Train the Brain Using Virtual Reality Aromatherapy to Detect Memory Loss Diseases

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This research is part of the VAR Scent project.
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Abstract
What comes to mind when you think of baking homemade bread, or hugging a family member, or climbing the tree outside your childhood home? These memories often come with a smell that help bring that memory into focus.

Those with memory loss diseases such as Alzheimer’s Disease and Dementia often demonstrate a difficulty in recognizing scents in addition to their memory loss symptoms. The connection between the olfactory system and the hippocampus, where degeneration due to the disease occurs, is being explored. The aim is to be able to provide a biomarker for diagnosis and a therapy to train the brain towards better scent recognition.

Keywords
computational sciences, engineering, medical and health sciences, VAR Scent

Comments
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Detecting Alzheimer’s Disease with accuracy is impossible without an autopsy. Studies have explored a connection between the olfactory system and the hippocampus, where memory loss patients have the most brain degradation. Smell tests have been used to detect those exhibiting memory loss disease symptoms. By integrating smell to a virtual reality experience, a patient can test their sense of smell in a calm environment while the facilitator can monitor their progress. This experience can be used as a diagnostic test or as therapy to help train the brain to recognize smells.

CURRENT PROGRESS

Prototype IV
- Pump that moves scent to a heated wick.
- Fan to disperse scent at a measured rate.
- Sensor to measure the amount of scent present at the device.
- Oculus VR Headset that generates a calm environment.

Virtual Environment
- Displayed as a relaxing loft with scented plants placed about the room
- Objects act as delivery devices
- Different perspectives for facilitator and patient

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PRESENTERS:
Shannon, Neale, Trice

VAR Scent
Integrating Smell to Virtual Augmented Reality

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