

Magical Chess

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Outline

- Story Outline
- Main Effect
- How we did it..



Story Outline

- Two actors play chess. While one actor goes out to attend a call, the other actor moves her chess coin.
- Unpredictably, the opposite player chess coins, knight and pawn change to 3D CG characters and starts moving.
- Once the opposite player approaches to take her seat back, the CG characters change back to actual chess coins



Main Techniques

- Distinctive 3D DOSCH wireframe skeleton models as CG characters
- Morphing
- Keying
- Image Blurring
- Animation
- Artificial Shadow
- Occluding effect



How we did it ...

- Took real footages of two players playing chess
- Took real footages of player playing without the knight and soldier
- Real knight and pawn change to 3D CG characters
- 3D CG character starts moving
- 3D CG characters change back to Real knight and pawn



The Making of Magical Chess

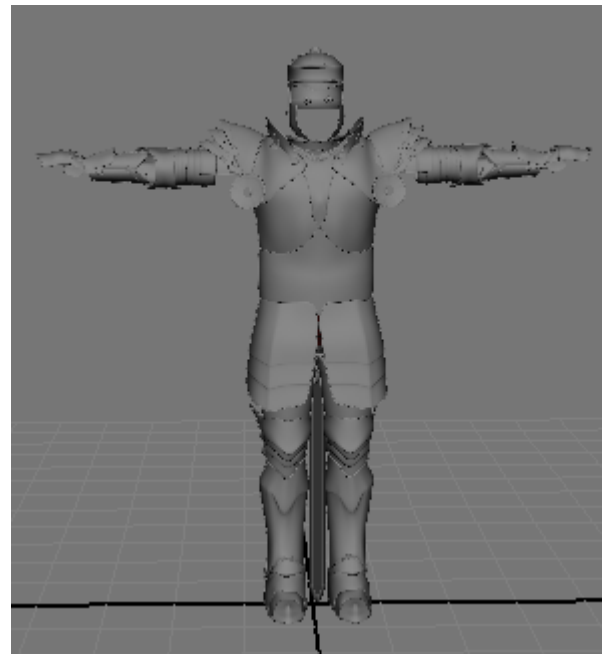
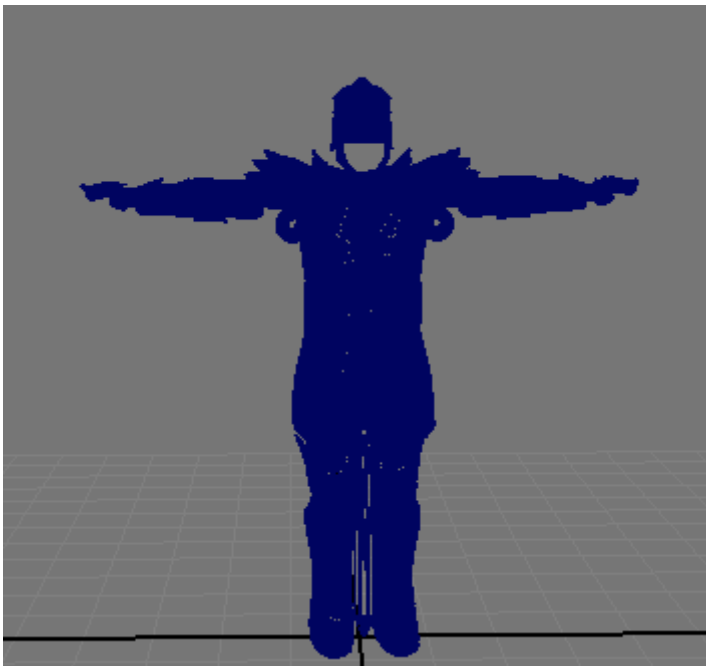
- How we transform the real knight and pawn to 3D CG characters.....?????????????
- How 3D CG character starts moving ??????????????
- How 3D CG characters transform back to real knight and pawn ??????????????



