

Scanning behavior in hemianopia: The Next Step

Innovative techniques for vision rehabilitation therapy

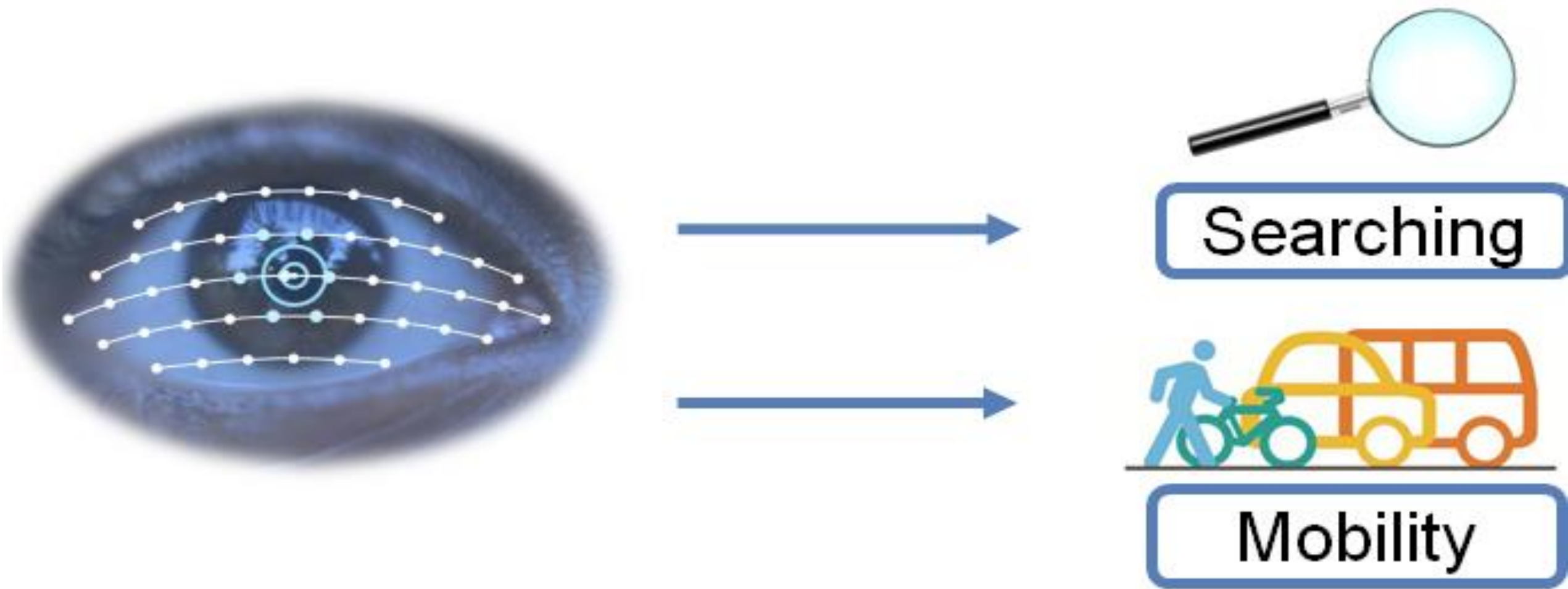
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Introduction

- Homonymous Hemianopia (HH) occurs in 8-31% of all stroke patients and can have a large influence on daily living and quality of life.
- People with HH mainly experience difficulties in mobility and searching. They benefit from training aimed to decrease the impact of the visual field deficit through optimizing visual scanning.
- Therefore, it is important to inform patients about the way their scanning behavior relates to difficulties they experience in daily life and how they can improve it to overcome these difficulties.

