IMAGO ODDC conference

Stereoscopic Image Acquisition

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Kommer Kleijn SBC

- Visual Effects Cinematographer - Stereographer
- Worked on 10 stereoscopic productions starting '98
- Used a choice of different camera solutions
- Co-designed a stereoscopic camera
- Collaborating on new camera development projects
- Own stereoscopic screening room
- Member of UP3D and StereoGrapherS.net
- SBC, IMAGO, EDCF, BKSTS, SMPTE
- Free lance consultant

Challenges when shooting 3D

- **Find a Stereographer**
- **Find a camera**
- Prepare
- Shoot
- Editing, Compositing, VFX
- 3D Grading
- Distribute and project

Find a camera system

- Virtually all available camera solutions today are either prototypes or are custom build
- All have particular parameters making them more or less suitable for a particular job
- Many are linked to a particular company and/or to a particular stereographer

Find a Stereographer

- Not many around in comparison to the recent and very sudden hightened interest in 3D
- Newcomers actually have limited experience
- Some are linked to a company and/or a particular camera system
- Independent advice not easy to find
- Good collaboration with Director and Cinematographer is essential

Your Stereographer

(A few questions much like what one would check before hiring a cinematographer)

- For how many years is he/she actively involved in stereography ?
- How many stereo projects did he/she do and how were the results ?
- What kind of cameras does he/she have access to? Are these optimal for the project?
- Does the stereographer understand and agree with my message and goals ?
- Can he/she feel comfortable with the 3D options I would like to take for my project ?

Stereography

- Should be seen as a creative task (Not only a problem solver)
- "making it work" and "avoiding eyestrain" is only the beginning
- Will hopefully develop into a storytelling art (like cinematography did)

Stereo Cinematography

- Make excellent images
- Avoid high contrast situations where stereo disparity is to be expected (to limit Ghosting)
- Whenever possible : Write and design for 3D

A few available Stereo Cameras

- Alain Derobe mirror rigs
- (Bogard) small, medium

A few available Stereo Cameras

- Large

A few available Stereo Cameras

- Arrivision 3D lenses (BFC / FxBox)


ARRIFLEX
ARRI
ARRIHEAD

A few available Stereo Cameras

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A few available Stereo Cameras

Binocle mirror and parallel rigs Paris

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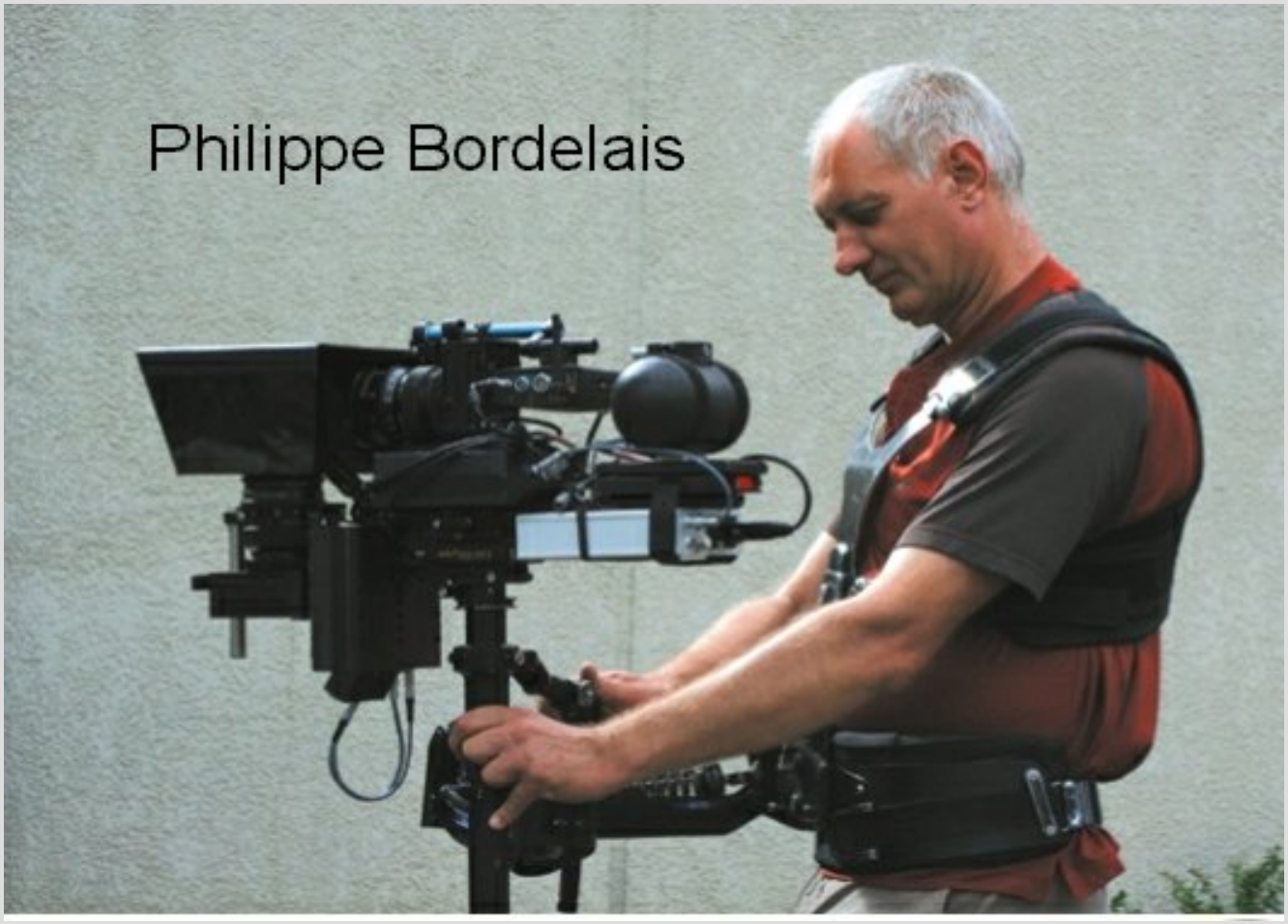
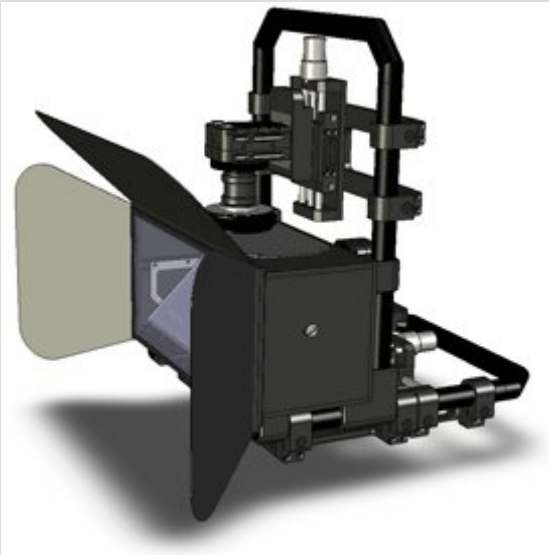
Binocle mirror and parallel rigs Paris