Animation

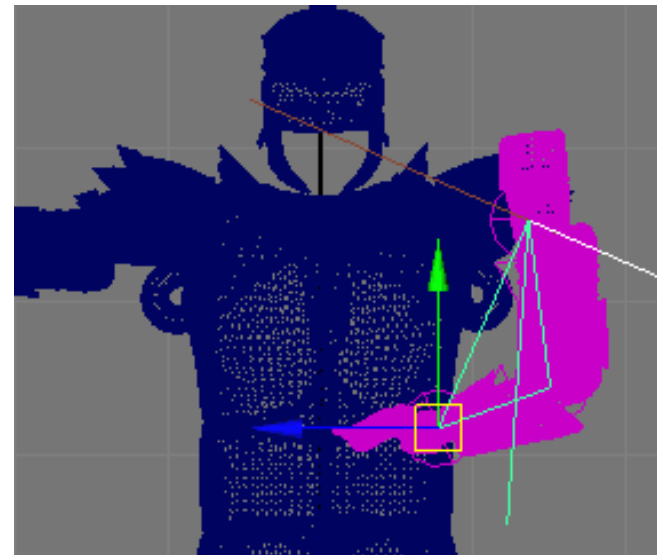
Animation - CG Characters

- CG Knight and Pawn from Dosch Models
- Wireframe technique and texture mapping applied for body and armor creation



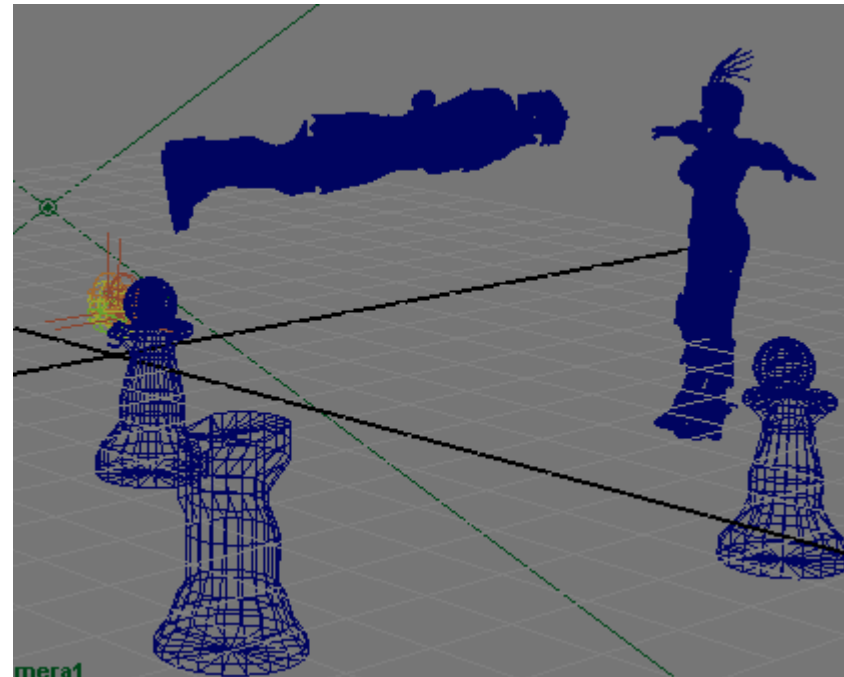
Animation – Joints

- ❑ Built skeleton and joints to move the knight's hand using IKHandle
- ❑ Keyframing CG objects movements



