Controlling Player Avatars and Influencing Game Worlds Using Multi-Modal Input Systems

Final Year Project: Dissertation Literature Review

# Section Plan:

# Literature References:

## Demonstration of a Semi-Autonomous Hybrid Brain–Machine Interface Using Human Intracranial EEG, Eye Tracking, and Computer Vision to Control a Robotic Upper Limb Prosthetic [Literature Review Incomplete]

<https://ieeexplore.ieee.org/abstract/document/6683036?casa_token=8eFYNtMeT2gAAAAA:ptQ8BBvUlh8lAUUPHZ6g9HQx5w1zm7Rb593ojrATAKlB7ZmLef5Sxiz4bjS2aou0V0wJ7hGu_A>

[Useless] [Visited References]

## Brain-Controlled Wheelchairs: A Robotic Architecture

<https://ieeexplore.ieee.org/abstract/document/6476692?casa_token=N9D7VKuM36EAAAAA:UpuFcjCmbdPKUCeuJzayg0hea6K5mGpCP0Guhc5X0zmKQf0BQV-ySVM1IRDSSc-8rFlL6Vj8ig>

[Useful] – Talks about capturing motor imagery using 16 electrodes across the motor cortex. Sampling using monopolar EEG at 512hz. This is for the purpose of controlling a electric wheel chair for motor impaired people. My combining the multi-input approach of a asynchronous BCI and computer vision to set the target direction and location of the path finding algorithm in control of the chair. This is done to allow for a more natural and smooth movement around the environment, where the requirement to stop for each action is avoided, allowing continuous movement.

## Multimodal vs. Unimodal Physiological Control in Videogames for Enhanced Realism and Depth

<https://arxiv.org/pdf/1406.0532.pdf>

[Useful] – The paper describes the implementation of a multimodal input system, comparing itself against unimodal systems.

## Towards Asynchronous Motor Imagery-Based Brain-Computer Interfaces: a join training scheme using deep learning

<https://www.researchgate.net/publication/327392572_Towards_Asynchronous_Motor_Imagery-Based_Brain-Computer_Interfaces_a_joint_training_scheme_using_deep_learning>

## A Deep Learning Method for Classification of EEG Data Based on Motor Imagery

<https://link.springer.com/chapter/10.1007/978-3-319-09330-7_25>

## Deep learning for motor imagery EEG-based classification: A review

<https://www.sciencedirect.com/science/article/abs/pii/S1746809420303116>

## Deep learning for EEG-based Motor Imagery classification: Accuracy-cost trade-off

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7289369/>

dissertation