IMAGINE
Intuitive Modeling and Animation for Interactive Graphics & Narrative Environments

Lab. Jean Kuntzmann, Univ. Grenoble Alpes, Inria
Authoring and directing animated story worlds

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Applications: cultural heritage (Lugdunum museum), animation (TEAMTO, Mercenaries), anatomy (Anatoscope), theatre (UGA Performance Lab) and car design (PSA).

Collaborations: Ecole Polytechnique, LIRIS, GraphDeco. ENSADLAB Spatial Media, IIIT Hyderabad, Univ. Wisconsin, Univ. Geneva, Univ. Genova, ETH, MIT.
In 1966, Alfred Hitchcock dreamt of a machine in which he’d "insert the screenplay at one end and the film would emerge at the other end" (Truffaut/Hitchcock, p. 330).
From IMAGINE to ANIMA

• Authoring: story-driven generation of sets, props, actors and costumes (« virtual theatre »)

• Directing: story-driven animation of virtual actors and cameras

• Supported by multimodal story understanding (script, storyboard, gesture, voice)

• Three research axes: story-driven shape modeling, animation and cinematography
Story-driven shape modeling

- From script and storyboard to sets, props, actors and costumes
- Reverse engineering shapes from movies
- Spatial interaction, shape modeling in AR and VR
Shape styles

- Authoring shapes with graphic stylesheet
- Learning shape styles from examples
- Transferring shape styles

Lun et al. Functionality Preserving Shape Style Transfer, Siggraph Asia 2016.
Story-driven animation

- From script and storyboard to animation
- Reverse engineering animation from movies
- Spatial interaction, animating in AR and VR
Animation styles

• Authoring motion with animation stylesheet
• Learning motion styles from examples
• Transfering motion styles

Xia et al. Realtime Style Transfer for Unlabeled Heterogeneous Human Motion, Siggraph 2015
Story-driven cinematography

- From script and storyboard to cinematography
- Reverse engineering cinematography from movies
- Spatial interaction, movie-making in AR and VR
Cinematographic styles

- Directing movies with cinematographic stylesheet
- Learning cinematographic styles from examples
- Transferring cinematographic styles
Conclusion

IMAGINE: Painting and sculpting metaphors useful for authoring virtual worlds

ANIMA: Storyboarding and rehearsing metaphors useful for directing story worlds
Thank you!