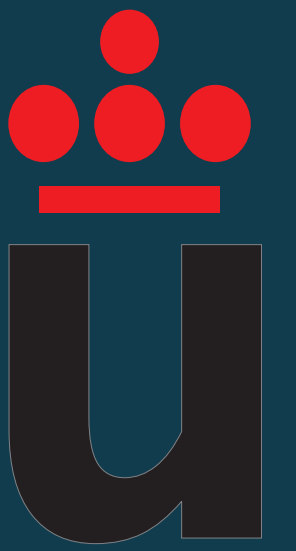# Character Animation
at the
Grupo de Modelado y Realidad Virtual

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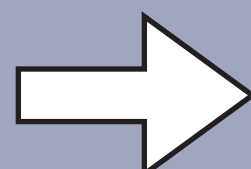
The GMRV was founded 4 years ago at the Rey Juan Carlos University (URJC) in Madrid, Spain. The group is composed of 8 instructors or assistant professors, 4 associate professors, 8 full-time researchers or PhD students, 4 part-time teachers, 3 administrative staff and leaded by Prof. Luis Pastor. Over the last 4 years, the research of the group has mainly focused on surgical simulators, haptics, physically based simulations and search by content in video. Recently, we started to work on various topics related to character animation.

Character Modeling from drawings

Aim: create a 3D mesh, an animation skeleton, a rigging and keyposes automatically from 2D drawings
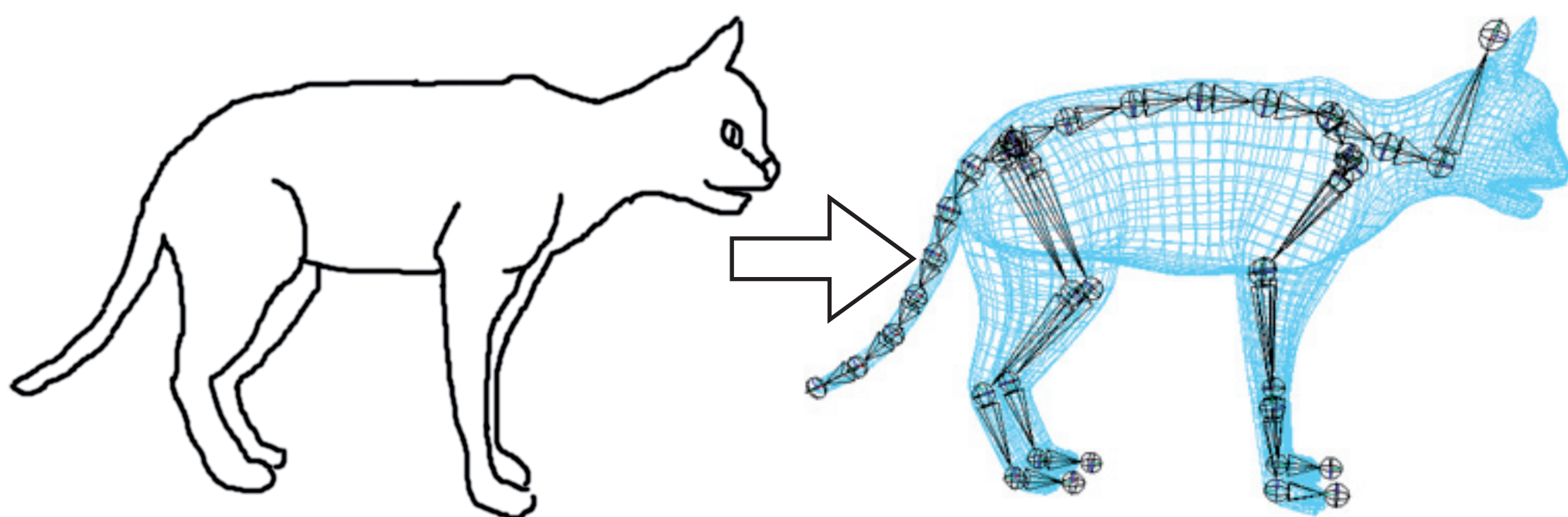
Character's sheet with a few different views of the rest pose and main keyposes → A complete 3D model and keyposes corresponding to the drawings
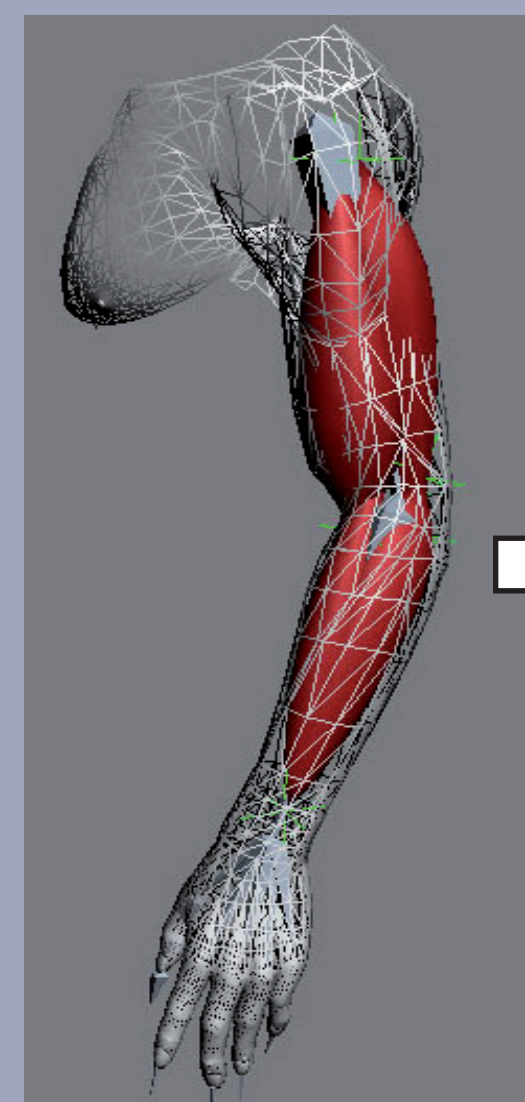
Muscles Animation on GPU

