Exam 1TD389, 2020-10-21

ⓘ Det här är en förhandsvisning av den publicerade versionen av quizet

Startad: 13 dec kl 15.40

Instruktioner för Quiz

Fråga 1 — 0 poäng

Please upload your ID (e.g. student ID, drivers licence or passport)

Ladda upp | Välj en fil

Fråga 2 — 2 poäng

What is true?

- [ ] Underground (metro/subway) system visualisations does not necessarily need to be spatially correct
- [ ] Hans Rosling is a famous Swedish entertainer that visualised data by Marching cubes
- [ ] Visualisations make use of computer graphics
- [ ] Florence Nightingale made powerful use of data visualisation

Fråga 3 — 4 poäng

What is true about visualisation?

- [ ] Visualisation is more than just pretty pictures, since it can be used as a research tool to get insight into the data
- [ ] Glyphs can be used to visualising data with more than 3 dimensions
- [ ] Glyph visualisations using many more than 5 dimension can be very hard to grasp
- [ ] Visualisation usually helps us understand data faster than when looking at numbers
- [ ] Glyphs are a powerful visualisation technique that helps us grasp up to 100 dimensions
- [ ] 3D visualisations are always more effective than 2D visualisations

Fråga 4

4 poäng

What is true about data representation?

- [ ] "Geometry" describes the form of the object, e.g. is it a triangle, rectangle
- [ ] "Topology" describes the form of the object, e.g. is it a triangle, rectangle
- [ ] Unstructured grids take less storage than uniform grids
- [ ] "Topology" describes the dimensions of the object, e.g. angles and edges length
- [ ] "Topology" is the very same as "Geometry" (they are data representation synonyms)
- [ ] "Geometry" describes the dimensions of the object, e.g. angles and edges length
- [ ] Interpolation is always a “guess” of what the “missing" data would be like
- [ ] Interpolation usually gives a better representation of the sampled data

Fråga 5

4 poäng

What is true about marching techniques?

- [ ] Marching Squares produce 2D contours while marching cubes produce surfaces
- [ ] Marching cubes does not suffer from the ambiguity problem

- [ ] Marching cubes is aimed for 2 Dimensional data
- [ ] Marching cubes handles bifurcations automatically without causing triangle intersections
- [ ] Marching tetrahedra is aimed for 4 Dimensional data only
- [ ] The ambiguity problem can be solved by looking at adjacent slices and draw conclusions from them
- [ ] Marching Bands can depict vortices
- [ ] The ambiguity problem can not be solved for marching cubes

Fråga 6

4 poäng

What is true about stream visualisations?

- [ ] Vorticity can be depicted using stream lines
- [ ] One way to get less occlusion is to use fewer lines or tubes (i.e. to use some kind of subsampling of the data)
- [ ] The thickness of stream tubes can depend on some variable in the data
- [ ] The position of seed points will affect how streamlines will look like
- [ ] Colour mapping should be avoided as it confuses the visual result
- [ ] The position of seed points will not affect how stream tubes will look like
- [ ] The colour of streamlines can depend on some variable in the data
- [ ] Opacity can be used to make it possible to see the data better (less occlusion), especially for streamline visualisations

Fråga 7

4 poäng

What is true about high dimensional visualisations?

- [ ] t-SNE will create clusters where similar data (data with similar features) can be found
- [ ] Usually Glyphs makes a better high dimensional visualisation than Parallel Coordinates

- [ ] In parallel coordinate visualisations it is preferable to have axis that correlate next to each other
- [ ] t-SNE is a powerful visualisation technique for high dimensional data that projects onto 2D or 3D
- [ ] For very high dimensional data Parallel coordinates are preferred compare to t-SNE
- [ ] MipMap is an efficient is a powerful visualisation technique for high dimensional data that projects onto 2D
- [ ] Parallel Coordinates is useful for visualising multidimensional data
- [ ] PCA can be used to reduce the dimensionality of high dimensional data

Fråga 8

3 poäng

Which of the following statements is correct in context of multiplexing of stereo images?