Animation - Occlusion

- ❑ Dummy CG chess pieces built using polygons
- ❑ Handle occlusion



Animation - Occlusion

- ❑ White dummy chess piece for easier keying
- ❑ Same color as background



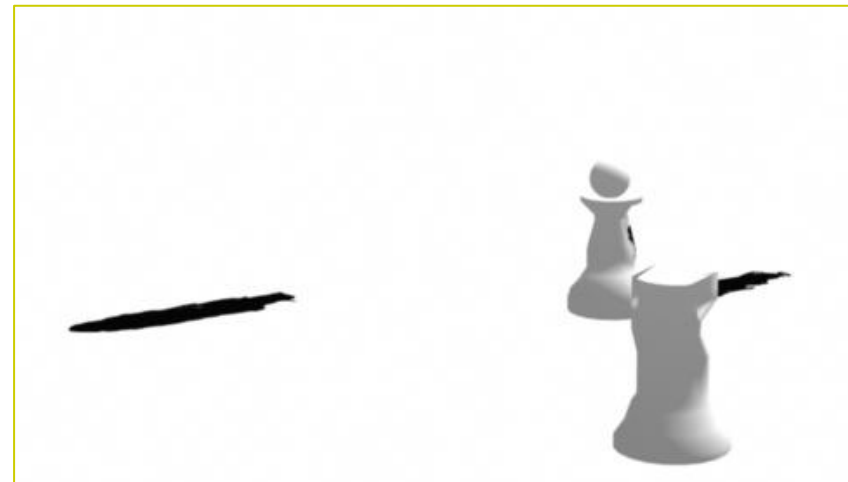
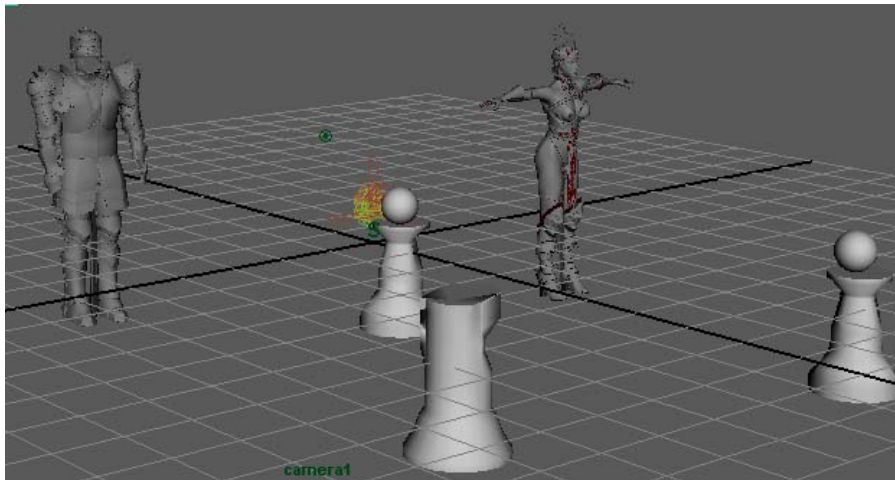
Animation – Camera Angle

- Added a virtual camera to simulate the angle of the live footage



Animation – Shadows & Lighting

- ❑ Depth Map shadows created for CG characters
- ❑ Show more realistic effect
- ❑ Point Light was used to cast shadow



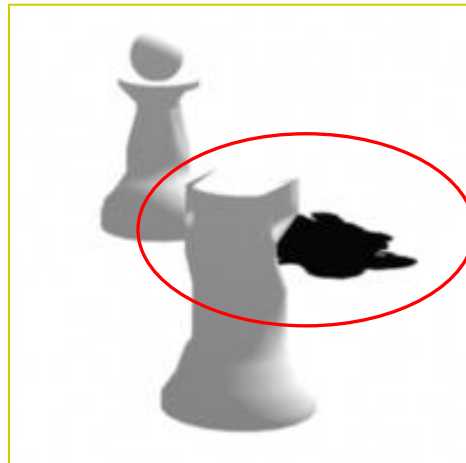
Animation - Shadows

- ❑ Dummy CG chess pieces to receive casted shadows from CG character
- ❑ Only set to receive shadow and not casting shadow



Animation - Shadows

- Dummy CG chess piece (knight) to block the shadow behind



Animation - Rendering

- ❑ Rendered CG characters and shadows separately
- ❑ Need to adjust shadow color to match live footage, done in After effects



