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Neuromorph, paradigms in neural image processing, cognitive rehabilitation and decision making

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We present formulations for source quantization studies based on Quantum Ising formulation with electroencephalograph data. The source quantization delineates event related potentials for PTSD victims and mTBI. We adopt Ising formulations with good and bad moves for objective function minimizations to identify the ERP corresponding to onset of trauma. The Ising annealing provides a global measure of optimized objective function value as relates to electric potential readings corresponding to event activity. We have developed parallel quantum machine learning techniques for objective function minimization using Grover's search, a bijective optimization technique that identifies manifolds and postulates continuity through differentiable intervals. This paradigm approach helps detect onset of TBI in VR based neurorehabilitation and forward feedback for neurocognitive outcomes. The VR environment is a military warfare environment based on Operation Enduring Freedom, (OEF) and OIF studies in Iraq and Afghanistan for rehabilitation studies and improved post-operative outcomes. We hope to identify the onset of neural plasticity with intelligent AI based chatbots for rehabilitation to improve and localize measures of neural diagnosis and neural recovery. Subsequent applications include diagnosis of temporal cues for demential diagnosis towards accelerating point of care application for diagnosis and delineation of dementia and suggestions on therapy and rehabilitation for dementia cures.

Biography

Cartik Sharma completed his M.S at the University of Buffalo, and a Degree in Quantum Machine learning at the University of Toronto, founding a company, Neuromorph to accelerate delivery of point of care applications for mTBI and PTSD victims. His experience with Walter Reed Medical Center, Bethesda, DC and National Research Council of Canada, Winnipeg are instrumental to providing long term healthcare and improved clinical outcomes.

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