Learning-based Visual Synthesis

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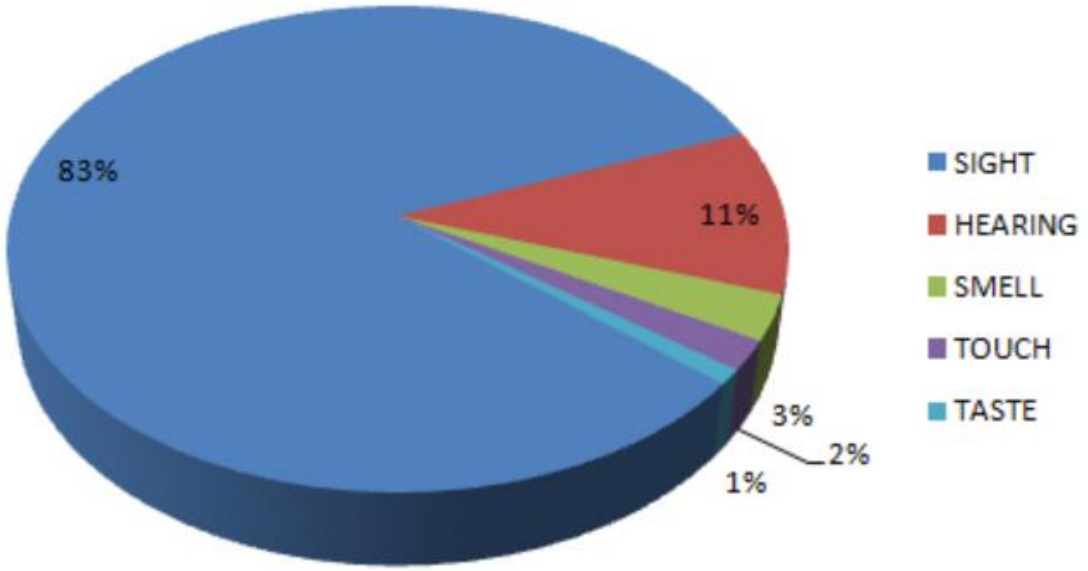
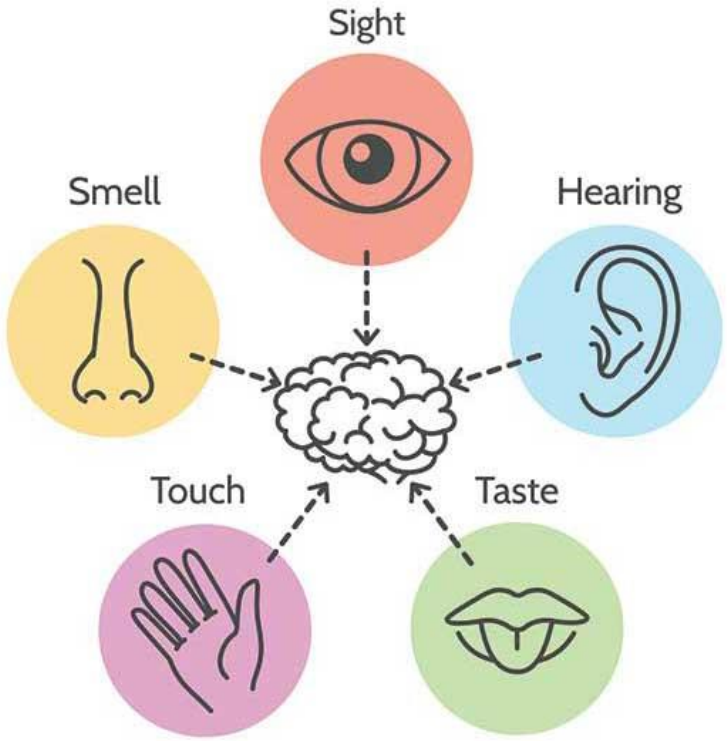
Introduction of Visual AI

