

# Project PAALM: Phalangeal Angle Approximation through the Leap Motion Controller

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## Abstract

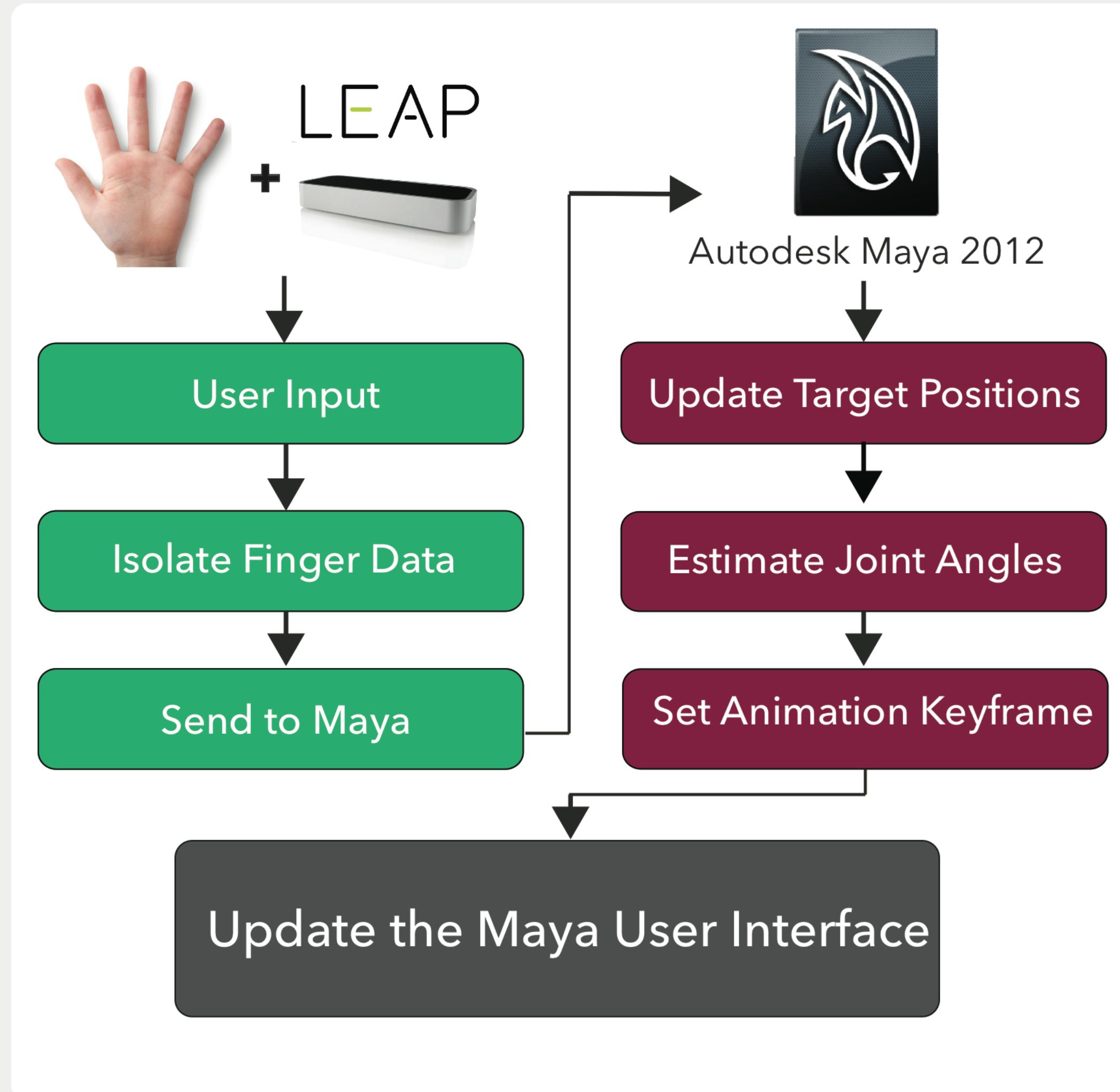
Project PAALM is a framework for approximating and visualizing joint angles of the hand using the Leap Motion controller and 3D modeling software called Autodesk Maya.

## Motivation

In computer graphics, the realistic animation of the human hand has been a fundamental problem. Detailed and subtle finger motions are very difficult to capture. Current methods are expensive, restrict the motion of the hand, or confine the user to a space.

The Leap Motion controller is a cheap, portable and unexplored technology capable of tracking finger movements to 1/100th of a millimeter. The device's superb accuracy presents a unique opportunity for detecting complex hand motions and gestures.

## Process



## Contributions

- An accurate, cost-effective and freehand method of approximating phalangeal joint angles using the Leap Motion controller.
- An application programming interface (API) for visualizing phalangeal joint angle data using Autodesk Maya 2012.

## Future Work

- Extend the framework to perform American Sign Language gesture recognition.
- Utilize multiple Leap Motion controllers to capture finger motions that feature occlusion.
- Permit the animation of arbitrary character models using the framework.

## Results



Hand Model using the Project PAALM Framework in Autodesk Maya 2012

