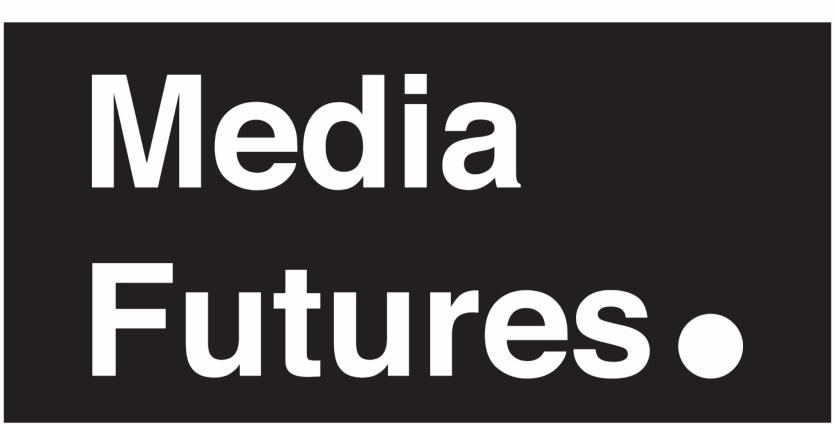
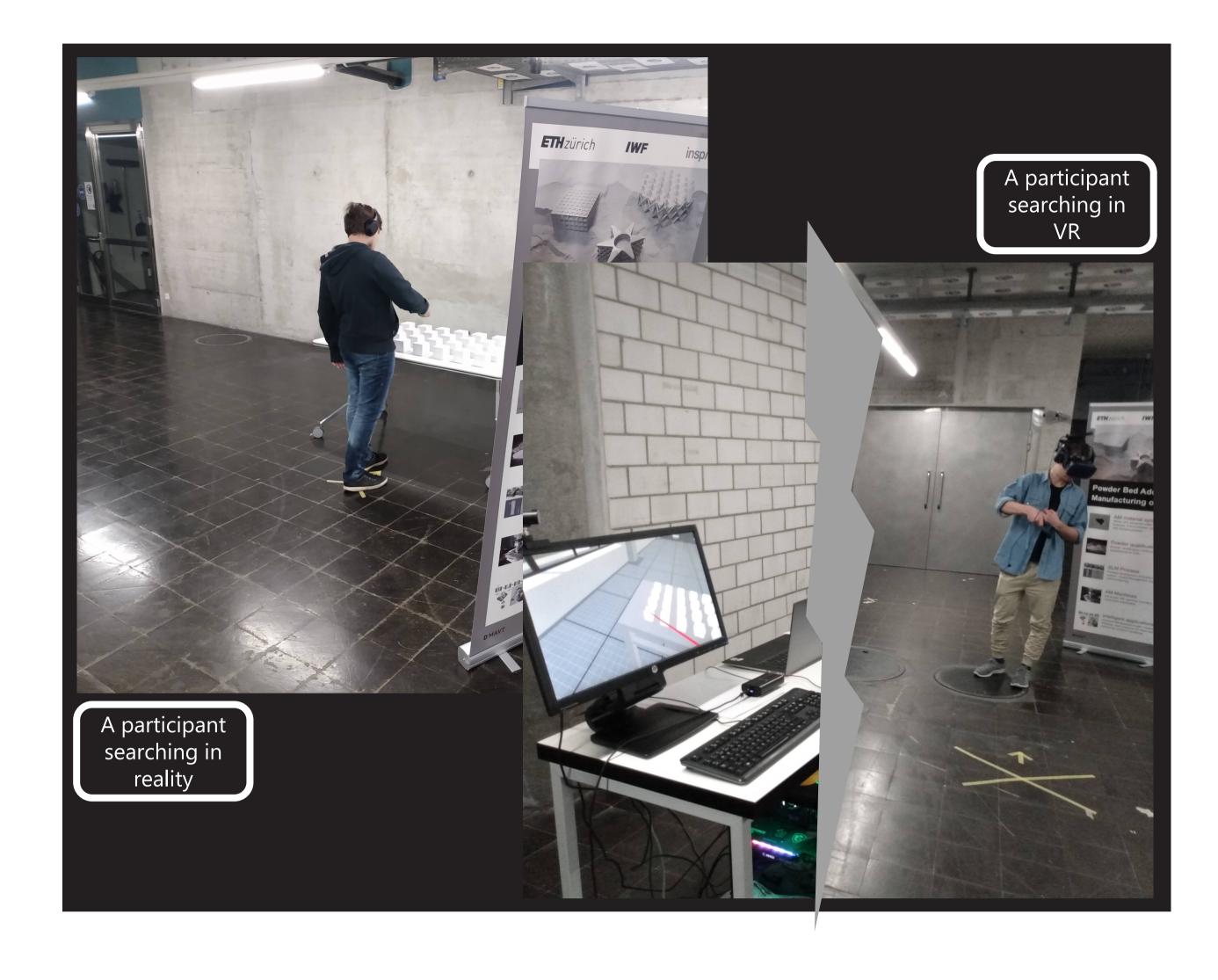
SO YOU THINK YOU CAN

Comparing Visual Search between Physical Environments and VR





Background

- VR is used under the assumption that humans behave similarly in VR as in reality.
- This assumption lacks extensive testing, thus risking unexpected human behavior when working with VR.
- In many VR implementations, visual search plays an important role.

