Computer Animation

Michiel van de Panne

Computer Graphics

Rendering

Imaging

Animation

Modeling

HCI

Visualization

Computer Vision

Scientific Computing

Robotics, Engineering
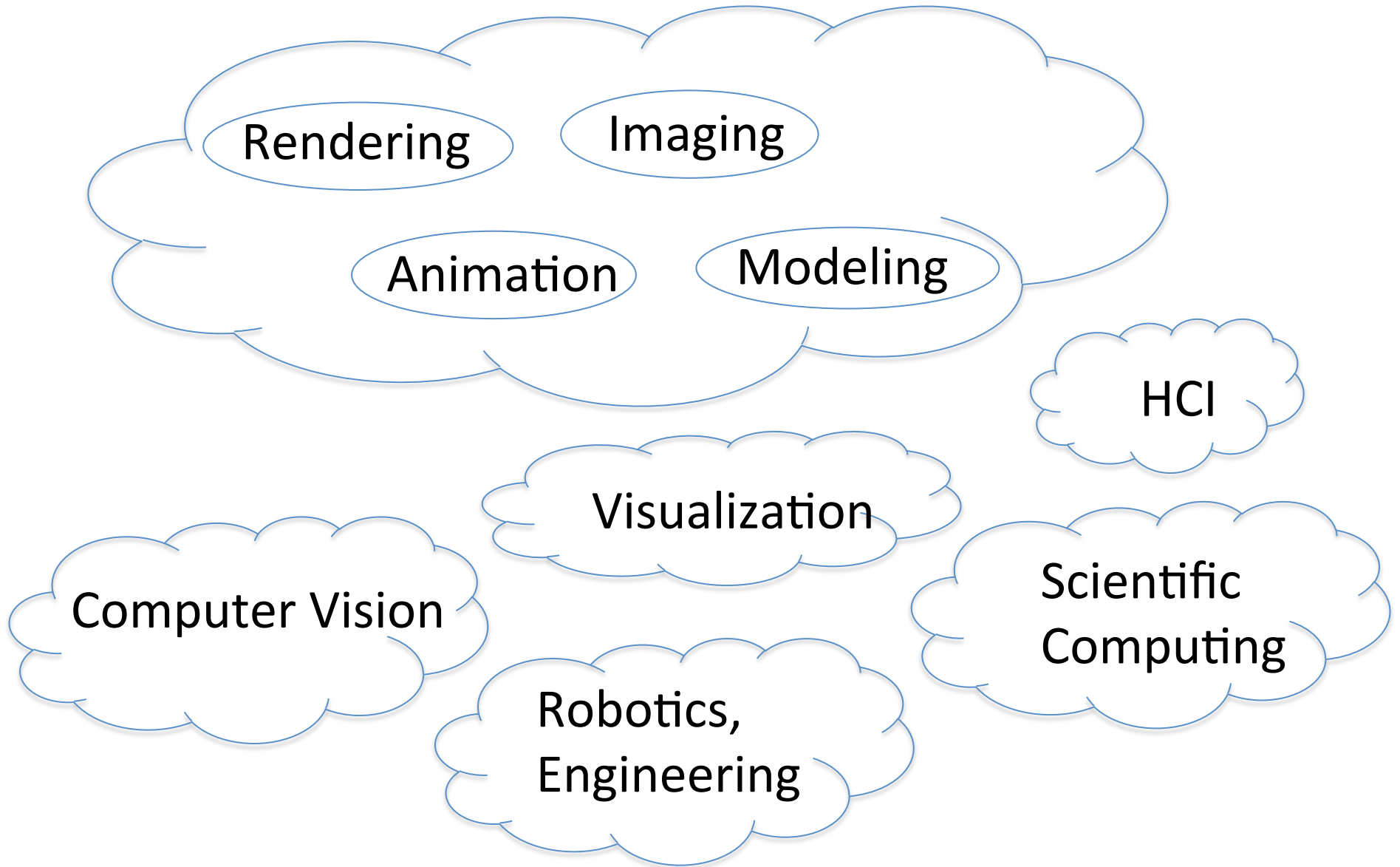
Computer Graphics Applications
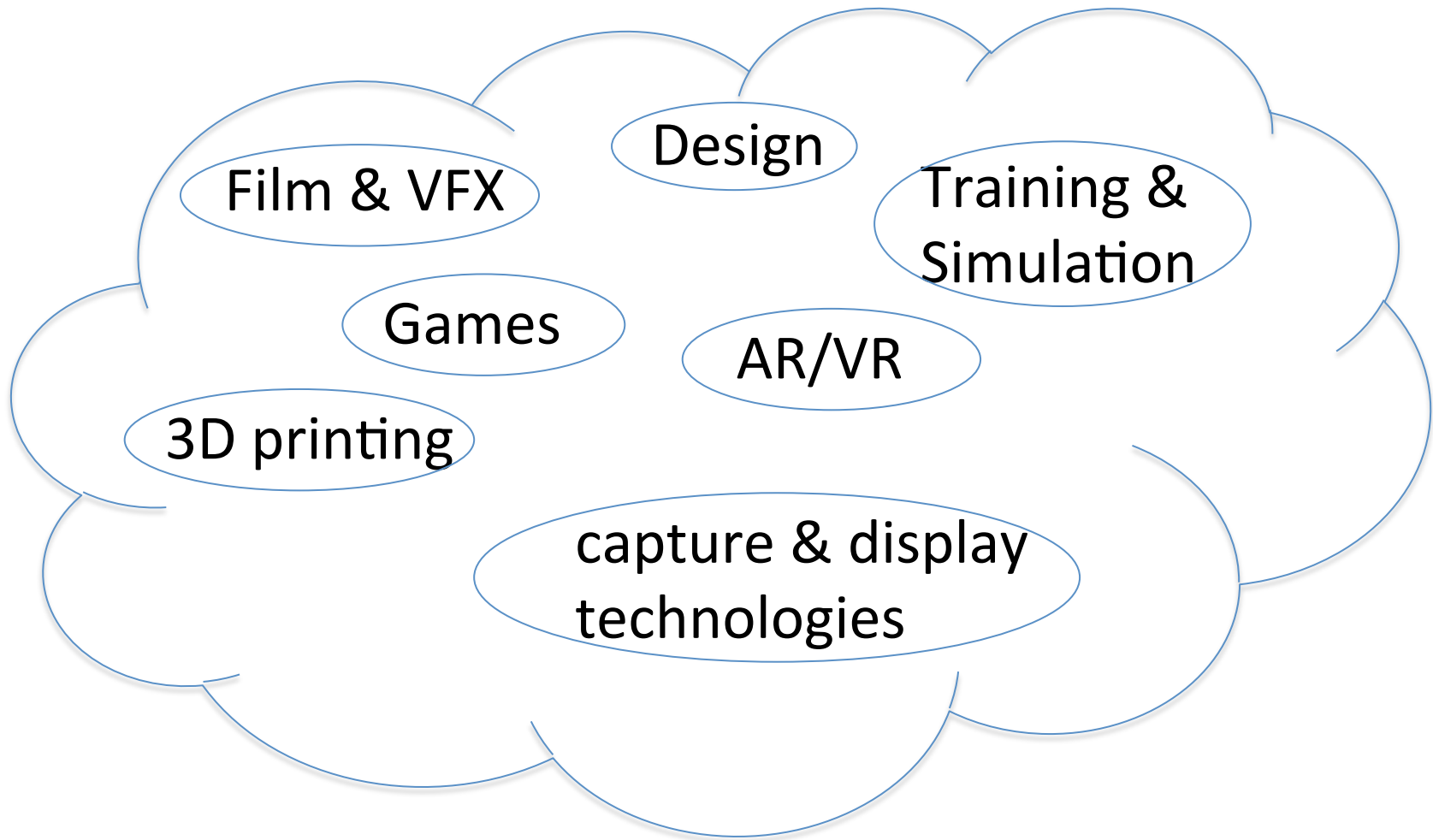
Design