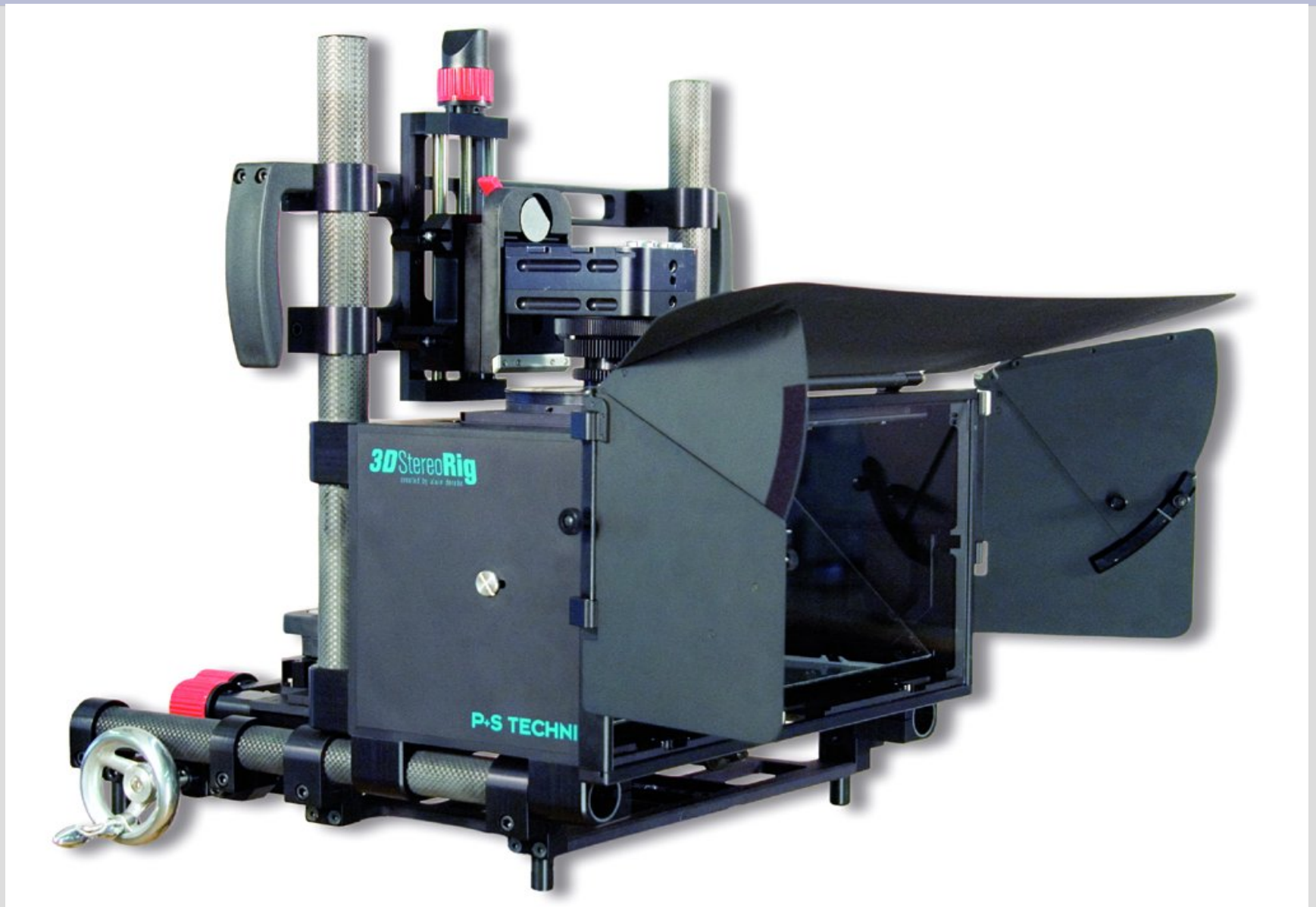


A few available Stereo Cameras

- P+S mirror Rigs:
- First off-the-shelf 3D acquisition solution

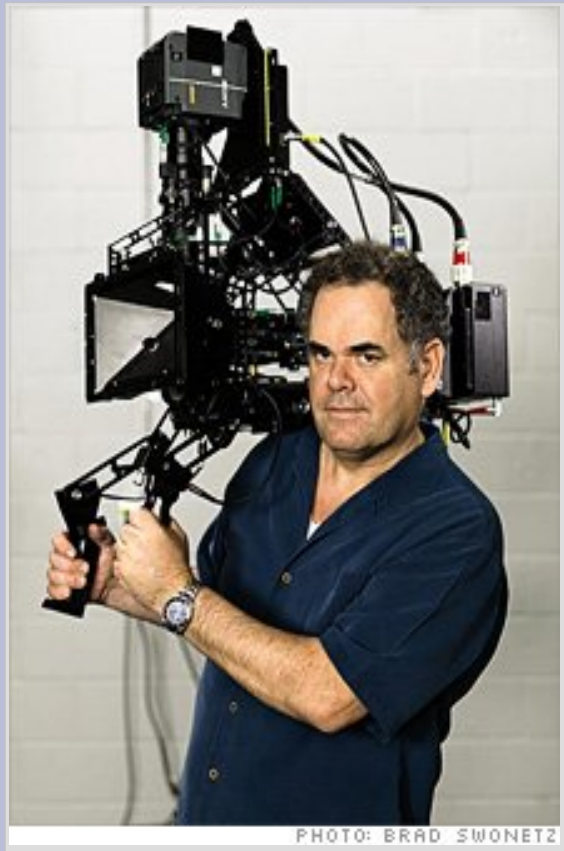


A few available Stereo Cameras



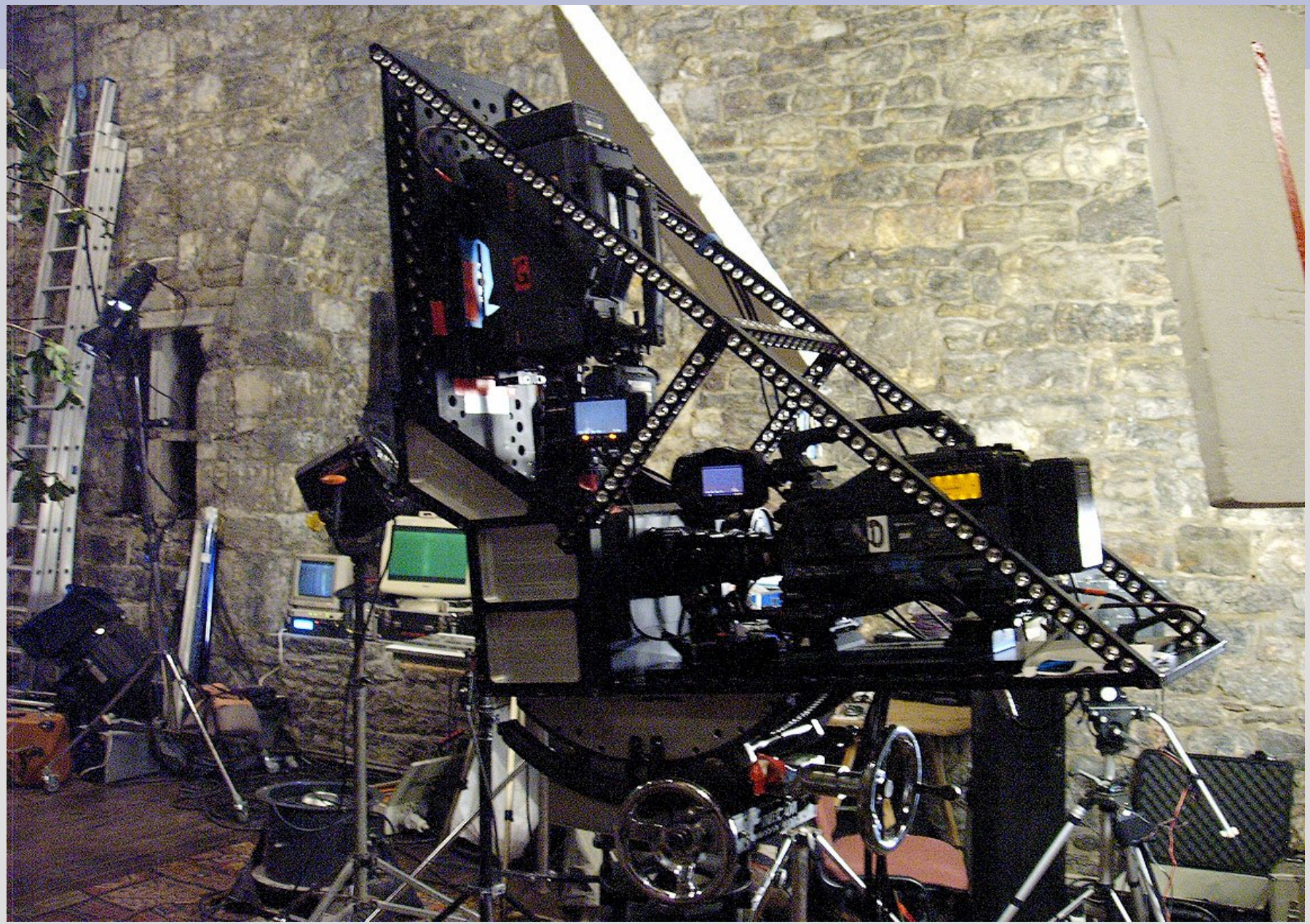

ARRI
MEDIA
SONY

Vince Pace



3ality Systems

Videorelief - Laurent Verduci



Gunter Peschke

Mirror Rigs

- **ADVANTAGES**
- + flexible interocular
- + good availability
- + large choice of camera bodies and lenses
- **DESADVANTAGES**
- - looses one and a half stop of light
- - can be cumbersome in use
