

21st Century Film School

Teaching Virtual Production at
Rochester Institute of Technology

75TH UFVA Conference

July 30th, 2021

From Matte Paintings to LED Walls

The Evolution of a More Convincing Reality in Filmmaking

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George Eastman's "Kodak" Camera and Thomas Edison's "Visual Phonograph" needed:



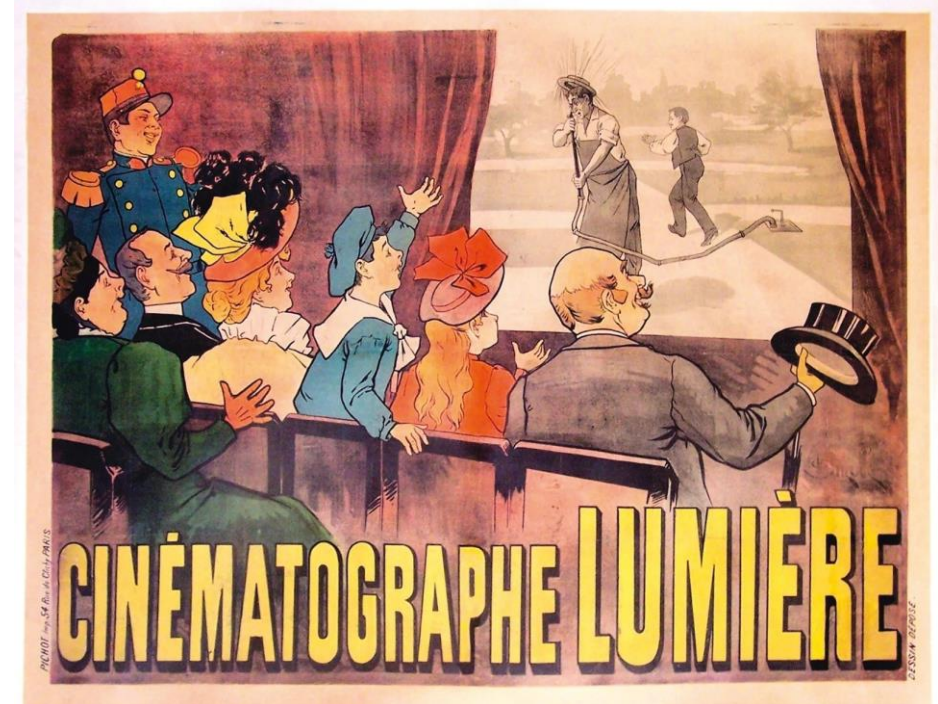
Strong, Flexible, and Transparent Photographic Film

Thomas Edison's Kinetoscope Using Eastman Celluloid Film



"Boxing Cats" 1894 - Kinetoscope

Kinetoscopes in Parlors vs. Film Projectors in Theaters



“If we put out a screen machine (film projector) there will be a use for maybe about ten of them in the whole United States. With that many screen machines, you could show the pictures to everyone in the country – and then it would be done. Let’s not kill the goose that lays the golden egg.” – Thomas Edison

Liberating the Camera



ELECTRIC THEATER— 262 S. MAIN, OPP. THIRD ST.
New Place of Amusement.
UP-TO-DATE, HIGH CLASS MOVING PICTURE ENTERTAINMENT. Especially for Ladies and Children. See the capture of the Biddie Brothers, New York in a blizzard and many other interesting and exciting scenes. An hour's amusement and genuine fun for
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Various Buster Keaton Films

Early Multiple Exposure

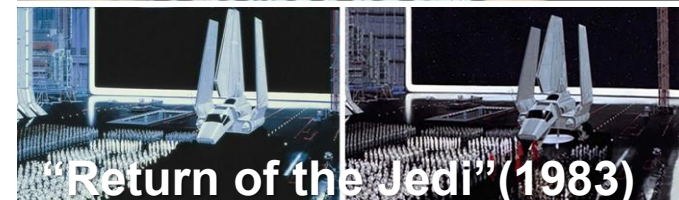
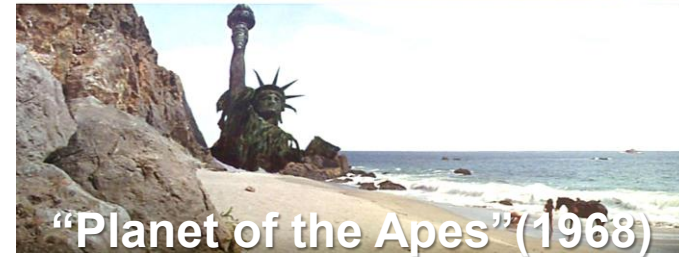