Animation – Problems Faced

- Skeletons and Joints Creation
 - Consists of many parts for both CG characters (body and armor)

- Skin Deformation
 - Moving one IKHandle affected the other handles, required a lot of skin painting and weight adjustments





Animation – Problems Faced

- Shadows size, placement, color and lighting
 - The real footages were taken under multiple light sources
 - Real light sources were too far from chessboard, hence shadow cannot be clearly seen
 - Originally used pure black as shadow color created in Maya, but too strong compared to real footage
 - Adjusted shadow color to follow live footage color (light yellowish) -> Incorrect
 - Back to using black color, changed opacity in after effects



Morphing



Knight and Pawn transformation

- Morphing effect
- Two phases
 - Real Knight and Soldier to 3D CG characters
 - 3D CG characters to Real Knight and Soldier

Problems faced

- ❑ Tried Win Morph free software – Found to be suitable only for images of similar size
- ❑ Finally used Fantamorph





But still

- Desired morphing effect was not achieved as the morphing was not gradual and looked unrealistic

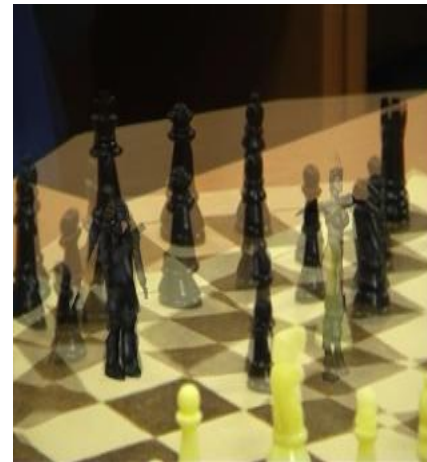


So

- We split the process in to two steps
 - Real knight and pawn to Small size 3D CG characters
 - Small size 3D CG characters to Full-size size CG characters

But still the

- With real footage background, the coins occluded by the knight also was morphed
- **DISCARDED**





Morphing – Phase I

- Two sets of 3D CG character exported from Maya – Small size and Full size

Morphing – Phase I



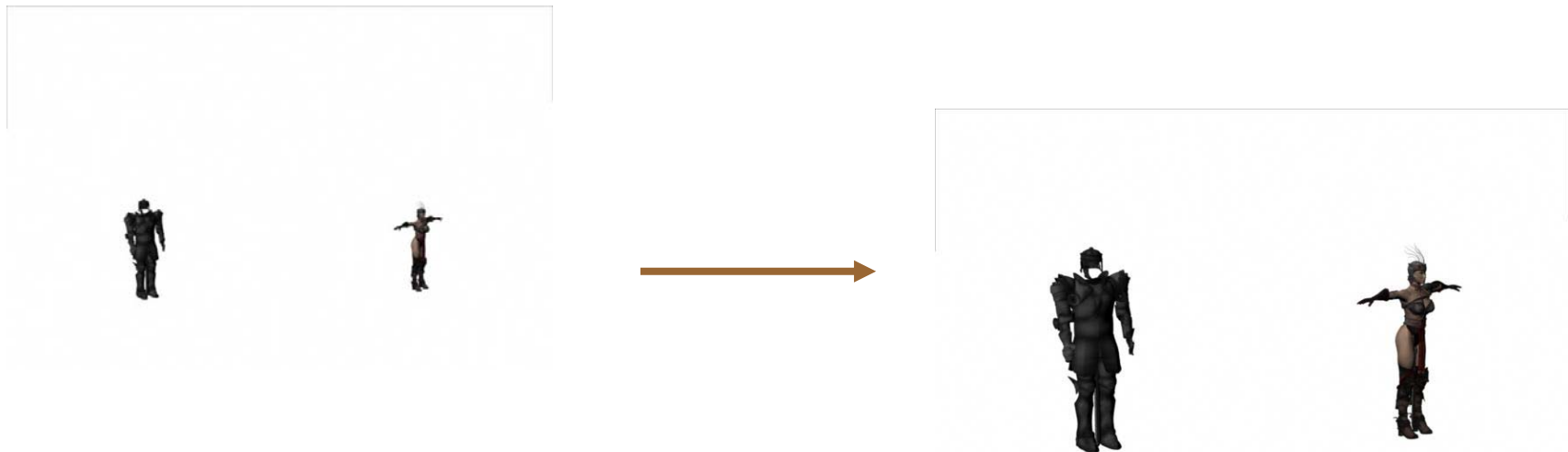
- These two images are morphed.

