Data Perception on Maps Based on 2D and 3D Representation of Data and Terrain

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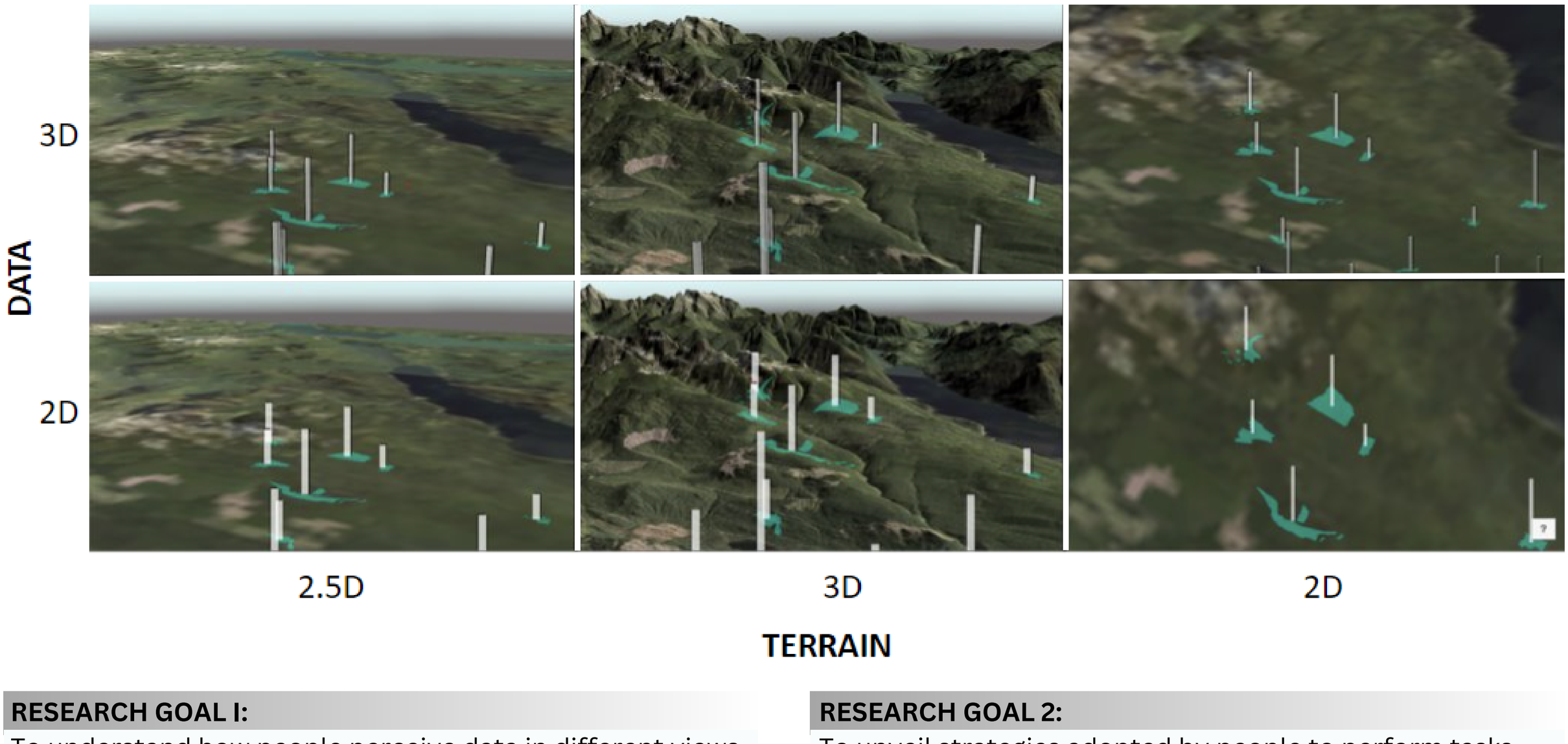
Victoria Interactive Experiences with Information



RESEARCH GOAL I:

To understand how people perceive data in different views.

SYSTEM - SINGLE MODE:

- Consists of 6 views based on the dimensionality of Data and/or Terrain.
- **Each view is shown separately and is static.**

METHOD:

- A within-subject quantitative study.
- Measures are completion time and error

TASKS:

- Find the tallest bar.
- Find the smallest distance between two bars.

HYPOTHESES:

- Performance is similar across conditions to compare height for any number of distractors.
- Performance is similar across conditions to compare distance with a small number of distractors but decreases with 2.5D terrain when the number of distractors increases, and even more so with 3D

RESEARCH GOAL 2:

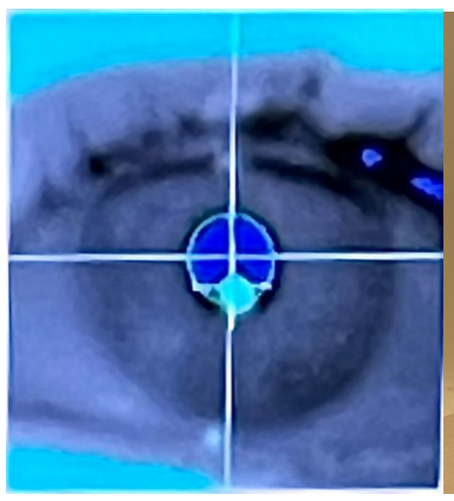
To unveil strategies adopted by people to perform tasks.

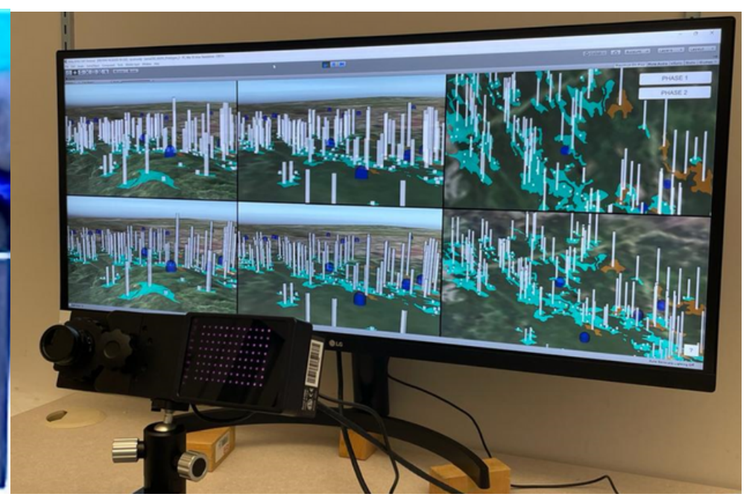
SYSTEM - MOSAIC MODE:

- Consists of 6 views based on the dimensionality of Data and/or Terrain.
- **All the views are displayed together and are dynamic.**

METHOD:

- A within-subject qualitative study.
- Data is collected using an eye-tracker, recordings, and interaction logs.





TASKS:

- Select *N* bars that are on the highest terrain elevation.
- Select a Viewpoint from which the maximum number of data is visible.

HYPOTHESES:

- 3D terrain and/or data are useful for navigation and searching objects because they leverage spatial memory.
- 2D terrain and/or data is useful for precise comparison and navigation due to less occlusion and depth distortion.