



**CS5245**  
**Vision & Graphic for Special Effects**

**Project Proposal**

**The Magic 2K7**

**Team Members**

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**I. Title**

The Magic 2K7.

**II. Effect: “the smoky hand”**

In this project, we will apply foreground/background segmentation, and fluid-based deformation algorithm to make a part of body distorted (like smoke) and an object can pass through.

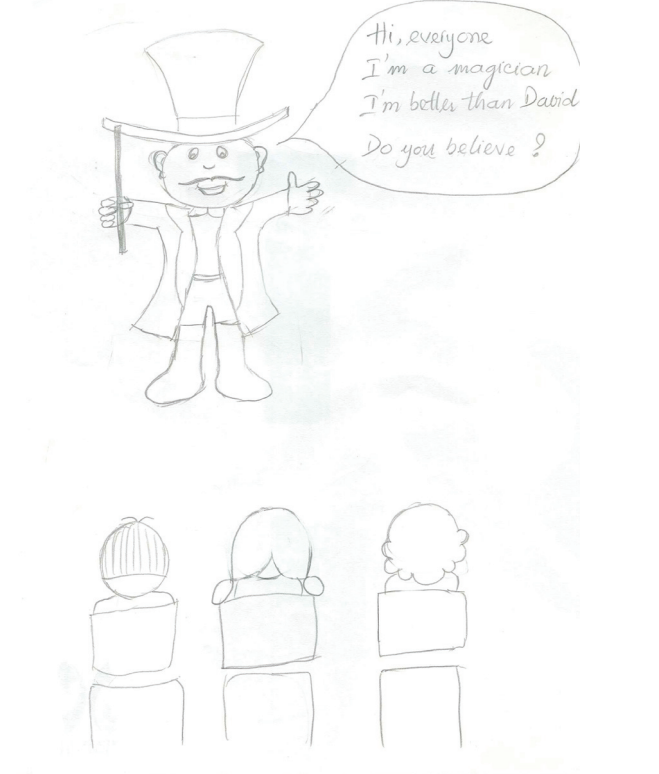

a. *Foreground/background extraction*

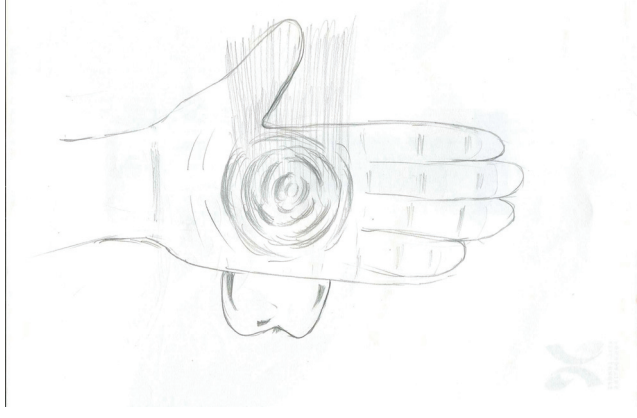
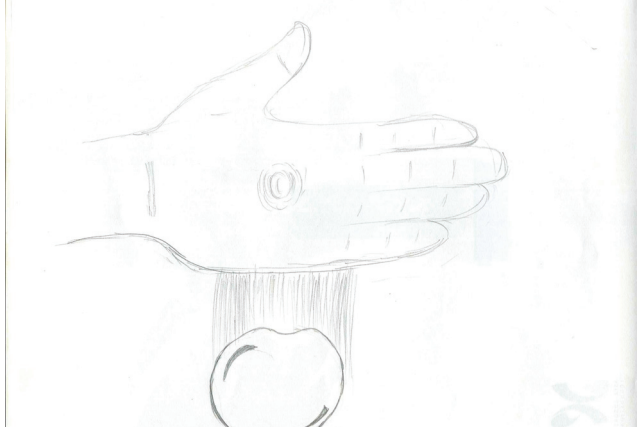
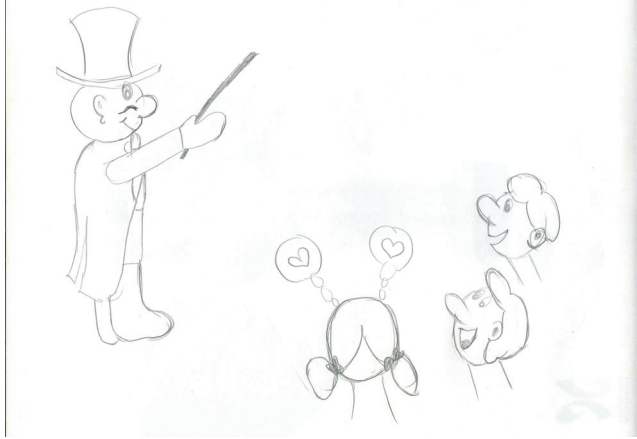
Observing that the “blue screen” techniques that use the foreground and the background from two different shots can make artifacts as results of different video quality, different lighting and “blue –spill”. Our method tries to extract foreground objects from their background. This yields better results because foreground/background layers are extracted from the same shot. Hence, these two layers will be in the same resolution, lighting, hue...

b. *Fluid deformation*

To synthesis the “smoke - like” effect, we will use the “Lattice Boltzmann” method which is closely approximating the general Navier-Stoke equation of fluid simulation. Next, we move the “foreground” pixels accordingly in that field. As the result, the object (“hand”) will be deformed gradually as the smoke being “blown away”.

### III. Storyboard

	<p><b>Intro:</b> In a show, a magician claiming that he's clever than David Copperfield.</p>
	<p><b>Rising action:</b> An apple goes through the magician's hand and deforms to a pearl.</p> <p>Foreground/background extraction technique is used to make the effect of the apple passing the magician's hand.</p>

 A hand-drawn illustration of a hand held palm up. A circular hole is visible in the center of the palm, and an apple is positioned within it. The hand is rendered with simple lines and shading.	<p>In this scene, fluid algorithm is used to create a “hole” on the magician’s hand while the apple is passing the hand.</p> <p>Furthermore, to create deforming effect of the apple, we calculate all moving particles’ positions and move to their new positions.</p>
 A hand-drawn illustration showing the hand moving upwards. The hole in the palm is now closed. Below the hand, an apple is shown falling away, with vertical lines indicating its downward motion.	<p>In this part, the magician’s hand is moving up. And the hole on the hand is recovered after a while.</p> <p>And an apple finishes deforming into a pearl when it hits the ground.</p>
 A hand-drawn illustration of a magician on the left, wearing a top hat and a long coat, holding a wand and pointing towards the right. In the center, a small figure is being pulled up by two heart-shaped charms. On the right, two audience members are shown looking on with interest.	<p><b>Conclusion:</b> The show ends in cheers.</p>

#### **IV. Layers**

We use 3 layers:

- a. Original movie.
- b. Background only match with original movie.
- c. Foreground only match with original movie.

#### **V. Project team members**

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#### **VI. Assignments**

Fluid Effect	Lu The Kiet
Image Segmentation	Nguyen Tien Dung
Particles Moving	Nguyen Dinh Hai
Others	All members

#### **VII. Timeline**

- a. Week 4: Proposal
- b. Week 5: Project prototype using simple foreground/background
- c. Week 6: Shooting real video
- d. Week 7: Project progress report
- e. Week 8-9: Footage editing and vision special effect creation.
- f. Week 10: Project Finalization.
- g. Week 11: Presentation