- [ ] Anaglyphs using red/green stereo-glasses are efficient as they preserve spatial image resolution
- [ ] Passive polarizing filter glasses cannot be used for temporal multiplexing
- [ ] Multiplexing using lenticular lenses requires active frame-wise synchronization of the left- and right-subimages
- [ ] Interlaced-stereo images (with left and right images on alternating pixel lines) can not be used with active shutter glasses
- [ ] Temporal multiplexing using active shutter glasses leads to lowered brightness & contrast of the displayed images
- [ ] Spatial multiplexing with lenticular lenses lowers the effective images resolution

Fråga 9

2 poäng

Stereoscopic images, when produced and displayed with computer, can give convincing impression of a 3D scene. However, it should still be consider, that stereography / stereographic images must be used sensible to make the illusion

work. Which of the following applies when it comes to producing effective and comfortable to view stereo-images?

- [ ] The resolution of the screen sets limits as to how small a depth difference can be represented in a stereographic visualization
- [ ] The size of the screen determines how close to the user a virtual point in 3D can be represent
- [ ] The accommodation-convergence conflict (AC conflict) depends on the size of the stereo-display
- [ ] The accommodation-convergence conflict depends on apparent parallax and viewing distance to the screen

Fråga 10

3 poäng

Luminance and contrast in visualizations are important aspects of a visualization. Which of the following is true when it comes to human perception of colors/intensities in visualizations?

- [ ] Brightness adaptation enables us to perceive detail and contrast across a wide range of illumination levels
- [ ] Brightness adaptation enables us to judge absolute levels of intensities across a wide range illumination levels
- [ ] Receptor bleaching and chromatic adaptation can cause incorrect interpretation of colors
- [ ] Simultaneous contrast overemphasizes intensity differences across intensity boundaries
- [ ] In 3D visualizations, shadows and shading effects are important to enhance the visual assessment of lightness levels of objects
- [ ] Simultaneous contrast enables correct assessment of absolute intensity levels in a visualization

Fråga 11

2 poäng

For efficient use of color in visualization, **two** among the following aspects must be considered?

- [ ] In order to label a few (up to 10) items in a visualization with colors, it is important to guarantee that colors are perceptually orderable
- [ ] In order to reveal qualitative properties in visualizations of some items, the semantics (meaning) and conventions regarding the colors is more important than contrast
- [ ] In order to express 5-8 different quantitative values in a visualization with colors (e.g. number of cylinders of car-engines in a visualization of a car database), neither perceptual linearity nor ordering of the used colors plays an important role
- [ ] In order to convey quantitative information in a visualization using color scales, it less important to maintain perceptual linearity, but more important to maintain highest contrast

Fråga 12

2 poäng

What is true about transparency and shadows?

- [ ] Global effects such as shadows and ambient occlusion only affect the visual quality of a visualization, not the perception of its shape
- [ ] Opacity values for data points are often stored in a texture or obtained from a transfer function
- [ ] Transparency is the only way to show different layers in the data
- [ ] The Painter's algorithm allows us to efficiently render transparency for complex models with many triangles or layers

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Fråga 13

3 poäng

What is true about volume rendering`

- [ ] The opacity function in a transfer function should always be linear
- [ ] The ability to interactvely change isovalue is useful when exploring for example a medical CT volume
- [ ] Direct volume rendering techniques cannot be implemented on graphics processing units (GPUs) that use a rasterization-based pipeline
- [ ] Splatting was not used in Assignments 1 and 2 in this course

- [ ] Isosurface rendering (via raycasting) is generally more expensive to render than MIP or front-to-back alpha blending, because we have to compute surface normals for shading.

Fråga 14

3 poäng

What is true about vector field visualisations?

- [ ] Vector glyphs shall never be set to have unit lengths as it leads to cluttering
- [ ] Vector fields can be visualised by computing the so called Curl
- [ ] Vector fields can be visualised by computing the so called Divergence
- [ ] Vector fields cannot be visualised without vector glyphs
- [ ] Vector fields can be visualised using vector glyphs
- [ ] Vector fields can be visualised by computing the so called Promotor

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Lämna in quiz

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