“The Great Train Robbery” - 1903

“Sunrise” - 1927

“Ella Cinders” - 1926

Matte Paintings on Glass (on-set and post prod.)



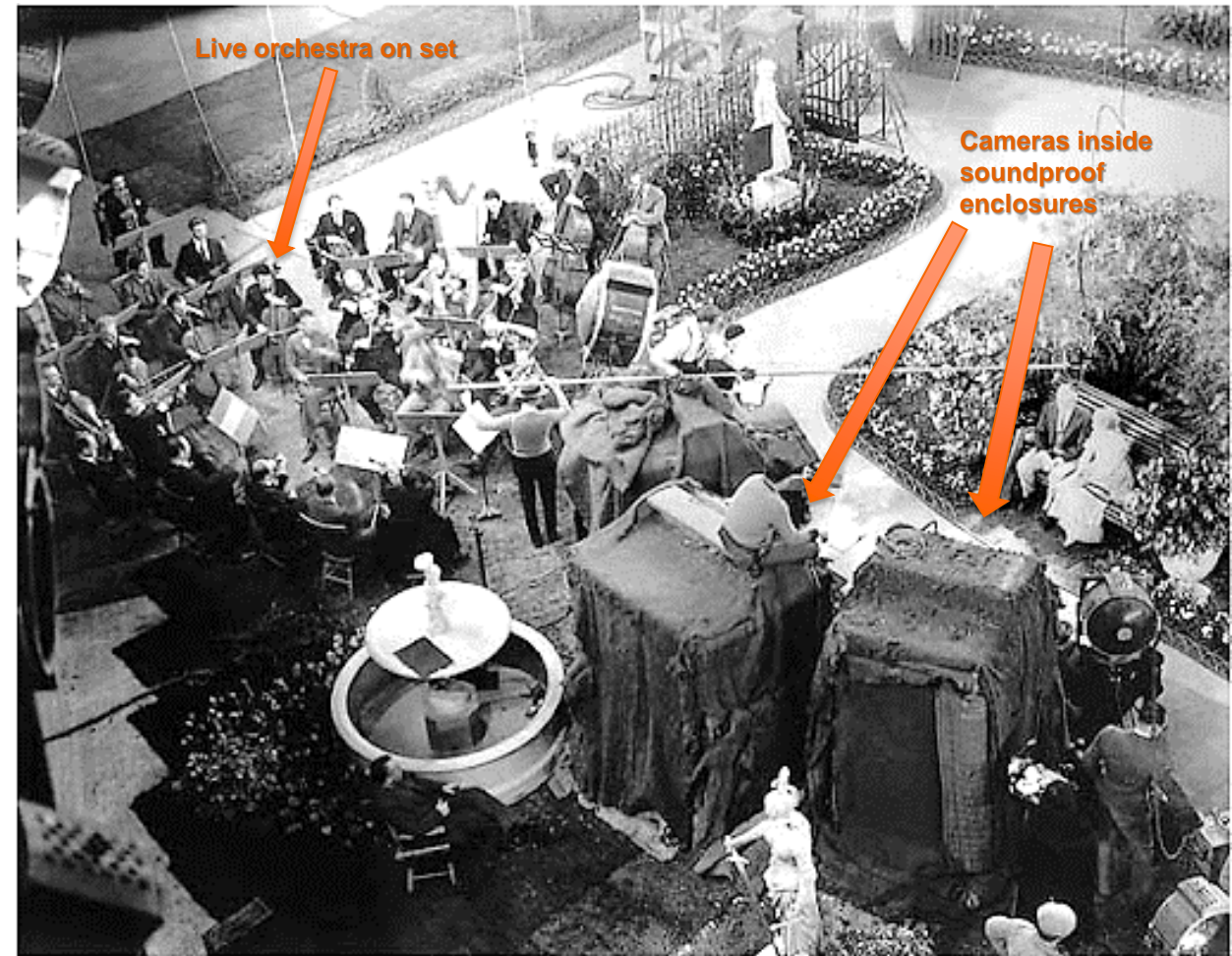
Forced Perspective to Create Depth and Exaggerate Size



