The updating of spatial information is likely performed in two different ways:

**Online Spatial Updating:**
- Precise, efficient, capacity limited

**Offline Spatial Updating:**
- Imprecise, effortful, not capacity limited

### What conditions typically lead to online vs. offline updating?

Influenced by amount of movement.
- Rotations up to at least 90° consistent with online updating. Rotations of 135° or more updated offline (Waller & Hodgson, 2006)

Influenced by number of targets?
- Some (or all) landmarks in a supra-capacity set must be updated offline

Do these factors interact?
- Set size effects for 1, 2, or 3 targets after a 120° arced path (Wang et al., 2006)
- No set size effects for 1 – 15 targets after 135° rotation (Hodgson & Waller, 2006)

### What is the capacity limit of online updating? (Exp. 1 & 2)

- Egocentric pointing task before and after a 45° rotation
- Varied set size (Exp 1: 1, 4, 7, 10; Exp 2: 4, 5, 6, 7)

### Does updating capacity vary with amount of rotation? (Exp. 3)

- Varied set size (between): 2, 6, or 10 targets
- Varied rotation (within): 0°, 45°, 90°, 135°, 180°
- Measured increase in latency after rotation

### Use of online vs. offline updating is influenced both by the set size and the amount of rotation

With more items, increased latencies were observed with progressively smaller rotations.

### Significant set size effects in both error and latency

Capacity of 45° online updating task was about 6 items

### References