Aim: animate in real-time a 3-layered character model using a GPU-based pipeline

Modeling of skeleton, skin and muscles using standard modeling software → Exporting to our muscle-aware 3D engine → Animation in real-time of skin and muscles using the GPU. Inner tension, inertia, and gravity are taken into account
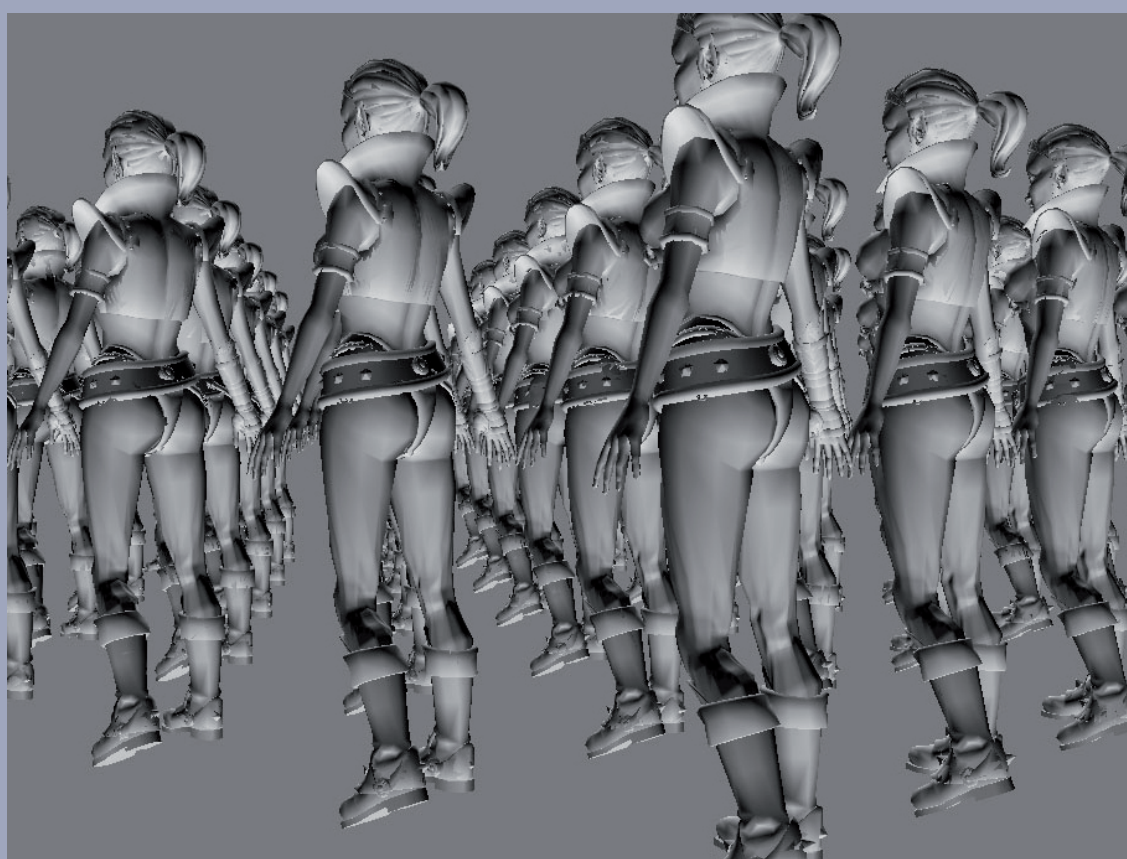

Standard mesh and skeleton data
+
muscles

Muscles Data:
- Origin & Insertion
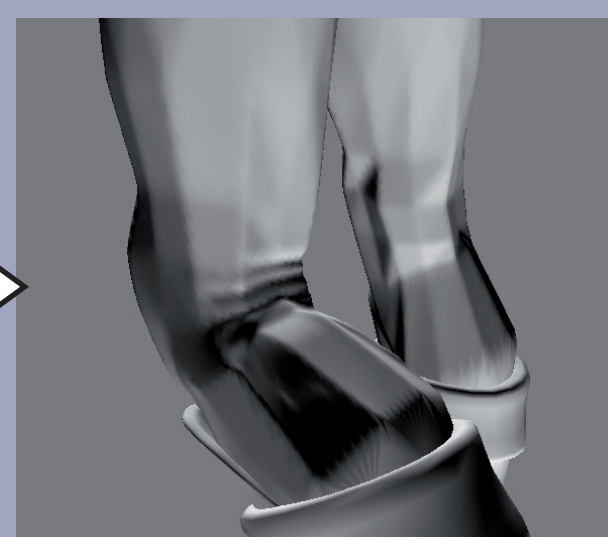- Shape parameters
- Tension parameter
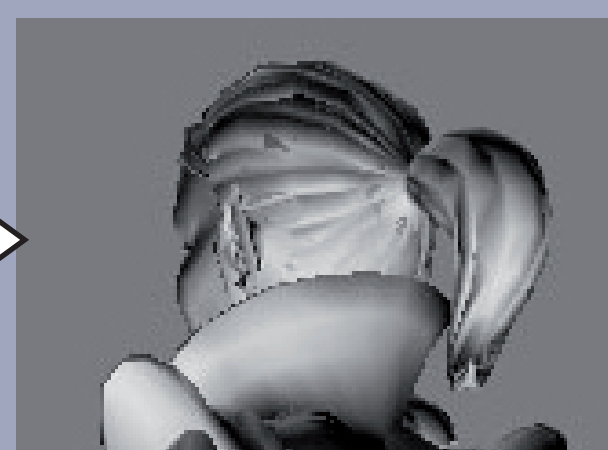
Real-time Animation for VEs

