

## Designing multi-projector VR systems: from bits to bolts

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Immersive multi-projection environments are becoming affordable for many research centers, but these solutions need several integration steps to be fully operational; some of these steps are difficult and not in a common domain. This tutorial presents the most recent techniques involved in multi-projection solutions, from projection to computer cluster software. The hardware in these VR installations is a connection of projectors, screens, speakers, computers and tracking devices. The tutorial will introduce hardware options, explaining their advantages and disadvantages. We will cover software design and open source tools available, and how to administrate the whole solution, with tasks such as installing the computer cluster and configuring the graphical outputs. An introduction to tracking systems, explaining how electromagnetic and optical trackers work, will be also provided. At the end, we are going to present important design decisions in real cases: the project process, problems encountered, good and bad points in each decision.

This tutorial intends to be basic. Basic knowledge of computer graphics and virtual reality is enough. The tutorial will cover all points present in detail so any student or professional can follow.