- Visual Content



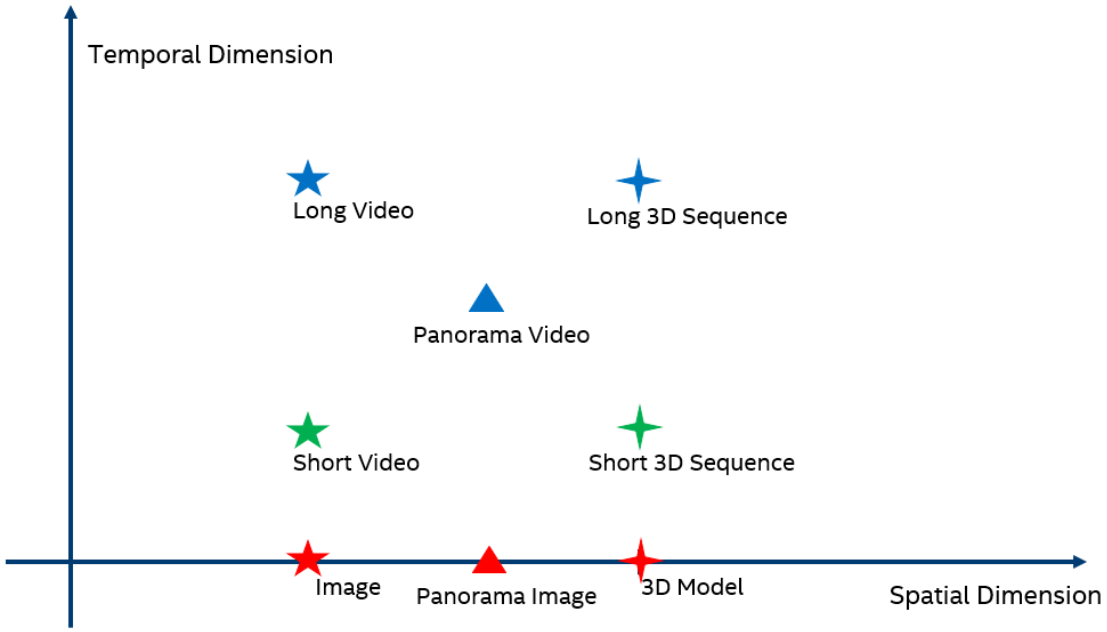


Visual Content is responsible for most of the information from five senses

Cuban L. Oversold and underused[M]. Harvard university press, 2009.

Introduction of Visual AI

- Visual Content



Visual Content

Pinterest

Image

3D Model

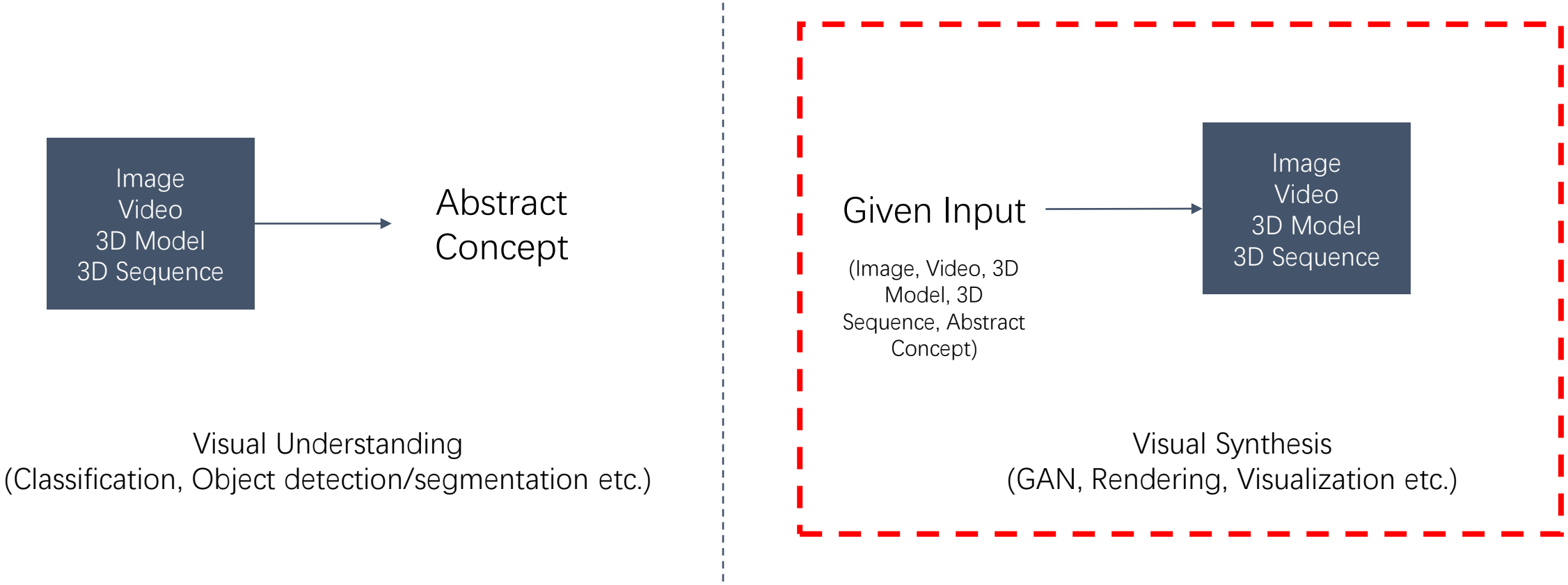
YouTube

Video

3D Sequence

Introduction of Visual AI

- Visual AI (Visual Understanding and **Visual Synthesis**)

