

# 43. Personalized interactive wall for elderly with dementia

People suffering from dementia often feel confused and depressed. Some of them also display wandering behaviour.

We build an interactive wall for people suffering from dementia. The wall uses computer vision to recognize the person in front of the wall and to recognize his or her behaviour and emotion. Based on the detected behaviour the wall then gives a personalized experience using video and music that the elderly like. Family members can upload content.



The interaction with the wall may diminish the behavioural problems of dementia such as agitation, aggression, fear, depression and apathy. The wall also gives those who display wandering behaviour a virtual place to go to.

## ICT science question

How to automatically recognize people, their behaviour and emotions? How to select appropriate audiovisual content automatically under demanding circumstances?

## Application

In the early stages of dementia people are aware of their situation, which leads to depression, while in later stages of dementia people become passive, they react to some triggers but do not show initiative by themselves.

The target audience of elderly suffering from dementia presents severe problems. Many of them cannot explicitly state their own preferences. Furthermore, their facial features and posture may change rapidly and their behaviour is sometimes unpredictable.

The interactive wall provides distraction from depressed feelings, activates people or calms them

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down and helps to retrieve memories. It provides a point of reference for people that display wandering behaviour.

The wall is developed together with care organizations AMSTA and Vivium Naarderheem. It has been tested at two different locations.

Competing products exist, but these do not use ICT to provide personalized content.

## Alternative Application

Computer interfacing supported by computer vision is broadly applicable.

The wall could also be used for people who suffer from mental disorders such as severe autism.

The computer vision technology can also be used for human pose recognition and for the classification of actions and interactions involving multiple individuals.

The content selection technology could be used to influence the mood of people in public spaces.

## Nice to know

Three students of the Hogeschool van Amsterdam (HvA) are exploring business opportunities for interactive technology for people with dementia through their startup company *iLLi-engineering*.

## Quote

“Ik zou wel willen dat dit geplaatst wordt in het verzorgingstehuis waar mijn moeder woont.”



The Interactive wall improves the quality of life of people suffering from dementia by reducing wandering behaviour and providing a distraction from depressed feelings.



The interactive wall uses computer vision technology to give elderly suffering from dementia a personalized experience. This helps to retrieve pleasant memories and it reduces wandering behaviour.



The interactive wall reduces the wandering behaviour of elderly with dementia and provides a distraction from depressed feelings. And it allows the caregivers to spend more time on other patients.



Recognize people's movements and select personalized content to engage people with one another and with the interactive wall.



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