Film & VFX

Training & Simulation

Games

AR/VR

3D printing

capture & display technologies

Computer Animation

- ## Theory
  - parametric curves & extensions, orientations, interpolation, optimization

- ## Character Animation
  - keyframing, motion capture, inverse kinematics, rigging & skinning, facial animation, behaviors, crowds & flocks

- ## Physics-based Animation
  - particle dynamics, collisions, constraints, fluids, cloth, human motion simulation & control

State of the Art

- keyframe animation   https://www.youtube.com/watch?v=TL1Luzd2od8
- Face2Face: Video Reenactment (2016)   http://www.graphics.stanford.edu/~niessner/thies2016face.html
- 3D Avatar Creation from Hand-held Video Input (2015)   https://www.youtube.com/watch?v=6zP0E2atshw
- Holoportation demo (2016)   https://www.youtube.com/watch?v=7d59O6cfaM0
- Spacetime Sketching of Character Animation   https://www.youtube.com/watch?v=9d3LOCbFNy4
- Golaem Crowd Simulation Showreel 2016 by Golaem   https://www.youtube.com/watch?v=7XeYoyeu1cc
- BiFrost whale splash   https://www.fxguide.com/featured/bifrost-exclusive-first-in-depth-look/
- A Material Point Method For Snow Simulation   https://www.youtube.com/watch?v=O0kyDKu8K-k
- Style-based Inverse Kinematics   https://www.youtube.com/watch?v=X5Z7ZJ39zAA
- Locomotion Skills for Simulated Quadrupeds   https://www.youtube.com/watch?v=dRthdBr46cs

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CPSC 426 Computer Animation

Jan-Apr 2017

Instructor: Michiel van de Panne
Prerequisitie: CPSC 314