

Research Statement

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1 Background & Motivation

Research in Wearable Robotics Systems, such as prosthesis and exoskeleton, has advanced to the point where benefiting people with disabilities. However, most of these systems fail to offer a [smooth] experience for addressing the locomotor deficits of disabled people, due to a lack of bidirectional feedback between human locomotion and Mechatronics system.

2 Research Questions

Based on the background stated above, my research questions, which also serve for the focus of my research, are as follows:

- How the fundamental actuator modes are combined, in order to mimic human gaits?
- How mechanical design is developed to aid the interactions between Mechatronics systems and environments?

3 Related Projects

3.1 Open-Source Leg

3.2 Series-Elastic Actuation

3.3 Finite State Machine Design for Prosthesis

3.4 Design & Control of Bionic Robot Swimmer

References