A screenshot of a video game

Description automatically generated**A person looking at a screen

Description automatically generated**

Motioncare Plus software aims to **gamify the physical rehabilitation process** for stroke & chronic pain by integrating gesture recognition into **an intuitive rhythm game**. Without the requirement for specialist hardware, Motioncare Plus uses a **model trained on the classification of gestures** to extract information **solely from an integrated webcam**.

**motioncare+**

**motioncare+ analysis**

**motioncare+ development**

**Future Plans**

Investigating further approaches

in the **healthcare sector**.

Further development to **support mobile** (more accessible)

Investigate new modes and creating a more **tailored user experience**.

Further **user testing** across a wider demographic.

**Current Version**

* Developing **Environment Calibration** Approaches
* Developing Camera Calibration Approaches
* Creating **Tutorial**
* Improving **User Experience**
* Gathering **Feedback**
* Improving Song Variety

**Previous Works**

* Developed originally for a Hackathon **(1st Place)**
* Demo at **CHART** Christmas Event
* Originally using **TensorFlow**

* Gesture Recognition with Google **Mediapipe**
* Gesture Confidence Rating of **0.8**
* Recognises **Gesture**, **Handedness** & **Hand Count**
* Gestures are classified into **8 categories**.
* Webcam output captured using **OpenCV**

**Use Cases & Target Audience**

**Physical Therapy**

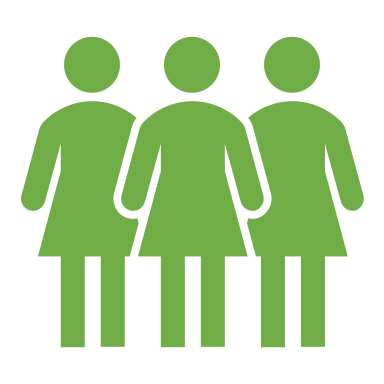
Gamify completion of motor-skill exercises in physical therapy for stroke recovery & chronic pain rehabilitation.

**Dementia**

Pairing gestures and music has shown to improve cognition in sufferers of dementia.