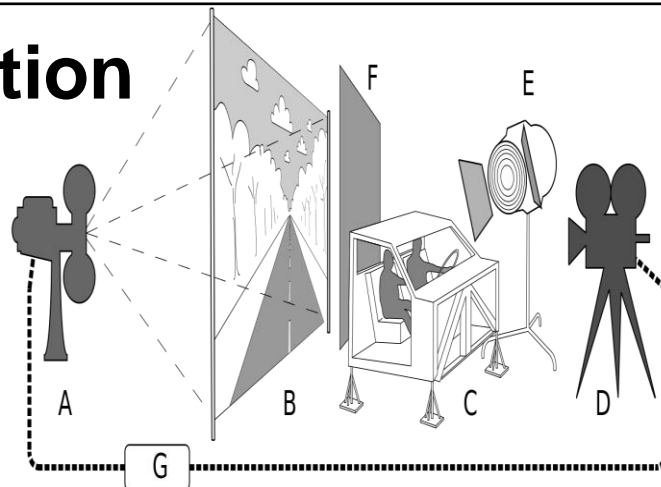
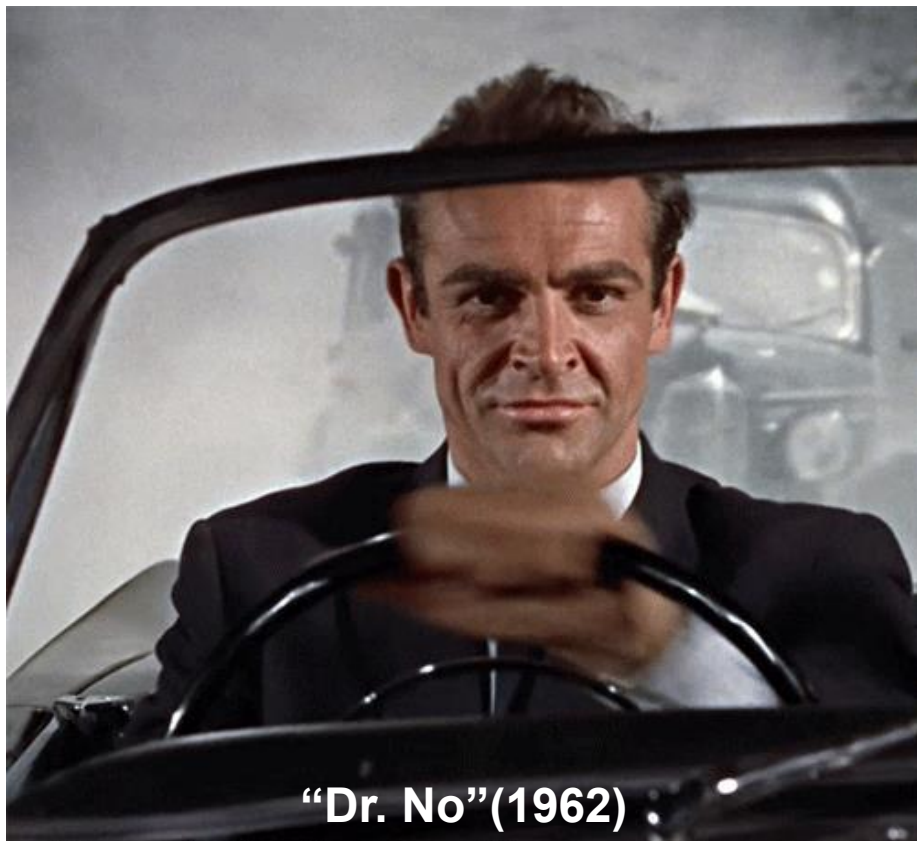
Synchronized Sound