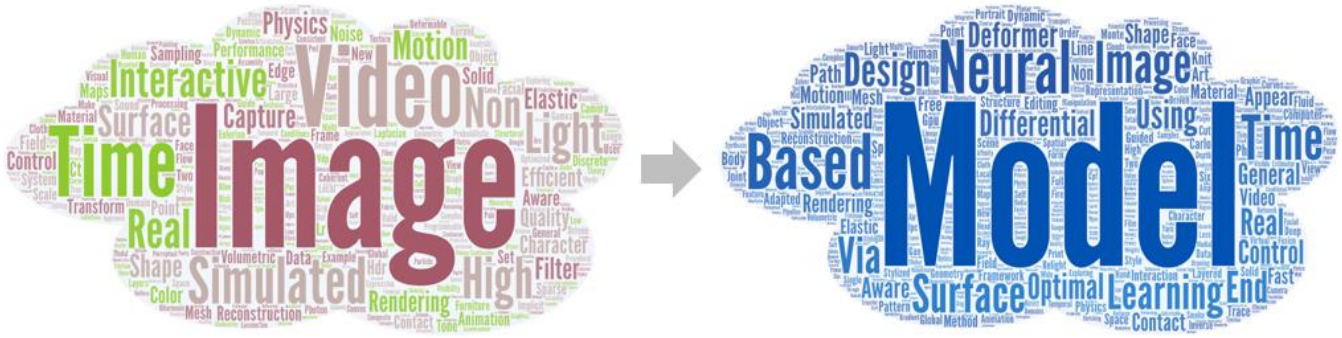


My research goal is developing high-quality, efficient, scalable and intelligent visual synthesis systems.

Introduction of Visual AI

- Visual AI (Visual Understanding and **Visual Synthesis**)

SIGGRAPH Word Cloud
2011 vs. 2021



http://kesen.realtimerendering.com/sig2011.html

http://kesen.realtimerendering.com/sig2021.html

Given Input:

Image, Video,
3D Model,
3D Sequence,
Concept…

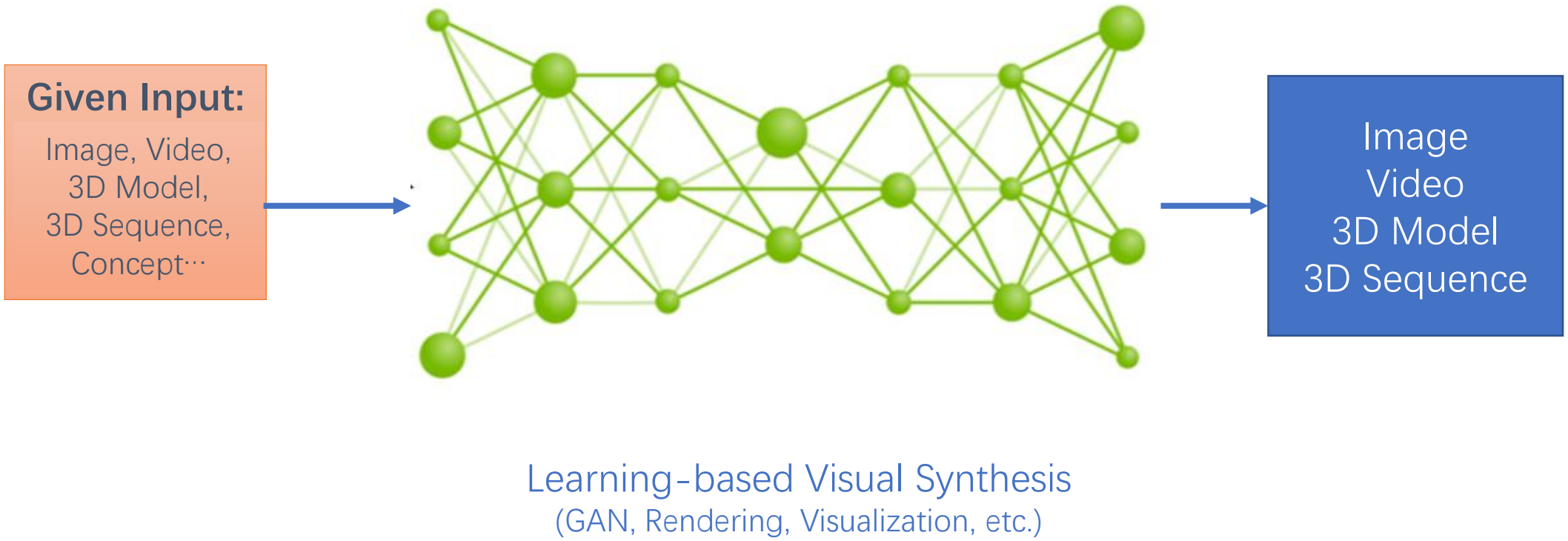
Image
Video
3D Model
3D Sequence

Learning-based Visual Synthesis

(GAN, Rendering, Visualization, etc.)

