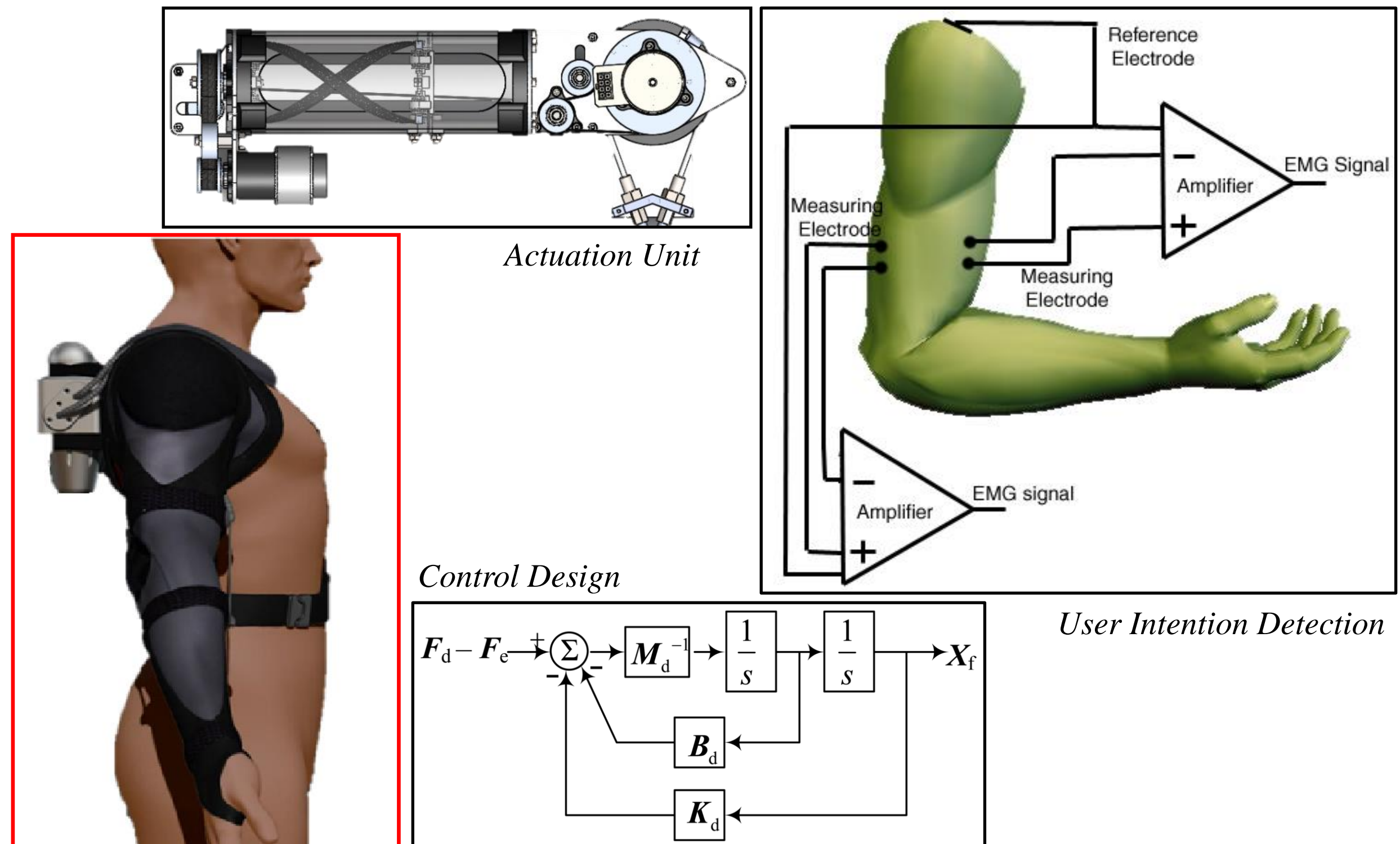


# Multi-Nested Myoelectric Control of a Compliant Composite Actuation for Exoskeletons

## Project Motivation & Objectives

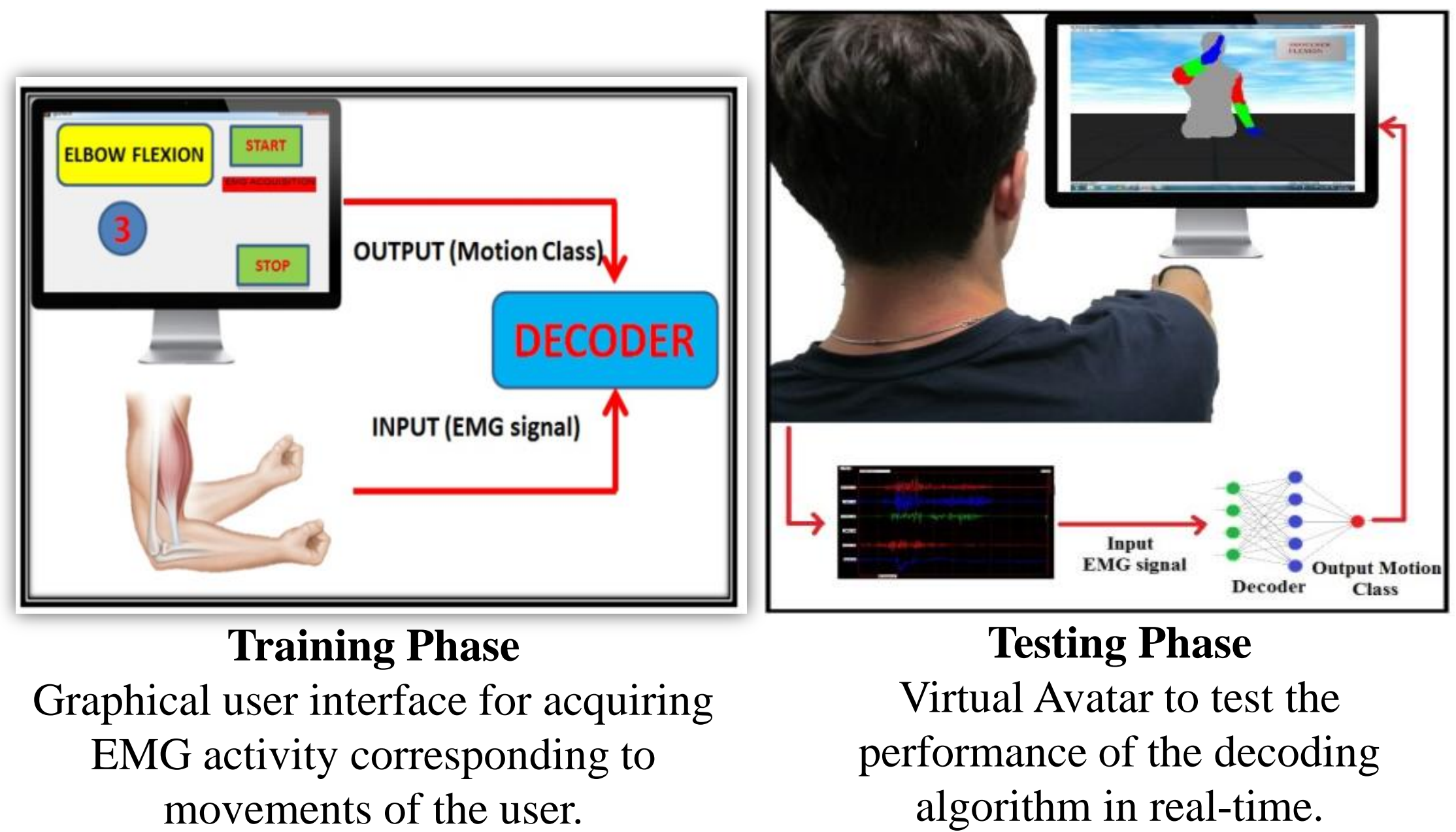
- Design and implement a soft wearable exoskeleton for upper limb, driven using myoelectric interface.
- Aimed towards providing assistance to people with neuromuscular disorder. It focuses on 3 aspects:
  - ❖ **User Intention Detection:** Develop robust and intuitive algorithm to control upper limb motions using myoelectric signals of the user.
  - ❖ **Actuation Unit:** Utilize cable driven system routed externally in tandem with the tendon units of the body, thereby offering natural, smooth and unconstrained movements.
  - ❖ **Control Design:** Ensure force and position control for driving the exoskeleton unit.



## Challenges in User Intention Detection

- Generalization of decoder to unseen myoelectric data, and capability to capture coordination patterns.
  - ❖ Test usefulness of muscle synergy based features.
- Suitability of algorithms for real-time application needs.
  - ❖ Test performance of extreme learning machine in online motion decoding.
- Simultaneous motion decoding.
  - ❖ Capability to decode two or more motions at the same instant.
- Subject-independent decoder.
  - ❖ Elimination of calibration/training phase.

## Methodology



## Results

