Medical Need: Pseudocoma/Locked-In Syndrome (LIS)

- Unable to communicate as LIS patients are unable to produce any musculoskeletal movements
- No form of social communication leads to detraction from health, treatment prognosis, and overall quality of life
- Current solutions for restoring linguistic communication are slow and inefficient lead to stress/frustration

Objective:
Design and provide platform/environment which would allow patient to interact with caregiver in order to fulfill social communication need

Approach:
- Cooperative videos games can provide pro-social interaction
- Patient can use brain-computer interface (BCI) to control video game using EEG
- Steady-state visual evoked potential (SSVEP) for control options by recognizing frequency

Solution:

Results
1. True-Positive Rate (TPR): Accuracy in identifying user’s intent in gameplay
2. Real-Time Classification (Identifying user’s intent)
3. Social Presence in Gaming Questionnaire (Scale: 0-4)

Impact
SSVEP targeted control paradigms promising for pro-social communication focus BCI applications