- Small size CG image, exported from Maya, is composited with BG in After Effects



Morphing – Phase I

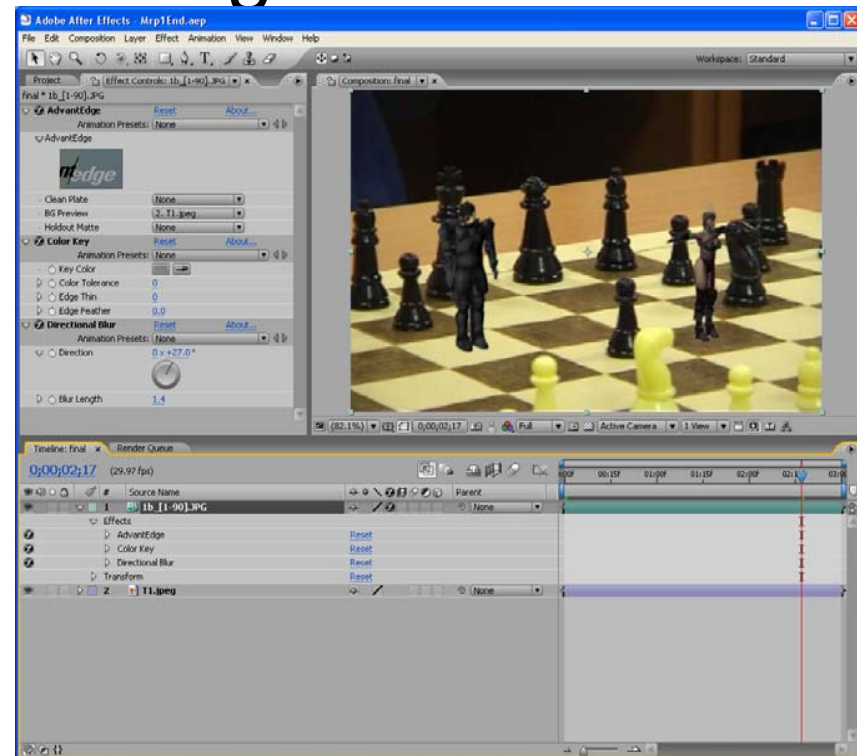
- Morphed the small size CG image to full size CG image with plain BG



Morphing – Phase I

- The morphed image sequence is composited with the background.

- Colour keying and ultimate advantages are used to remove background.
- Directional blur effect is used to make the characters fit into the live footage.



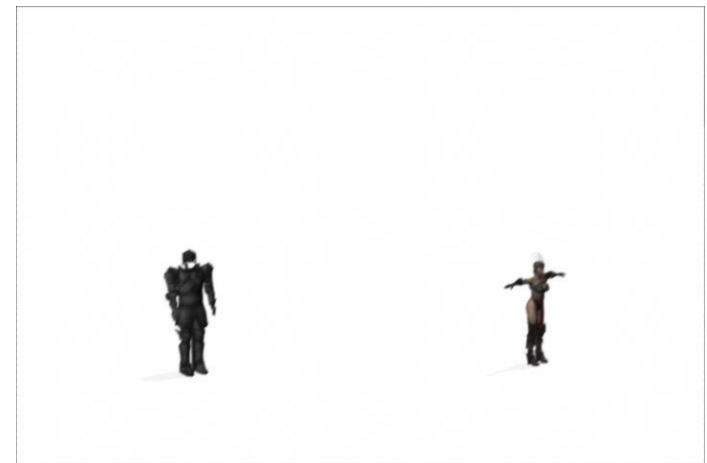
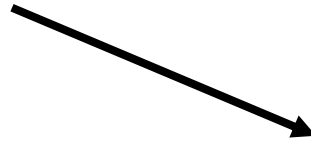
Problems Faced ...