- - needs special care for stability, reflections
- - often required custom grip solutions
- - difficult to use filters
- - long setup

Over/Under lens systems
(Arrivision3D, StereoVision)

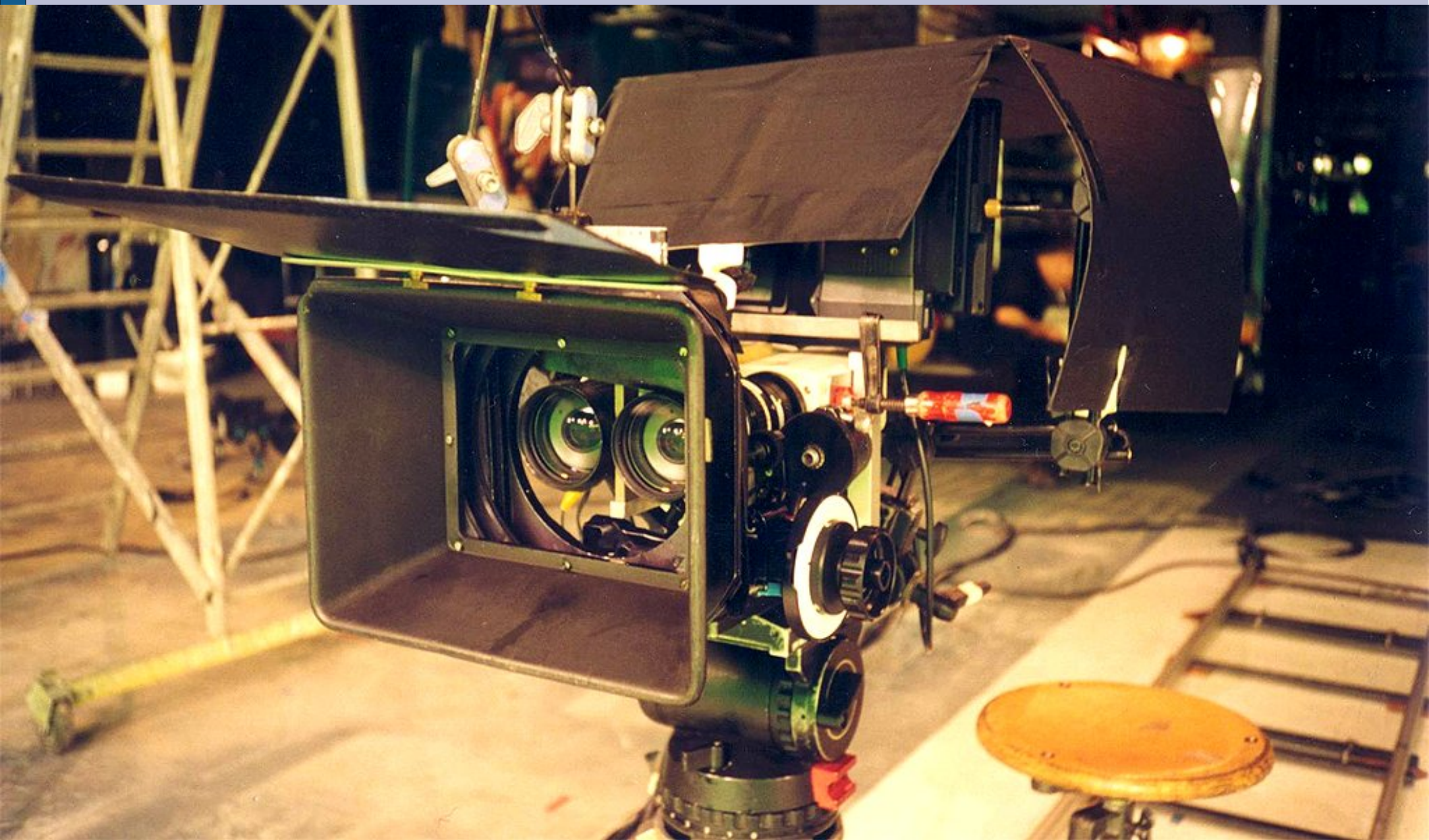
- **ADVANTAGES**
- + small, reliable and stable
- + fast in setup and use
- + choice of camera bodies (film or digital)
- + almost same size as 2D camera
- + standard grip solutions, standard filters
- **DESADVANTAGES**
- - low sensitivity (important light loss)
- - fixed interocular, limited lens choices
- - rare, limited availability

