

1077-92-1324      **Myrielle N Allen-Prince\*** (myrielle.aprince@ymail.com), 608 Province Spring Circle apt#  
4B, Greensboro, PA 27403, and **Jay Walton**. *Finger Motion Modeling for Bionic  
Fingers*. Preliminary report.

The use of bionic hands is becoming a reality for those who have suffered amputation. Mathematical models are necessary to calculate the forces needed on each tendon to mimic the motion of human fingers. We modeled the motion of the human finger and thumb as it bends in and out using Newton's second law of motion. A system of partial differential equations was developed to describe the relationship of the forces needed to move the finger to a specified position, incorporating a feedback mechanism. Our work shows that this type of model can be used to accurately control the motion of a human finger. (Received September 19, 2011)