

Thesis Outline

Nicholas Berezny

September 13, 2018

1 Literature Review and Preliminary Research

1.1 Stroke Rehabilitation Literature

1.2 Rehabilitation Robotics Literature

1.3 Shadowing

1.4 Fundamental Design Decisions

2 Mechanical Design

2.1 Actuation

2.2 Frame

2.3 Foot and Leg Support

2.4 Bed Interface

3 Controller and Haptics Implementation

3.1 Overview

3.2 Real Time Linux

3.3 Impedance Controller

3.4 Physics Engine & Haptic Coupling

3.5 Communication

4 User Interface

4.1 User Interface

4.2 Visualizations

5 Experiments

5.1 Functional Tests

5.2 Healthy Subjects

5.3 Testing in Hospital Experiments

6 Conclusion

6.1 Future Work

References