

MCDA approach for selecting the optimal number of synergies

Selecting the optimal number of muscle synergies



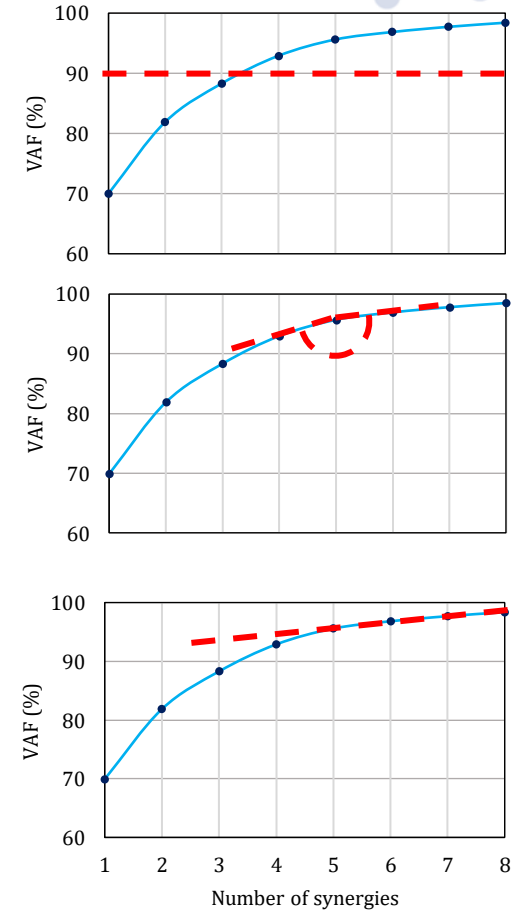
Problem

Despite the growing interest in the assessment of **muscle synergy number** as a meaningful feature for the analysis of motor control strategies in pathological populations, there is a **lack of standardized criteria** or **shared guidelines** for computing the optimal number of muscle synergies.



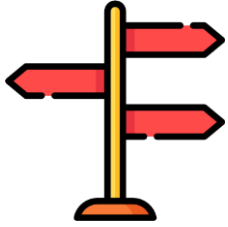
Aim

This study aims at finding a **reliable and systematic solution** to the **muscle synergy number problem**, moving from single-criterion approaches to a **multi-criteria approach based on ELECTRE III**.



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Multi-Criteria Decision Analysis (MCDA) or Multi-Criteria Decision Making (MCDM) approaches have been proposed to support **rigorous decision-making** by explicitly taking into account **multiple criteria**.

The **selection of the optimal number of muscle synergies** can be considered itself a **multi-criteria approach**, where several criteria (e.g., reconstruction accuracy, muscle synergy consistency, ...) should be addressed to obtain the **best representation of the motor system**.