Parallel bodies

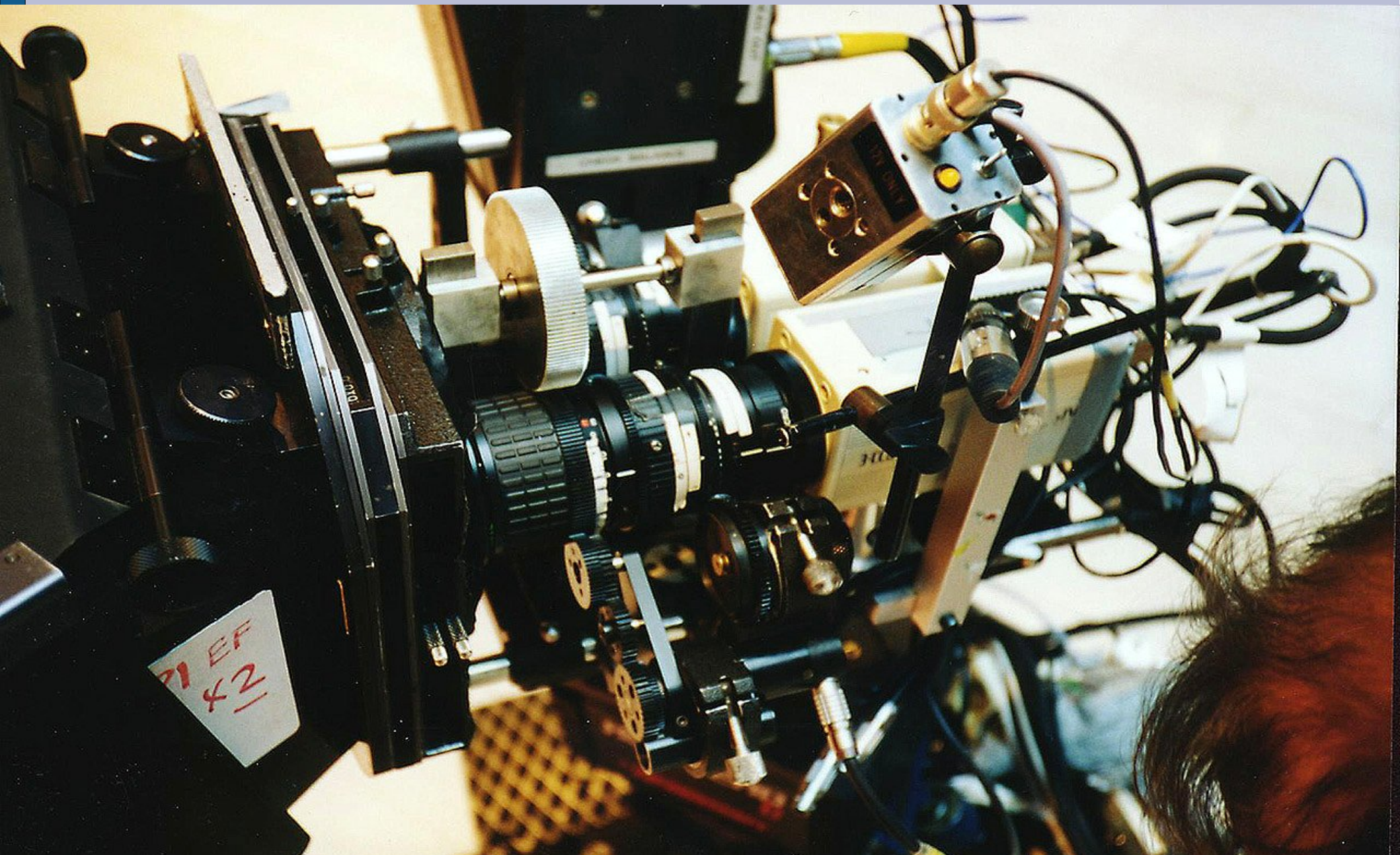
- **ADVANTAGES**
- + can be small, reliable and stable
- + fast in use
- + no light loss, high sensitivity
- + can be virtually same size as 2D camera
- + standard grip solutions, standard filters
- **DESADVANTAGES**
- - no low interocular
- - no of-the-shelf availability
- - limited lens choices because of size