"We didn't need dialogue. We had faces."
– Norma Desmond, Silent Film Actor (fictional)



Synchronized Rear Projection



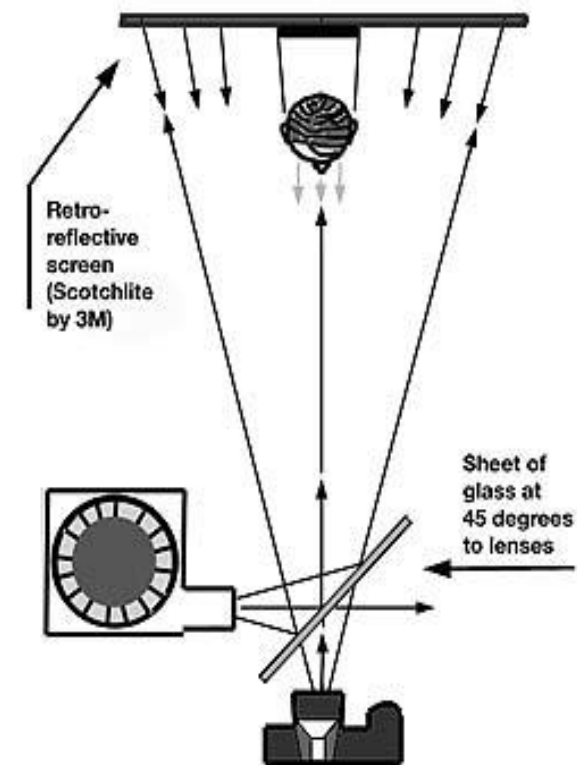
A - movie projector;
B - translucent screen;
C - actors in decoration;
D - movie camera;
E - scene lighting;
F - protective screen;
G - common AC power source for camera and projector drives.



Synchronized Front Projection

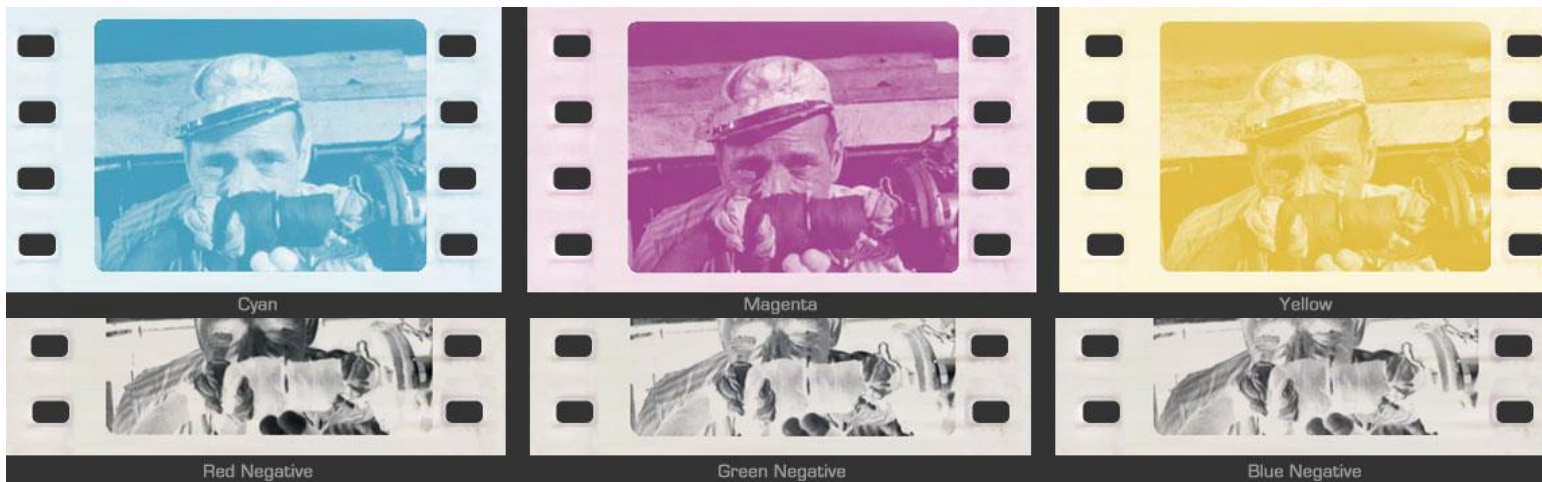
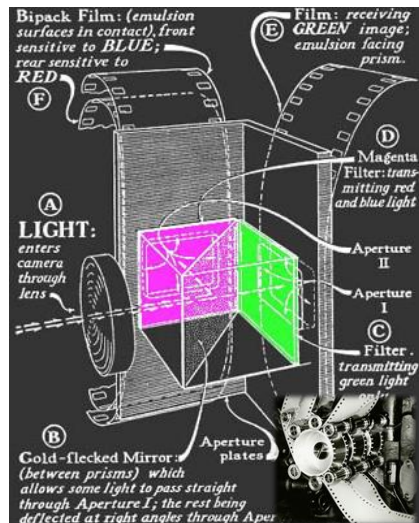


