The current clinical scoring system for multiple sclerosis (MS) relies upon the motor defects that are produced from the disease. While this is commonly used, the clinical scoring between different researchers is subjective and there is a likelihood of variability depending on the assessor. This project is focused towards creating a reliable characterization of MS in a mouse model using a string-pulling behaviour task. The key factor that distinguishes the string-pulling task is the quantifiability of its behavioural aspects through a Matlab-based toolbox. Bimanual coordination can be calculated as the correlation between the distance each hand moves with the y-axis, the postural stability of the mouse can be determined from colour-based image segmentation, sensory guidance can be correlated to the distance of the nose from the string over time and movement kinematics can be discovered as an average velocity calculated from optical flow estimation using the combined-local-global method. As MS is a human disease, experimental autoimmune encephalomyelitis (EAE) is induced within mice as it produces the same key pathological features as MS and is therefore useful as an experimental model.