RQ: Do people **visually search** the same way in **reality** and in VR?

- When they can stand still while searching.
- When they have to walk to search.

Hypotheses

- **H1, speed**: People are similarly fast in reality and VR, even when walking.
- **H2, accuracy:** People are similarly accurate in reality and VR, even when walking.
- H3, workload: People experience more workload in VR than in The experiment reality.
- H4, cognitive absorption: People experience more cognitive absorption in reality than in VR.
- **Exploratory analyses:** differences in speed and accuracy may be moderated by VR experience and innovativeness.

Method

Experiment:

We conducted **two studies** in which participants searched targets among distractors on a table. They did this both in reality and VR.

- In study 1, participants could search while standing still.
- In study 2, participants had to walk to find targets.

Analysis:

- Hypotheses: **Bayesian T-tests**
- Exploratory analyses: Bayesian factorial ANOVAS



YOU CAN

Results

Our results provide weak to moderate evidence that search speed, workload, accuracy, and cognitive absorption are similar in VR as in reality, even when controlling for VR experience and personal innovativeness.

So, we provide some support for the assumption that VR can be used to replace and simulate visual search tasks.

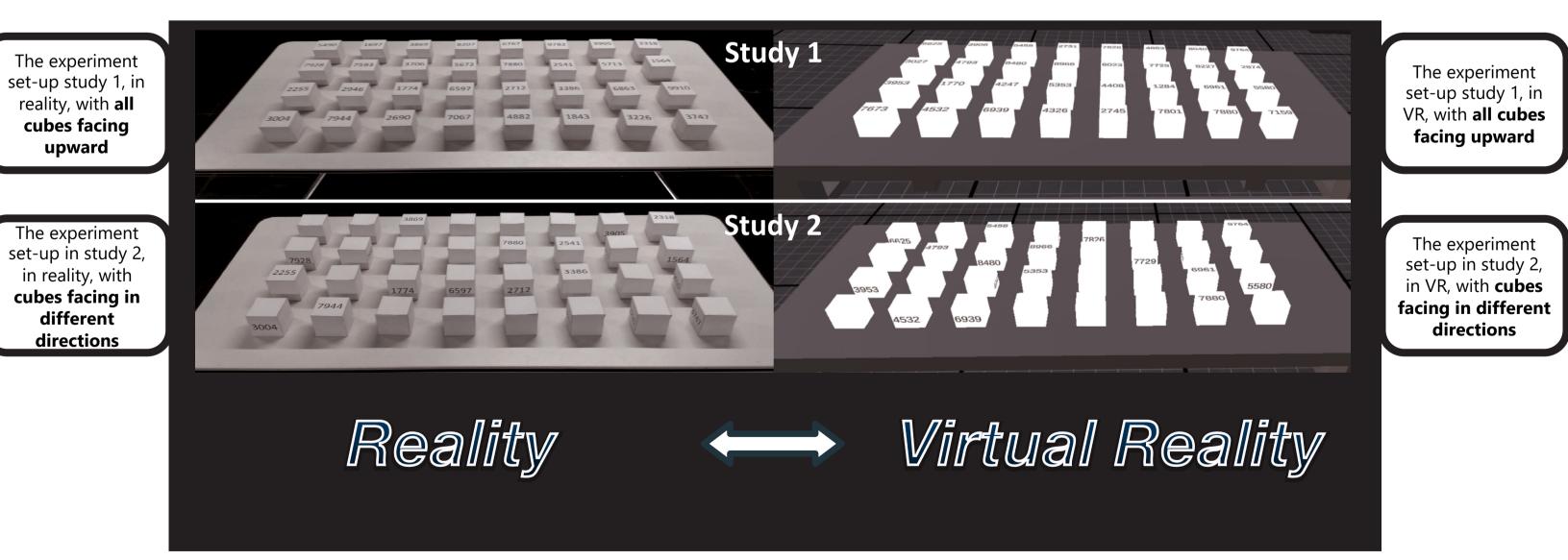
Conclusion

Use our findings to...





- training surgeons.
- remotely operating ships.
- remotely operating cranes.
- ...compare VR to reality by
- studying more naturalistic scenes.
- including interaction with objects.
- isolating VR characteristics that are suspected to cause differences in behavior, such as being able to move through virtual objects.
- using our data to inform priors and in meta-analyses.



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HOST



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