Our research focuses on the rehabilitation of stroke survivors and children with cerebral palsy, using the active-assistance robotic arm called MyPAM. Patients will play custom made computer games with the MyPAM’s assistance, with the intention of rebuilding neural connections in their brains, ultimately allowing them to perform activities of daily living that will allow them to regain their independence.

For a patient to maximise their recovery it is vital that they perform their rehabilitative exercises consistently and for a prolonged period of time. Inevitably patients often struggle to do this due to the tedious nature of the repetitive exercises in addition to the limited access to physiotherapists. The MyPAM system aims to resolve both of these issues. The use of computer games will provide a motivational component that aims to maintain the patient’s engagement for as long as is required for maximum recovery. A key goal of the research is to make the system portable and cheap enough to install in the patient’s home for the duration of their therapy, which along with the active-assistance will reduce the need for a therapist to be present. Data from gameplay will be sent to a secure database for the therapist to analyse, so that they can adjust the patient’s recovery program accordingly.

Our roles are to develop the initial MyPAM compatible games, develop a simple system for future developers to easily create compatible games, and development of a mid-level controller to manage the system hardware and games.