

Project:

Developing a variable friction-based swing phase controller to improve gait kinematics in physically active children and youth with lower-limb absence.

Team:

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Organizations/ Programs:

Holland Bloorview Kids Rehabilitation Hospital (Bloorview Research Institute & Orthotics and Prosthetics).

Background/Rationale:

Existing knee joint technologies for children with lower-limb absence fail to provide weight-bearing stability and swing-phase control to enable walking at a range of speeds.

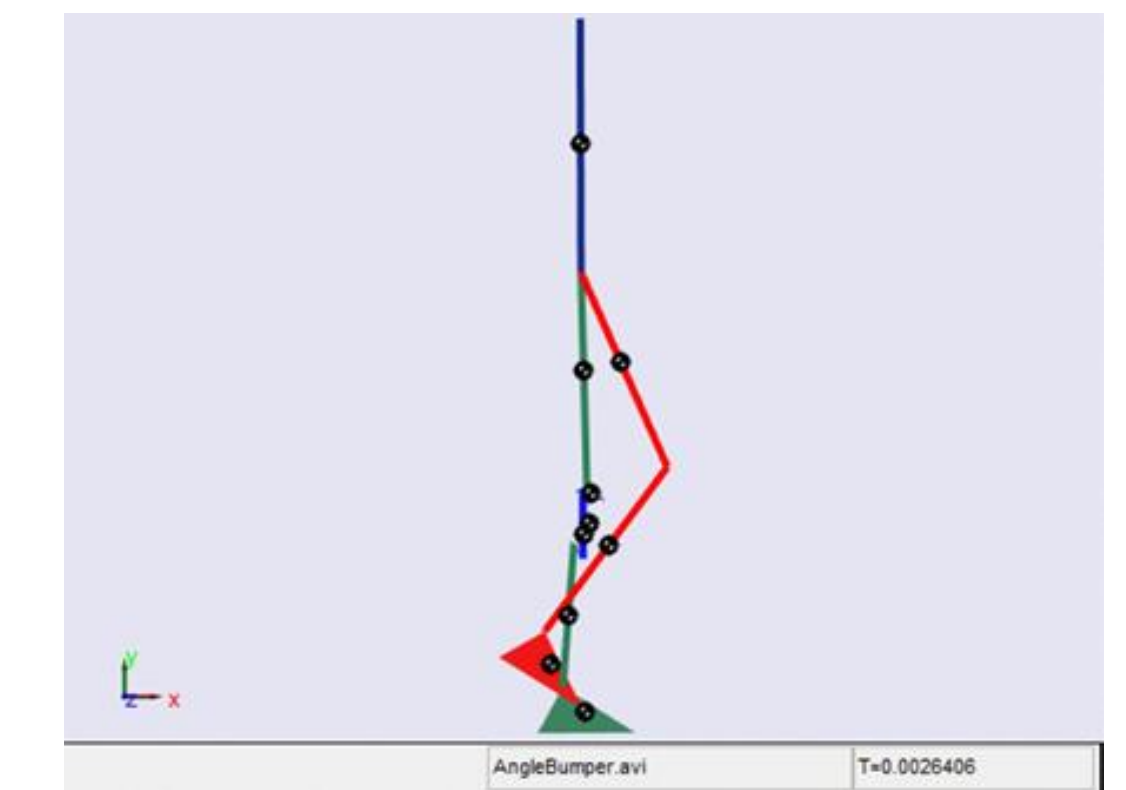
Design/Methods:

The proposed project involved the optimization of the control mechanism using a computational model, validation and empirical testing of the optimized controller.

Development of a simple, compact, light-weight and durable knee mechanisms to promote mobility and physical activity in children with lower limb absence

**What we learning/Results:**

Using computational modeling and empirical validations, a new paediatric knee joint design was established and tested.

Figures/Graphs/Pictures:**Discussion:**

Variable friction swing-phase control has the ability to deliver much of the function of fluid-based swing-phase controls, in a compact, light-weight and low-cost form.

Conclusions/Next Steps:

This work will inform the design of paediatric knee joint technologies aiming to promote mobility and physical activity in children with lower limb absence.