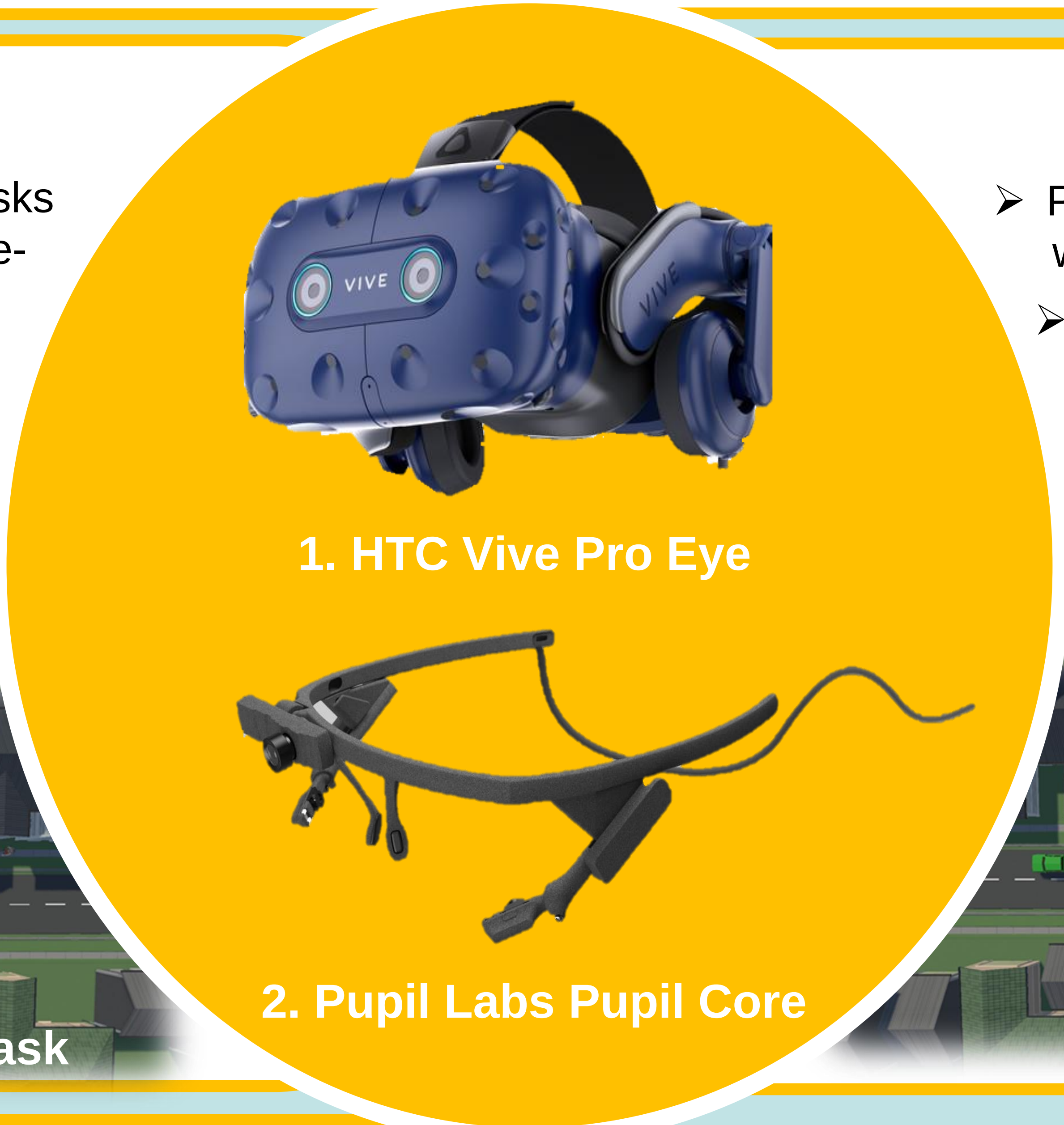
Primary research aim

To examine the relationship between scanning behavior and performance on daily life activities (i.e. mobility and search activities) in people with HH (n = 50) people with simulated HH (n = 50) and a control group with normal vision (n = 50).



Approach and methods

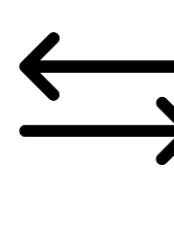
- Participants perform various mobility tasks while wearing a VR goggle with built-in eye-tracking (1). E.g. they are asked to safely cross a virtual street at their own pace (3).
- Participants perform various search and mobility tasks while wearing a mobile eye-tracker (2). E.g. they are asked to walk in a hallway while avoiding objects (e.g. a trash bin).



Preliminary Results

- Prototypes of the techniques (1 & 2) were developed in a pilot project.
- These techniques were seen as useful additions to vision rehabilitation therapy by people with HH (n = 13) and professionals (n = 4).
- Ethical approval for a feasibility study was obtained.

Broader impact

-  Inform patients, their caregivers and professionals about a patient's current scanning behavior and the consequences for various activities in daily life.
-  Inform professionals about the optimal scanning behavior during various activities, which they can, subsequently, teach the patient.
-  Give specific feedback about the consequences of the current scanning behavior on the performance of the task, so that the patient can improve his/her scanning behavior.
-  Examine before, during and after training to what extent the patient applies the optimal scanning behavior during a specific task.
-  Determine whether certain scanning behavior fits with compensatory behavior for HH or whether it is suspicious of other impairments due to brain damage.

In the future

- Data-collection will begin late 2020 and will end approximately two years later.
- The project will result in concrete recommendations for the application of the gained knowledge and the developed prototypes in clinical practice.