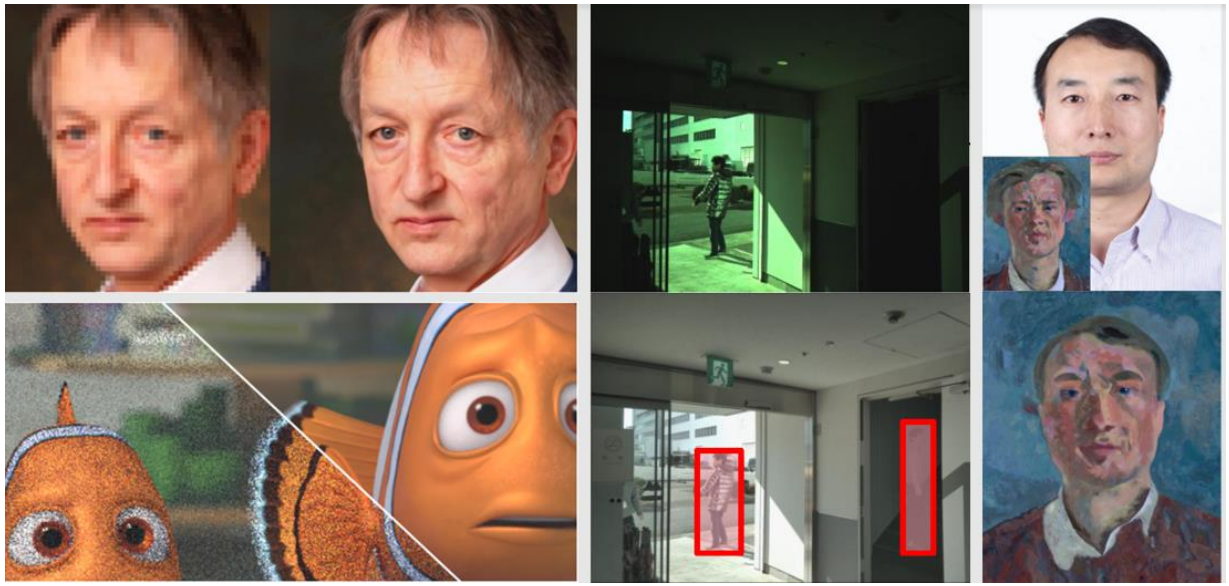
Introduction of Visual AI

- Learning-based Visual Synthesis

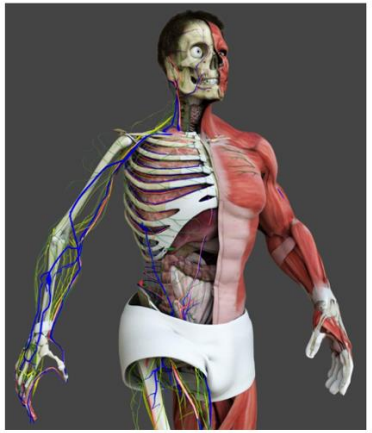


Introduction of Learning-based Visual Synthesis

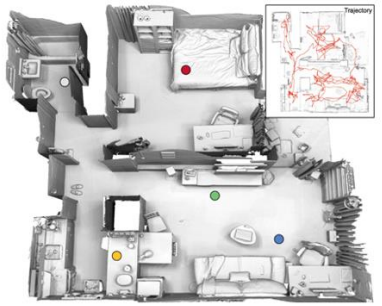
- LVS Applications



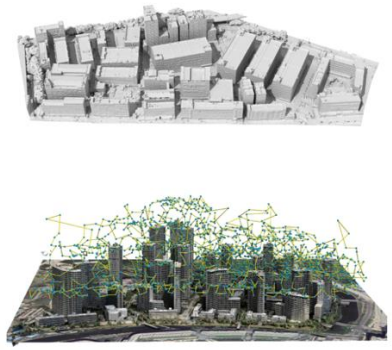
2D Capture and Enhancement
(SR, Deblurring, Denoising, ISP, Style Transfer, etc.)



3D Human Capture
(3D Face, 3D Body, etc.)



3D Indoor Capture



3D Outdoor Capture

3D Capture and Enhancement
(3D Human/Indoor/Outdoor/etc.)