

# Scientific Rotoscoping

## **\*\*UNDER CONSTRUCTION\*\***

Please note this page is out of date, and there is a [new home page](#) we recommend you use to navigate the wiki. Many of the links on this page may no longer be functional.

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You will need the [Maya MEL scripts](#) and [Maya XROMM Shelf](#) for these operations

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### **Manual Markerless XROMM workflow:**

#### **1) Record biplanar x-ray videos of movement**

- For Brown Users: Getting trained and certified to use x-ray machines and Operating C-arm x-ray machines during data collection.
- We recommend reading Radiographics papers for background on x-ray imaging

#### **2) Create 3D polygonal mesh models (.obj format)**

- Creating 3D models from CT scans using Amira software
- Creating 3D models with Microscan Laser Scanner
- Creating 3D models with Horos
- Cleaning up 3D models with Geomagic

#### **3) Undistort video frames**

Undistorting a video is a two-step process:

- Create an \*UNDTFORM file
- Click **Undistort Video** in the X-rayProject window or use the stand-alone XROMM Undistorter program.

#### **4) Calibrate and create mayaCam files**

#### **5) Create Maya X-ray cameras and load Undistorted video into Maya**

#### **6) Use the Pan and Scan tools for Rotoscoping**

#### **7) Animate your scene by Scientific Rotoscoping**

- for completely markerless Scientific Rotoscoping, place the bone(s) and set every 5th or 10th keyframe and then refine animation
- One- or Two-marker rotoscoping can help constrain bone positions

#### **8) Analyzing XROMM animations using MATLAB and Autodesk Maya**

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