**Old Age**

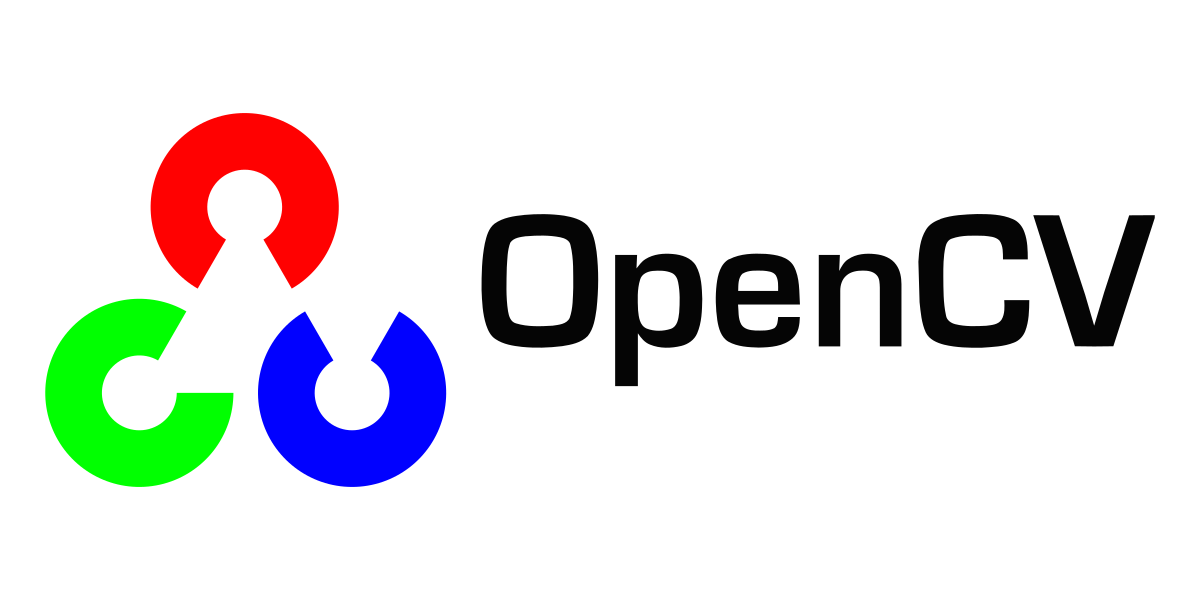
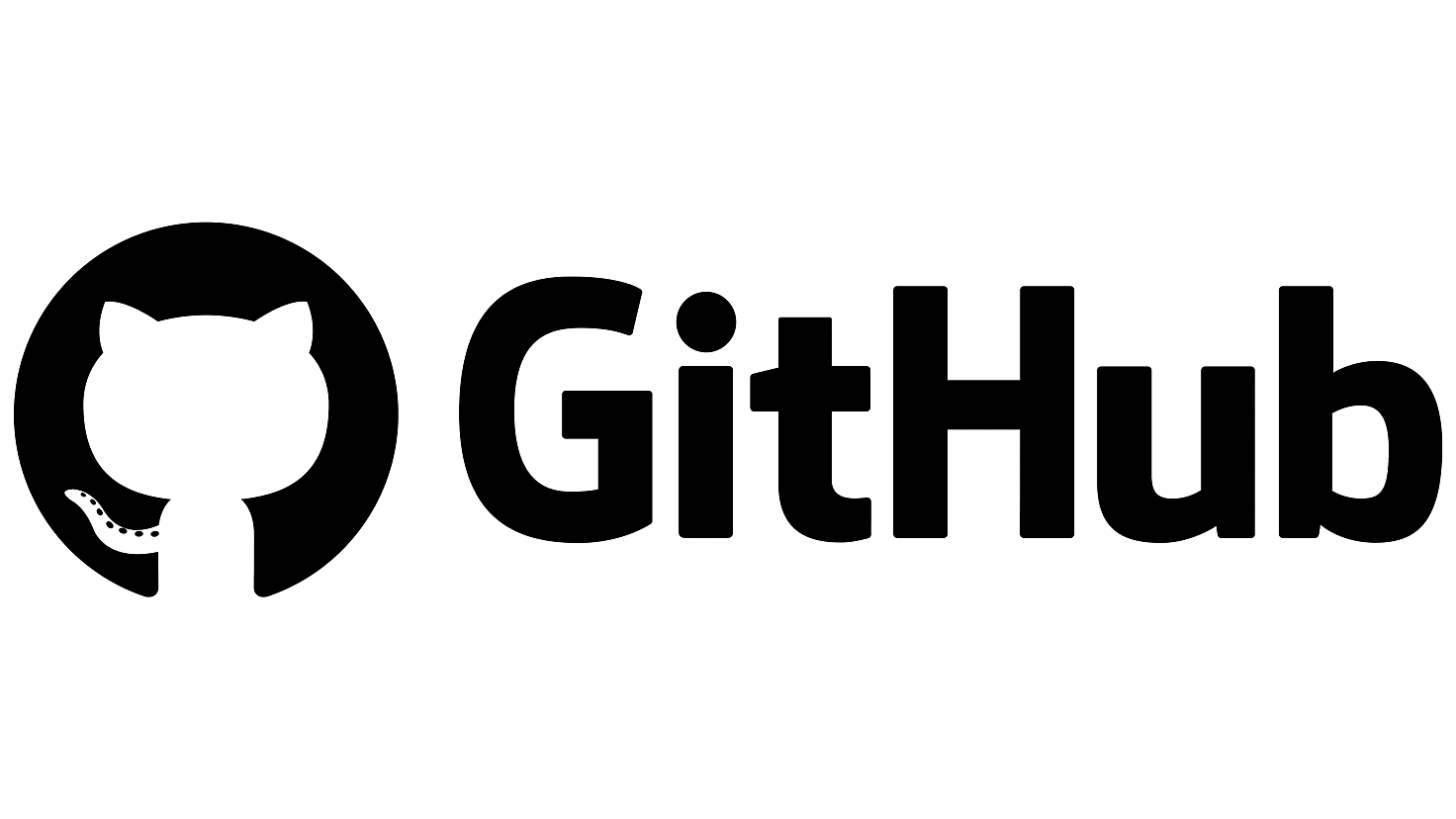
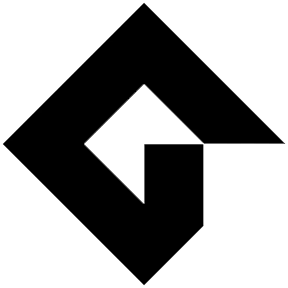
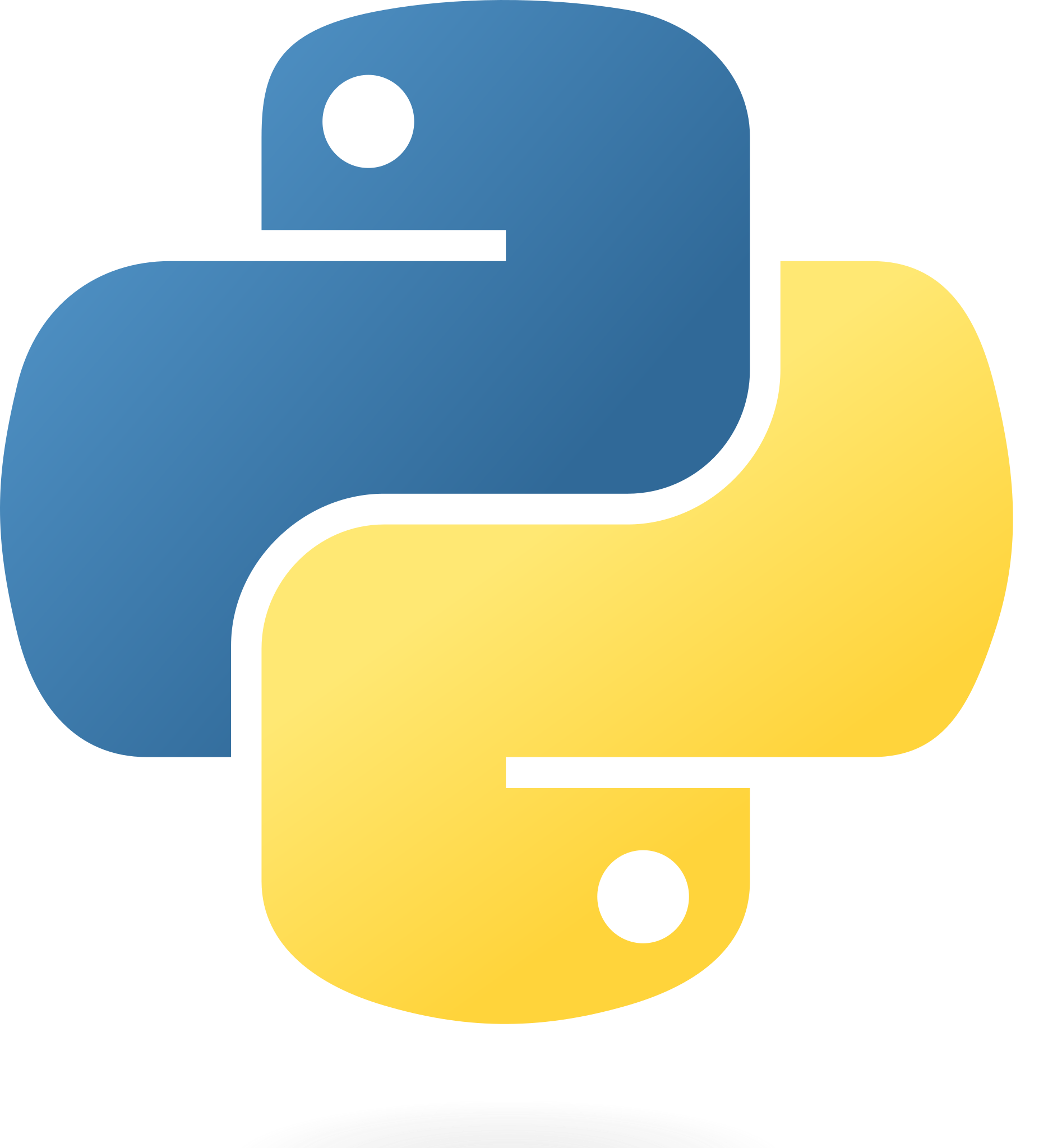
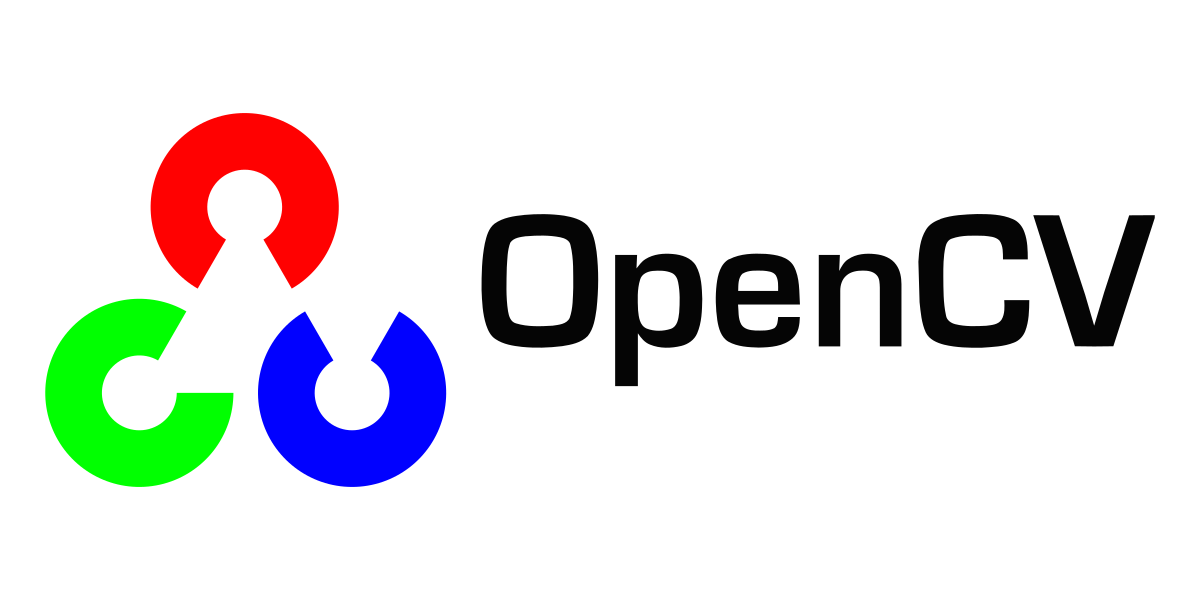
Hand motor skills decrease with age, gamifying the practise of exercising the hand promotes healthy habits.

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**Computer Vision & Recognition**

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* **Intuitive Matching of Hand Gestures to Rhythm Game.**
* **Varying Difficulty – allows users to start comfortable and work up.**
* **Score based evaluation to track progress over time.**
* **AI to facilitate level recommendations at users’ skill level.**



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