FRONT PROJECTION TECHNIQUE



Projector lens and Camera lens aligned so that their "axes" are coincident - misalignment leads to shadows of subject on background

Technicolor Three-Strip Film Process



Eastmancolor Single-Strip Negative Film



"Royal Journey" (1951)

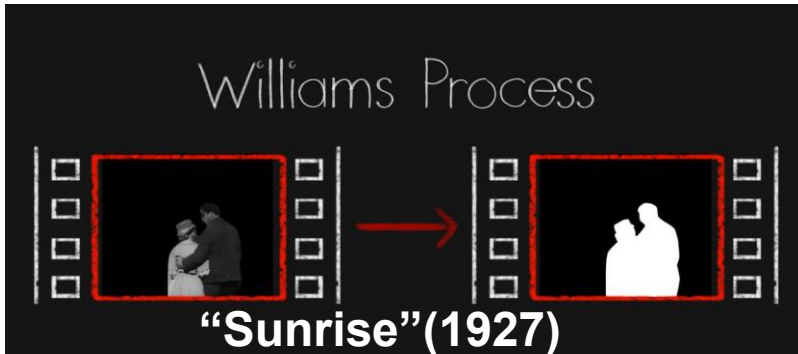


"Oklahoma!" (1955) IN CINEMASCOPE

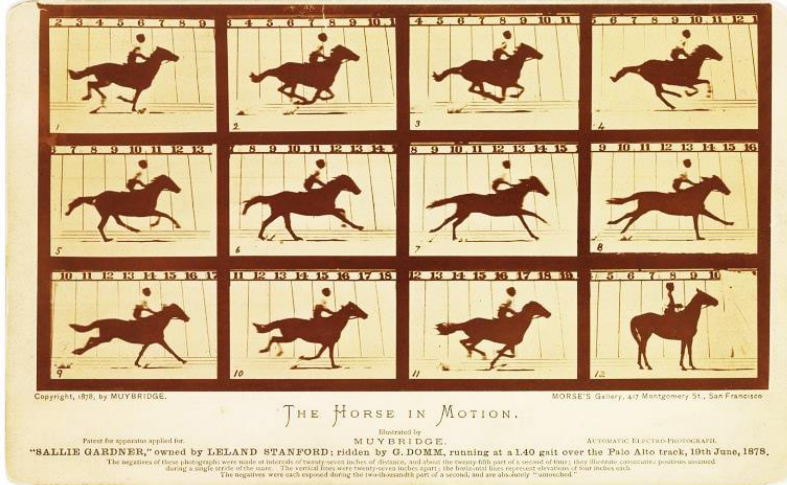


"Vertigo" (1958)

