Images

Display device

- Rendered images are shown on display device
- Display devices are adapted for showing raster images – arrays of pixels
- Display devices are limited in:
  - Resolution (number of pixels)
  - Brightness (intensity)
  - Contrast
  - Color (gamut)
- Rendered images may contain values which can not be directly shown on display devices.

Frames per second

- Number of rendered images per second:
  - Real-time graphics
  - Interactive graphics
  - Offline graphics

Reconstructing images

- Final image is reconstructed from samples per pixel
  - TODO

Storing images

- Storing the rendered images
- Rendered images

Two main types of images

- Raster images
- Vector images

Vector images

- Shapes in vector image are analytical defined
- To display an image, rendering is performed to evaluate analytically defines shapes on raster display

Raster images

- Raster images are made of array of pixels.
- Each pixel contains one color
- Discrete representation

Image buffer

- Rendering algorithm uses virtual camera which defines film information
- Film is in fact raster image → it contains array of pixels also called image buffer.
- Rendering of each pixel produces a raster image

Raster image display

- Rendering results in raster image where each pixel has certain color
- Due to display devices, using “original” pixel values is sometimes not desired due to limitations
- Remapping of colorspace is often done to achieve correct display
- Gamut plays an important role
- TODO

Linear vs sRGB

- All color information that renderer uses (e.g., image texture of diffuse material component) must be linear → all computations are done in linear colorspace
- After rendering, certain post-processing such as tone mapping can be applied to modify the colorspace
- One such popular modification is gamma which converts linear to sRGB.
- TODO

Raster image file formats

- Popular raster image file formats are JPG, PNG, TIFF, etc.

Texture image compression

- RTR 6.2.6

Scene to screen

- RTR 8.2.