- To have a glowing effect we tried with yellow background image but edges were not smooth in After effects



- **DISCARDED**

Finally .. With White Background

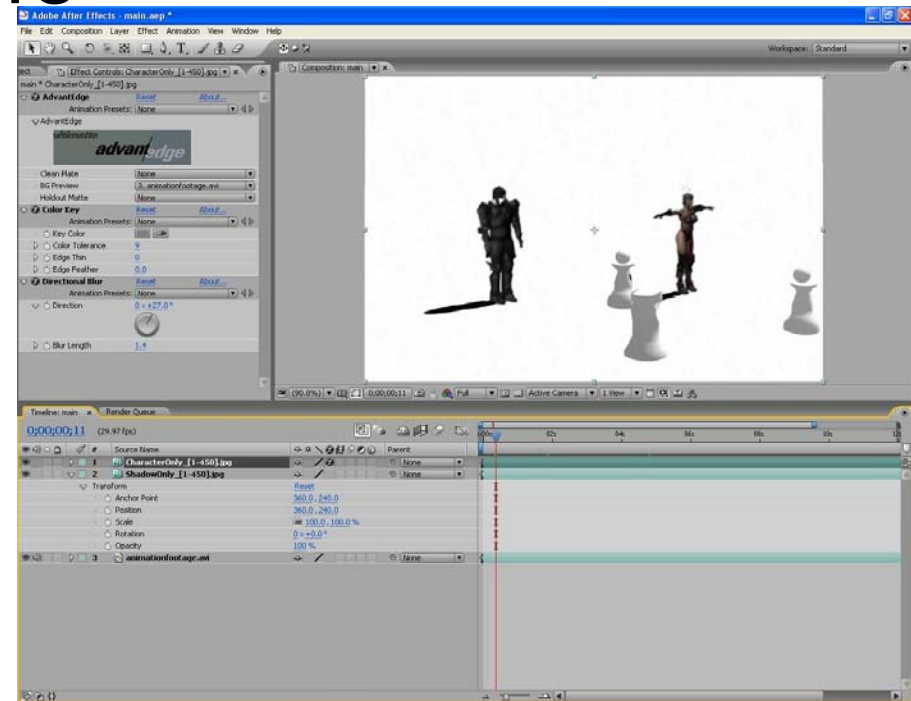




Compositing

Compositing

- Three different layers
 - CG Character
 - Artificial Shadow
 - Live footage
- Main effects
 - Keying
 - Image Blurring
 - Transforming (Opacity)