Compositing: Traveling Matte and Chroma Key

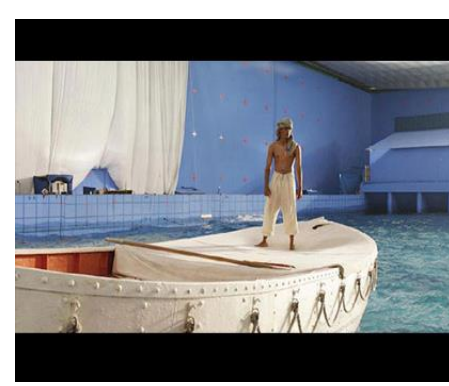
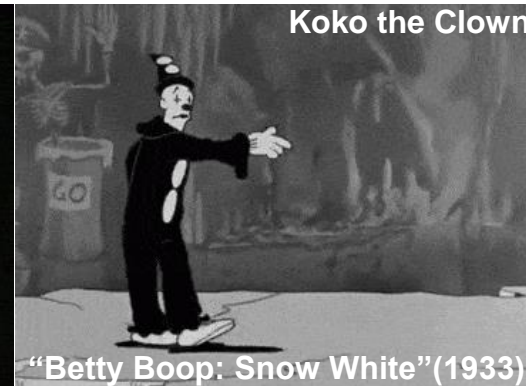


Motion Capture and Computer Generated Imagery (CGI)

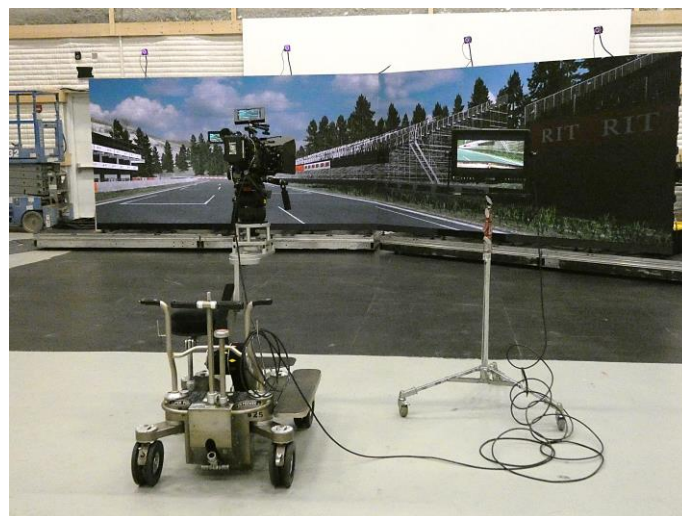
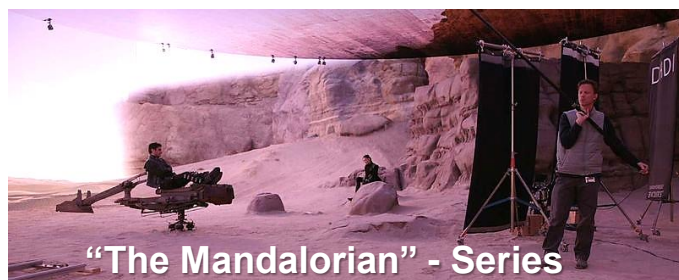


First Motion Capture:

Eadweard Muybridge's quick succession of photos of Leland Stanford's horse (Palo Alto, CA 1878) inspired Thomas Edison to conceive of a "visual phonograph" machine.

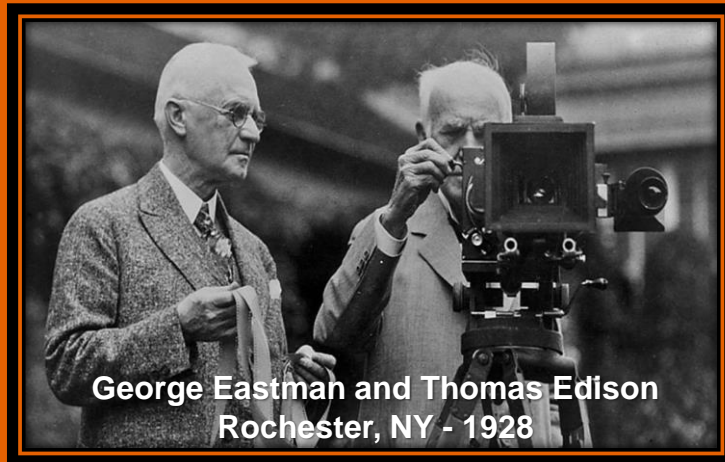


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