Aim: add existing real-time animation algorithms to our CAVE software EON Reality Inc. to enhance character animations
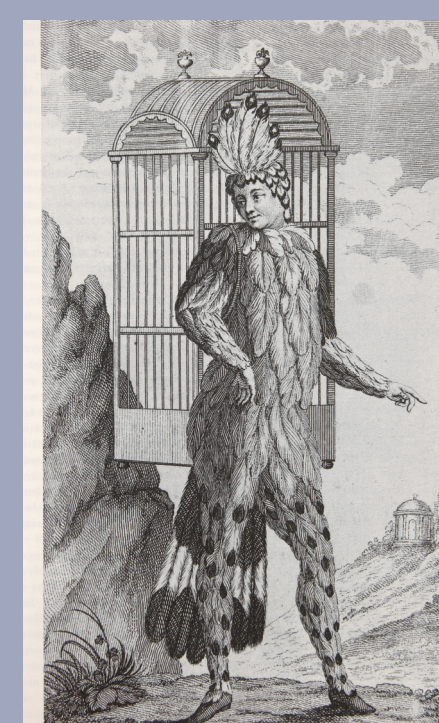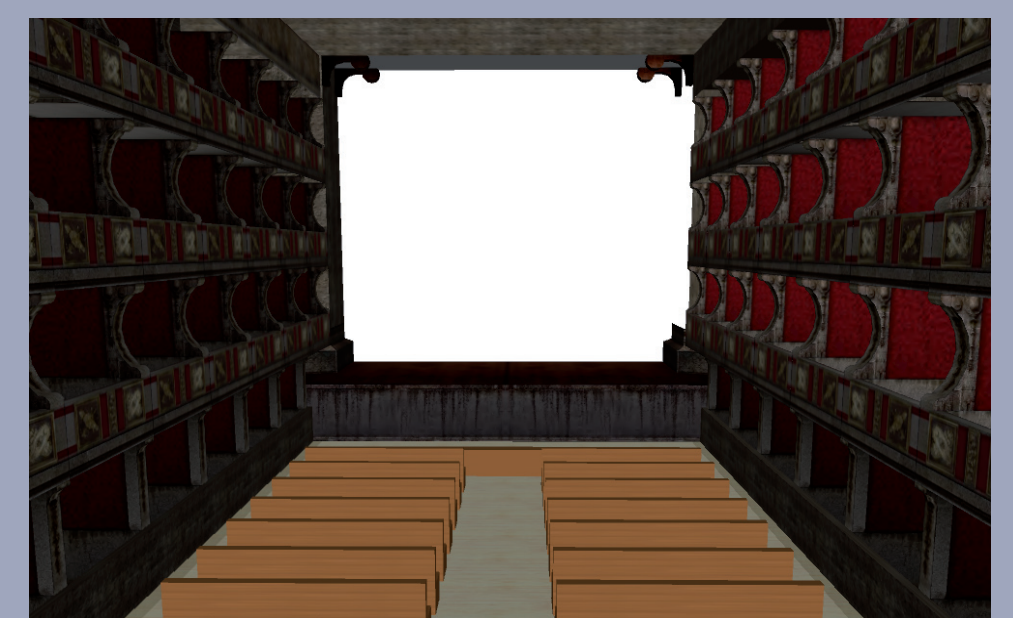

Wrinkles

A crowd animation

Dynamics

Mozart Virtual

Aim: reconstruct the lives and society of Mozart and Martin y Soler by recreating ancient cities and theaters where we animate virtual operas

Vicente Martin y Soler, compositor de la ópera Una cosa rara y L'arbore di Diana, ambas con libreto de Da Ponte. Grabado de Jacob Adam, 1787.