

## Wearable Gaze Trackers: Mapping Visual Attention in 3D - DTU Orbit (09/11/2017)

### Wearable Gaze Trackers: Mapping Visual Attention in 3D

The study of visual attention in humans relates to a wide range of areas such as: psychology, cognition, usability, and marketing. These studies have been limited to fixed setups with respondents sitting in front of a monitor mounted with a gaze tracking device. The introduction of wearable mobile gaze trackers allows respondents to move freely in any real world 3D environment, removing the previous restrictions. In this paper we propose a novel approach for processing visual attention of respondents using mobile wearable gaze trackers in a 3D environment. The pipeline consists of 3 steps: modeling the 3D area-of-interest, positioning the gaze tracker in 3D space, and 3D mapping of visual attention. The approach is general, but as a case study we created 3D heat maps of respondents visiting supermarket shelves as well as finding their in-store movement relative to these shelves. The method allows for analysis across multiple respondents and to distinguish between phases of in-store orientation (far away) and product recognition/selection (up close) based on distance to shelves.

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Authors: Jensen, R. R. (Intern), Stets, J. D. (Intern), Suurmets, S. (Forskerdatabase), Clement, J. (Forskerdatabase), Aanæs, H. (Intern)

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