

VIRTUAL HUMANS

J.-C. Martin & C. Jacquemin



- **Research goals**

- A growing number of applications use virtual characters (e.g. video games, pedagogical agents, virtual arts)
- The underlying computational models still have limitations

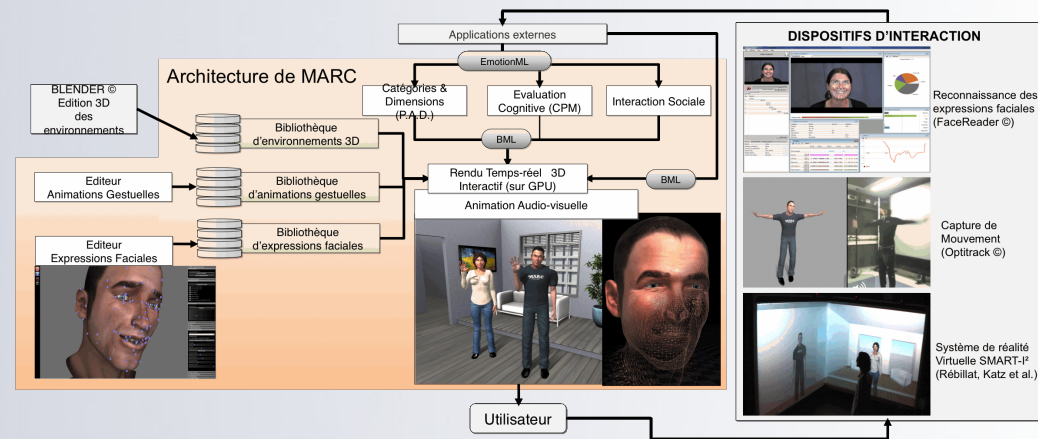
- **Outline of the course**

- Introduces the main techniques for modeling, animating and rendering realistic, expressive and interactive virtual humans
- Organized in two strands:
 - (1) real-time computer graphics for expressive and realistic rendering of animated faces and 3D bodies
 - (2) fundamental aspects of multimodal communication from the Social Sciences perspective
- 25hrs, 4 ECTS, 1 written exam, 1 oral presentation

VIRTUAL HUMANS

Jean-Claude Martin

- Dynamic models for emotions and social interactions
- Postures and face expressions
- Software tools & architectures
- Advanced techniques for 3D animation and rendering
- Realistic rendering and behavior
- Evaluation protocols
- Interaction devices, interfaces with Embodied Conversational Agents

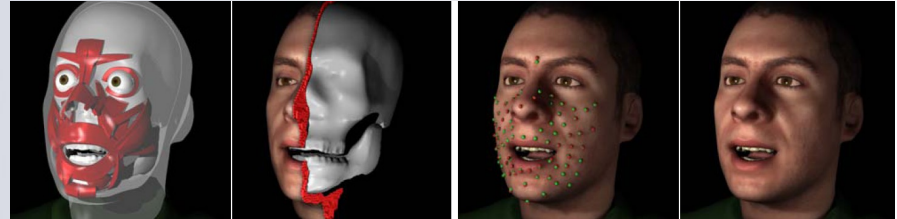


(Courgeon et al.)

VIRTUAL HUMANS

Christian Jacquemin

- FACIAL ANIMATION
(wrinkle, expressions...)
- SKELETAL ANIMATION
(inverse kinematics, cloth, style...)
- CROWD & GROUP ANIMATION
(simulation, behavior...)
- VIRTUAL HUMANS IN ART
(video games, virtual actors...)



Sifakis et al. 2005



Feng et al. 2010



Yersin et al. 2009



Barret & Courgeon, 2011