Parallel bodies

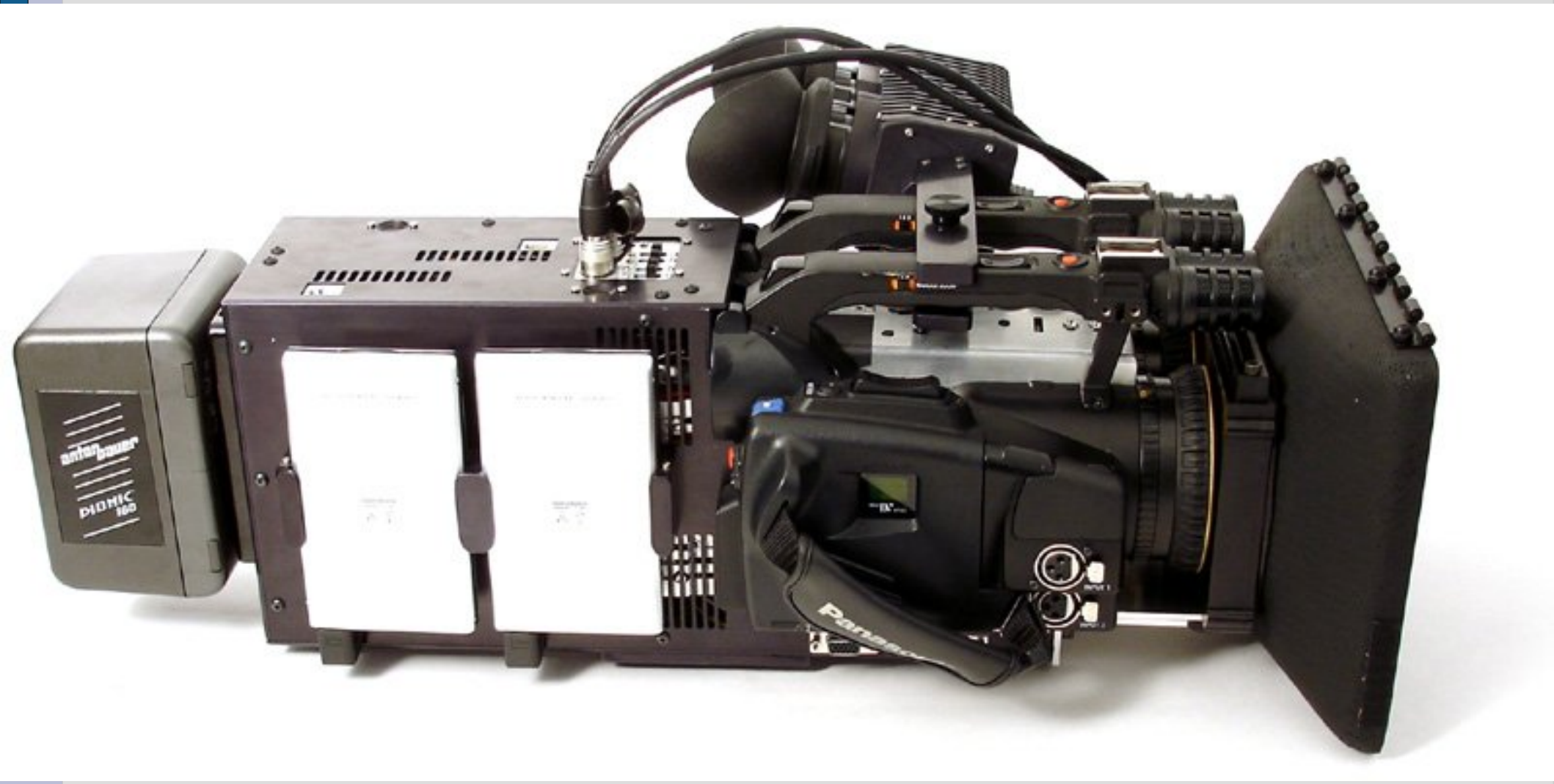
Parallel bodies

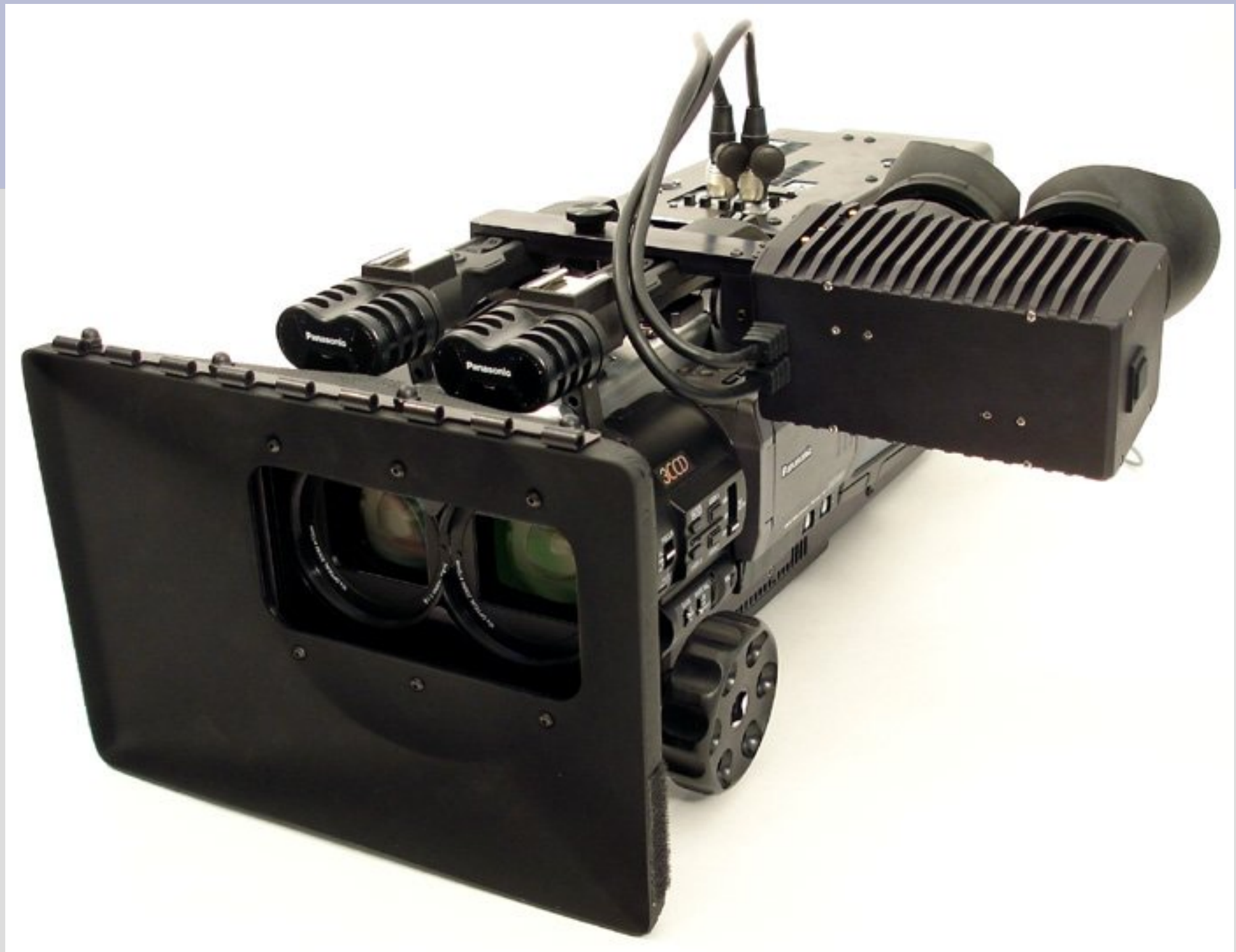


Parallel bodies



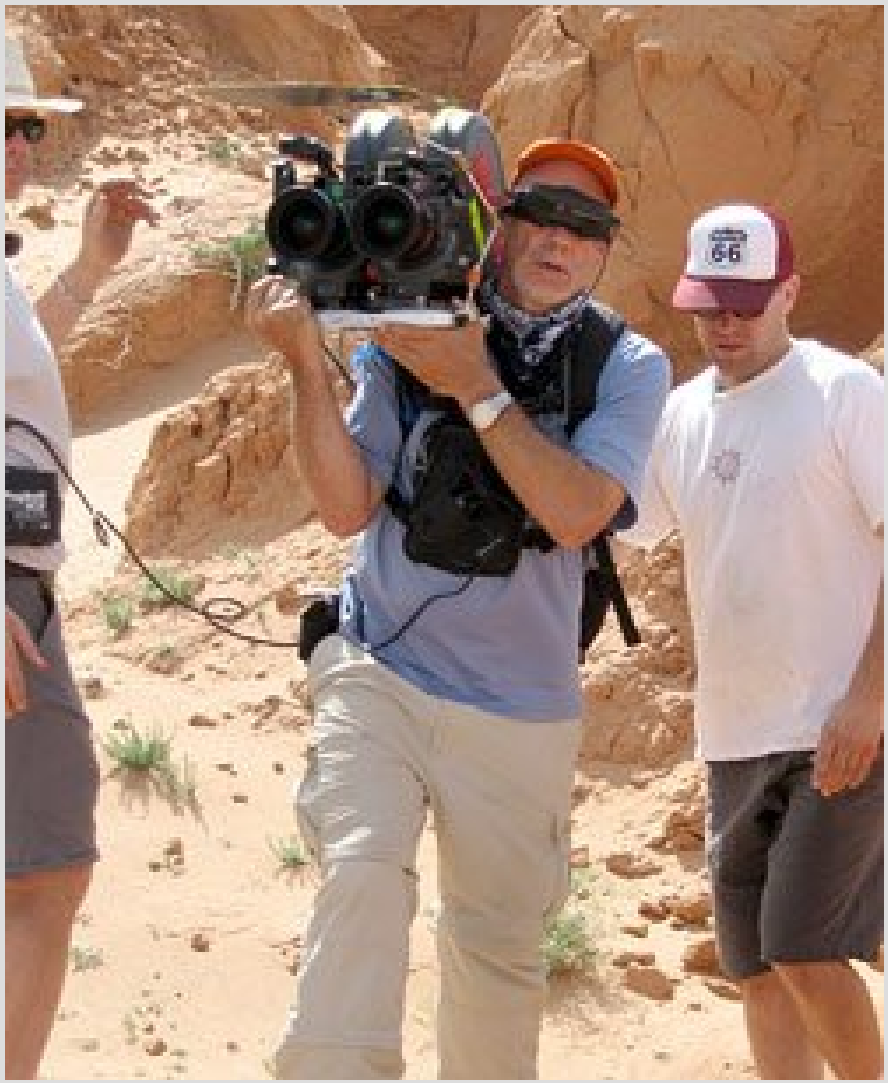
Jason Goodman 3DVX3




Panasonic
Panasonic
3CD

Red 3D Project

Dual Arri 235



Sean McLeod Phillips - Gemini

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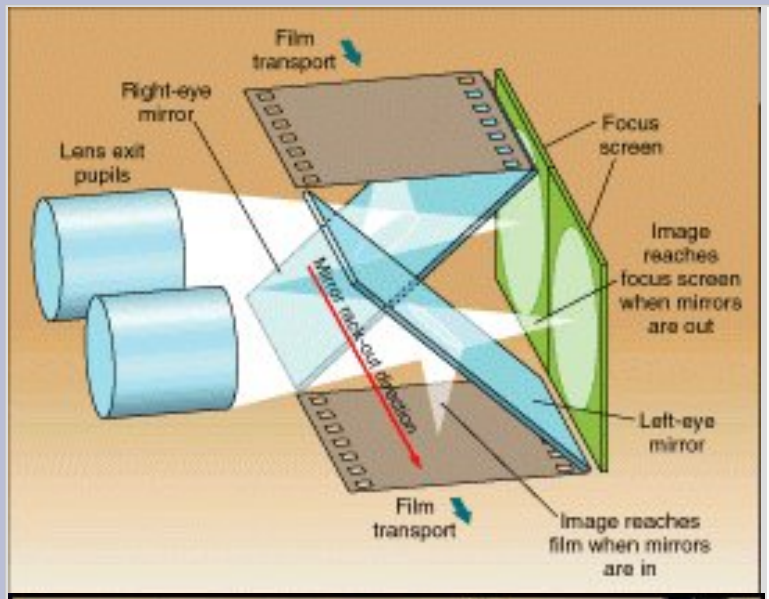
IMAX 3D Solido Camera



IMAX 3D Solido Camera

- 200 meters of 65mm film per minute (24fps)

Steve Hines

Hobbyists systems

Stereocam - Nuview


U-BIN

Stereocam - Nuview

Visualization

- 3D viewfinders (binocular, HMD)
- Single eyepiece (left only)
- Dual viewfinders
- On-set stereo monitors
- Projection !