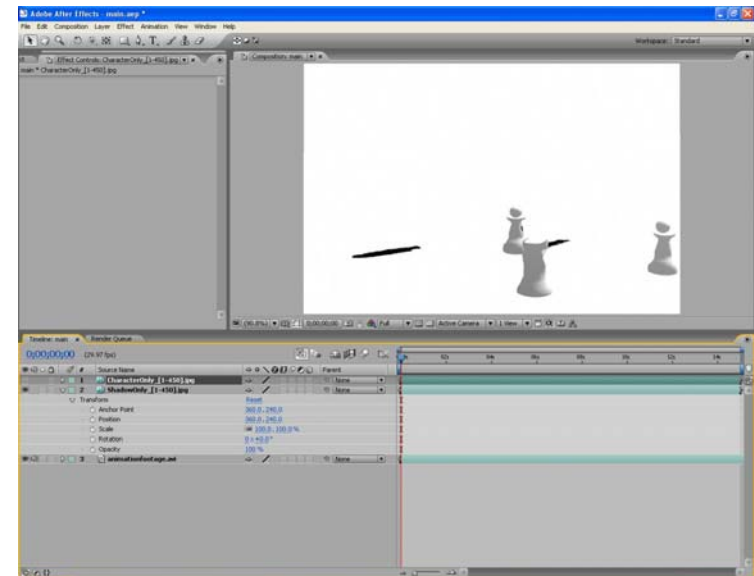
Compositing

□ CG Character

- Ultimate Advantedge is used to take out the background color
- Color Keying is used to remove the remaining spilled colors.
- Directional Image blur is used to get the blurring effect in line to the live footage.

Compositing

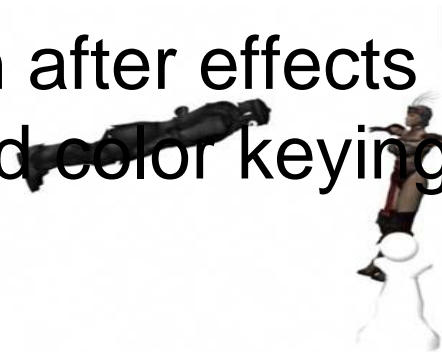
- Artificial Shadow
 - Initially tried with the after effects to get the shadow, but finally did well in Maya. This shadow is then exported.
 - Used color keying to remove the white background and composite with the CG Character and live footage.
 - Reduced the opacity so that the shadow don't look very dark.



Compositing

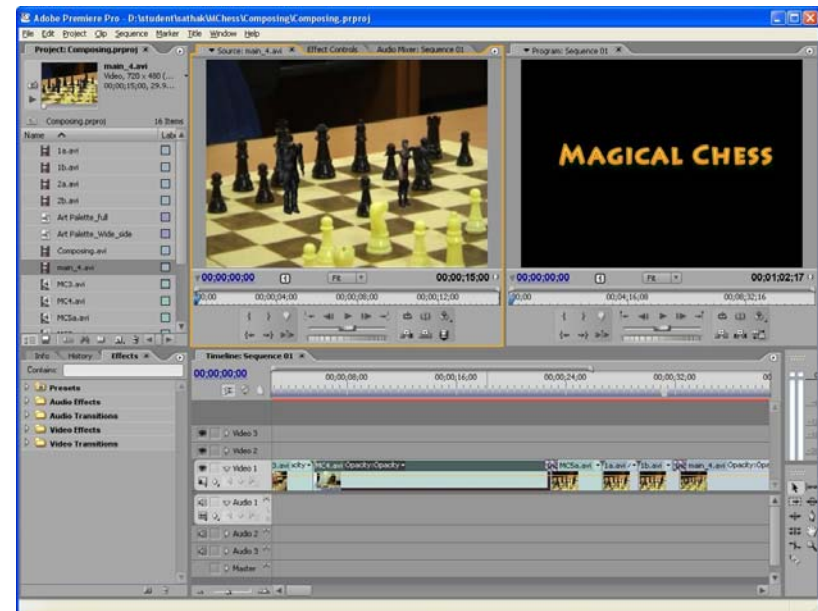
□ Occluding Effect

- Initially tried with the after effects to occlude the CG solder behind the real solder coin. Tried with masking. But the result is not satisfactory.
- So done in Maya with dummy solder coin.
- Removed the dummy solder in after effects using ultimate advantage and color keying effect.



Compositing

- Starting and end morphing are rendered as separate movies.
- Main animation is rendered with the live footage as separate movie.
- Live footage movie is edited and kept as separate movies.
- All these movies are composited into the sequential full length movie. (Adobe Premier)
- Title added at this stage.





Software and Plug-ins

- ❑ Maya plug-in for 3D studio formats – 3dsimport.mll
- ❑ Fantamorph 3.5
- ❑ Maya 8.5
- ❑ After Effects –Plug-in – Ultimatte Advantage
- ❑ Adobe Premiere
- ❑ Camtasia Studio 5



Thank you