

8004253 Virtual Reality (3 cu)

Answer shortly but sufficiently. Less than one page for each problem is enough!

I know you can! Good luck for the exam.

Write clearly to each paper:

- 8004253 Virtual Reality
- Date
- Name
- Student ID number

1. Explain shortly the following terminology. 1-2 sentences is enough. (14 points)
 - a) Motion capture
 - b) HMD
 - c) FOV
 - d) DOF
 - e) LOD
 - f) Immersion
 - g) Web3D
2. Explain the basic principles and properties of position tracking methods. How do they differ in performance and pricing? What is the best position tracking method, or is there one? (12 points)
3. What are autostereoscopic displays? What are the technical principles on how they function? What are their limitations? Give some possible application areas for them. (12 points)
4. A theme park would like to have a VR simulator, which would provide an environment for a small deep sea submarine. The purpose is to make a believable experience. What kind of a system would you propose and what would be the estimate price? Describe the main technical components and the overall structure of the system. How real would your system be? (12 points)
5. Answer shortly. 1-2 sentences is enough. (10 p)
 - a) What is a scene graph?
 - b) What are the main types of dynamic shared state management in networked virtual worlds?
 - c) What is registration? What is it used for?
 - d) What are the main methods in human hearing system for localizing sound?
 - e) How do virtual reality and augmented reality differ?