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Personal Control equipement

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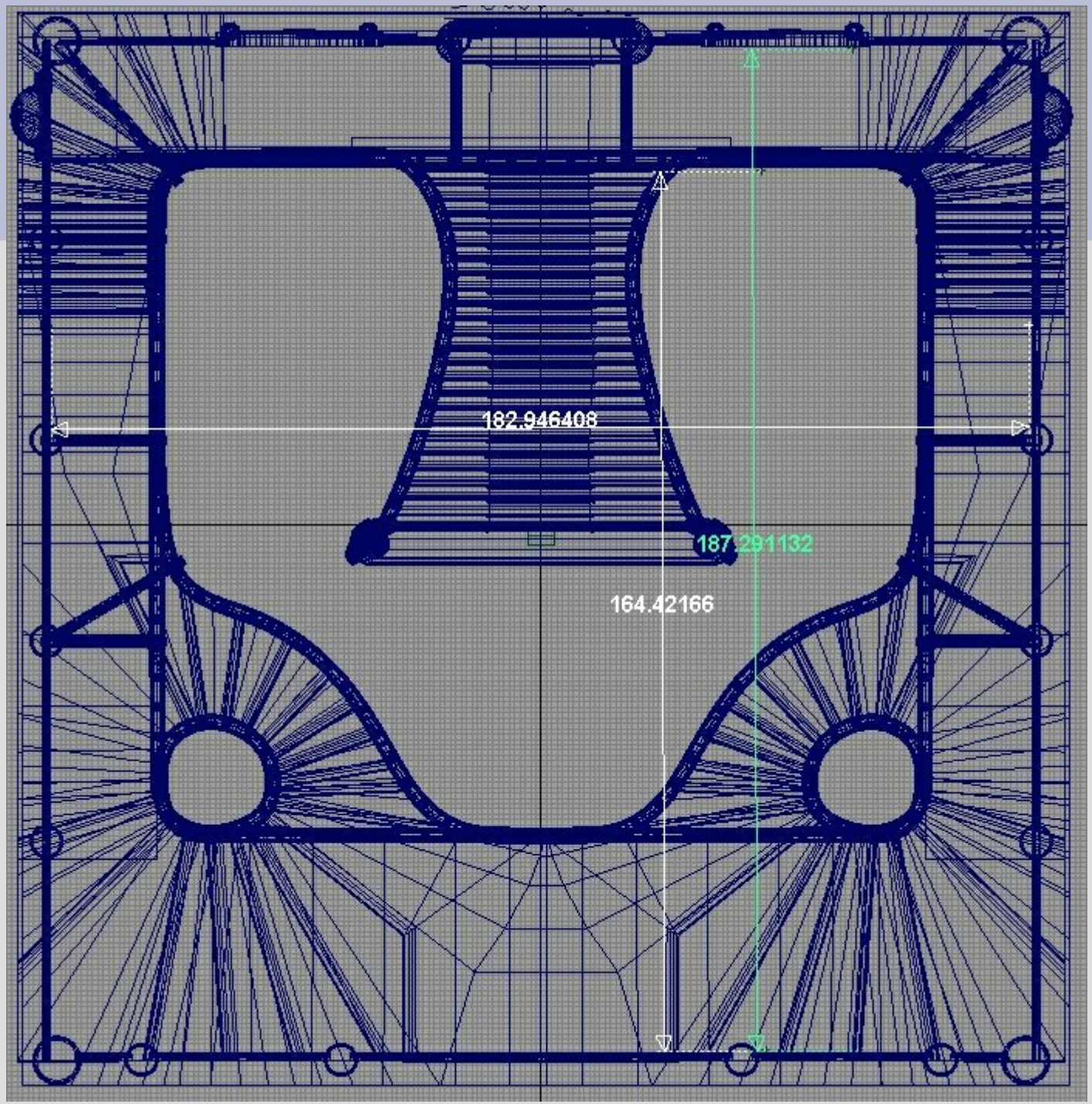
- **1** Video color monitor to compare colors
- **2** CrystalEyes stereo processor creates 100Hz stereo picture and sequential LR
- **3** FFV Omega Deck Dual Sync Harddisk videorecorder allows immediate sync replay
- **5** Matrix switch to choose sources to analyse
- **6** WFM to analyse and compare signals
- **7** Infrared transmitter for active 3D glasses
- **8** Stereo monitor running at 100 Hz
- **9** CrystalEyes active shutter glasses (100Hz)

