Dan Witzner Hansen investigates to which extend information from images of eyes can be obtained through computationally tractable techniques and how this information can be used in future applications.

His focus is on robust methods for extracting information from the eyes. He investigate how this information can be employed as a part of the next generation of contactless and continuous biometric identification modalities and how it can be used for the general public everyday and out-of-laboratory use. His research covers aspects from computer vision, machine learning, HCI, neuroscience and psychology. Among other things the has contributed to the research in eye-based biometric markers and development of novel and low-cost gaze trackers. These eye trackers have together with novel gaze-based interaction techniques been used for interaction for physically disabled persons with great success.

Publications

High-Accuracy Gaze Estimation for Interpolation-Based Eye-Tracking Methods

Orangulas: effect of scheduled visual enrichment on behavioral and endocrine aspects of a captive orangutan (Pongo pygmaeus)

Label Likelihood Maximisation: Adapting iris segmentation models using domain adaptation

Aiming for the quiet eye in biathlon

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Computer-implemented gaze interaction method and apparatus

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Pupil Center as a Function of Pupil Diameter

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Eye-based head gestures for interaction in the car

Gaze-Based Controlling a Vehicle

Time, Interaction, and Design in Support of a Good Life
Towards Wearable Gaze Supported Augmented Cognition

Conclusion and Look to the Future

Eye-based head gestures

Parallax error in the monocular head-mounted eye trackers

EYE GAZE TRACKING

Discussion and Future Directions for Eye Tracker Development

Methodology for designing, implementing and evaluating assistive mobility technology to enable the social inclusion and independence needs of an ageing population

Mobile gaze-based screen interaction in 3D environments

Towards gaze-controlled platform games

Evaluation of a low-cost open-source gaze tracker

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Mardanbeigi, D. & Witzner Hansen, D., 2010, IT University of Copenhagen.

Gaze-controlled driving
Location-based solutions in the experience center

Location-based solutions in the experience centre

Low-cost gaze interaction: Ready to deliver the promises

Low-cost gaze pointing and EMG clicking

Eye Tracking

Location-based Services using Image Search

Location-based solutions in the Experience centre

Noise tolerant selection by gaze-controlled pan and zoom in 3D: Proceedings of the 2008 symposium on Eye tracking research & applications

Robust registration for change detection

Tracking the gaze of birds

An improved likelihood model for eye tracking

Improving face detection with TOF cameras

Robustifying eye interaction

Boosting particle filter-based eye tracker performance through adapted likelihood function to reflexions and light changes
Eye tracking in the wild

Improved Likelihood Function in Particle-based IR Eye Tracking

Command Without a Click : Dwell Time Typing by Mouse and Gaze Selections

Press clippings

**Bedre eyetracking-algoritmer fra ITU kan give flere guldmedaljer**
Dan Witzner Hansen & Fabricio Batista Narcizo
22/08/2016
1 item of Media coverage

**Bornholmsk professor vil sikre øjets informationer**
Dan Witzner Hansen
15/11/2021
1 Media contribution

**Debat: Danmark har fordele i kampen om at blive international AI-frontløber**
Dan Witzner Hansen
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**Forskning i øjets bevegelse hjælper elitesporten frem i feltet**
Dan Witzner Hansen
13/09/2016
1 item of Media coverage

**Hvem kigger med**
Dan Witzner Hansen & Jari Kickbusch
09/05/2014
1 item of Media coverage

**Hvem kigger med?**
Dan Witzner Hansen
09/05/2014
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**Ingen fælles standard for datasikkerhed i Danmark**
Dan Witzner Hansen
30/04/2014
1 item of Media coverage

**Kan virtual reality komme til at ligne virkeligheden så meget, at vi ikke kan se forskel?**
Dan Witzner Hansen
24/07/2021
1 Media contribution
Læk sætter fokus på datasikkerhed
Dan Witzner Hansen
30/04/2014
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Ny ITU-professor forsøger i øjets informationer
Dan Witzner Hansen
16/12/2021
1 Media contribution

SJÆLENS SPEJL: Afslørings blikke
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18/02/2022
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Projects