptic gloves are a new technology emerging in Virtual Reality (VR) with a promise to enhance sensory feedback in VR. Boutin et al. presents one of the first attempts to explore its application to neurosurgical training using VR-based surgery simulators. They developed and evaluated a surgical simulator for External Ventricular Drain Placement (EVD), a common procedure in the field of neurosurgery. Haptic gloves are used in combination with a VR environment to augment the experience of burr hole placement, and flexible catheter manipulation. The simulator was integrated into the training curriculum at the 2022 Canadian Neurosurgery Rookie Bootcamp. Thirty neurosurgery residents used the simulator where objective performance metrics and subjective experience scores were acquired. They provided the details of the simulator development, as well as the user study results and draw conclusions on the benefits added by the haptic gloves and future directions [1)]

1)

Boutin J, Kamoonpuri J, Faieghi R, Chung J, de Ribaupierre S, Eagleson R. Smart haptic gloves for virtual reality surgery simulation: a pilot study on external ventricular drain training. Front Robot AI. 2024 Jan 10;10:1273631. doi: 10.3389/frobt.2023.1273631. PMID: 38269073; PMCID: PMC10806798.