Stereo CGI and live integration

- 3D allows the viewer to see distance
- This unveils a range of usual "cheats"
- Some of those cheats are still possible but can become a real challenge to succeed
- Avoid them if at all possible, try to work at the real distances and measures
- 3 Tips : Measure, measure, and measure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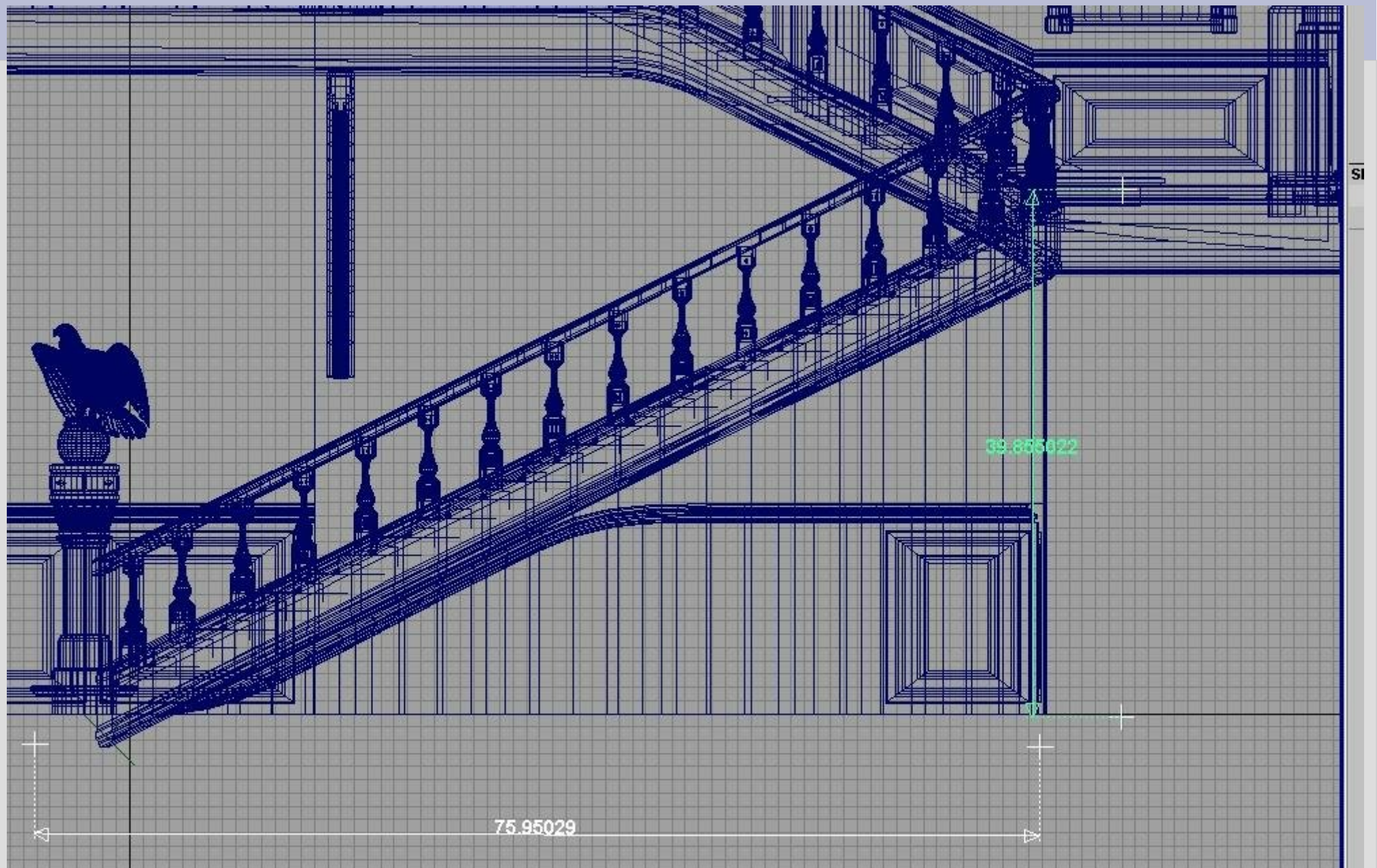
187.291132
164.42166

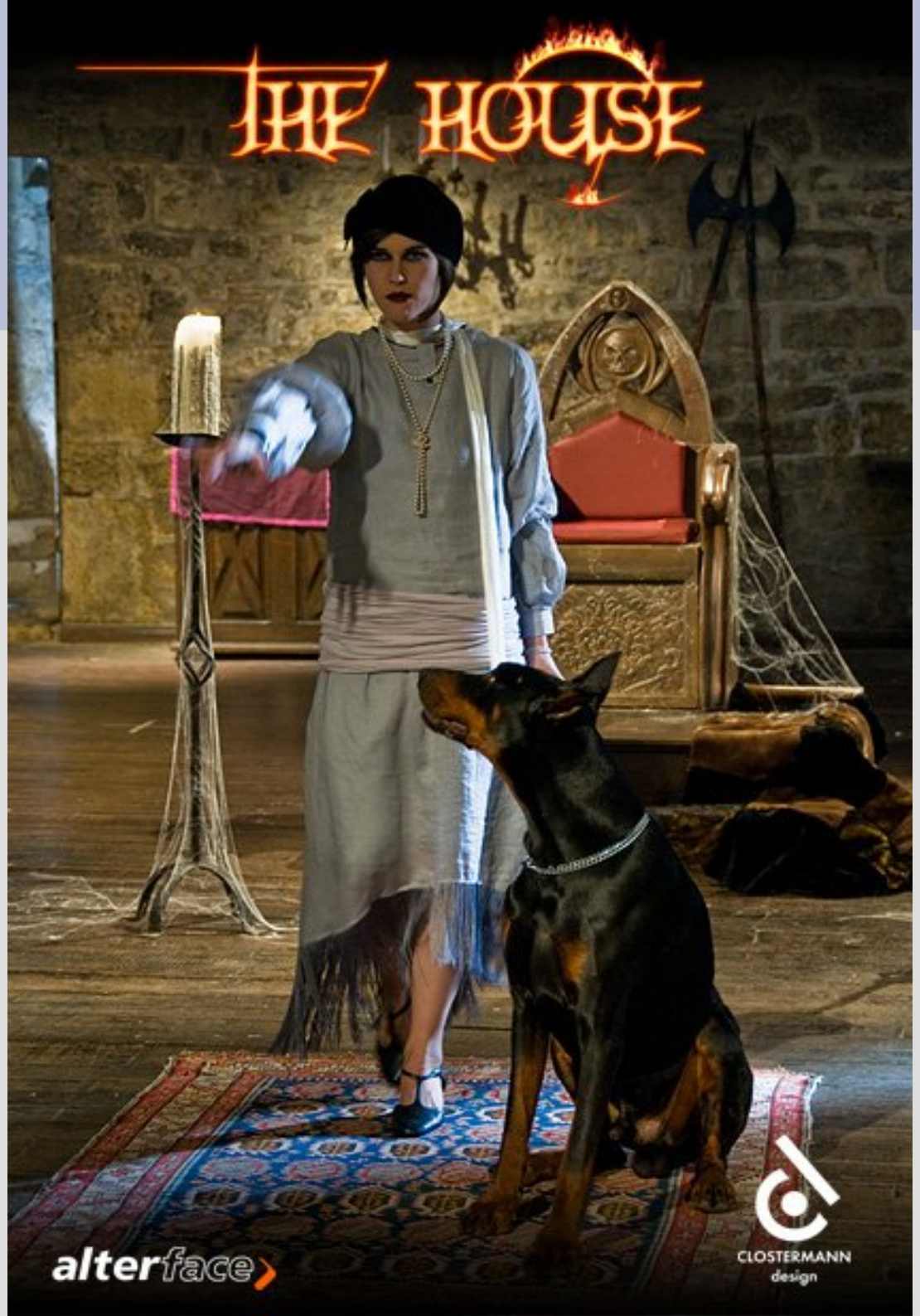
Stereo CGI and live integration
(Haunted Castle)



Stereo CGI and live integration
(Haunted Castle)

The House


THE HOUSE
alterface
CLOSTERMANN
design


THE HOUSE
alterface
CLOSTERMANN
design

Thank you

nWave Digital - Brussels

ACE Digital House - Brussels

Carrillon Producers - Amsterdam

Alterface - Louvain-la-Neuve

Thank you

Thank you for your attention

Please feel free to contact me on

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Oslo, May 16, 2009