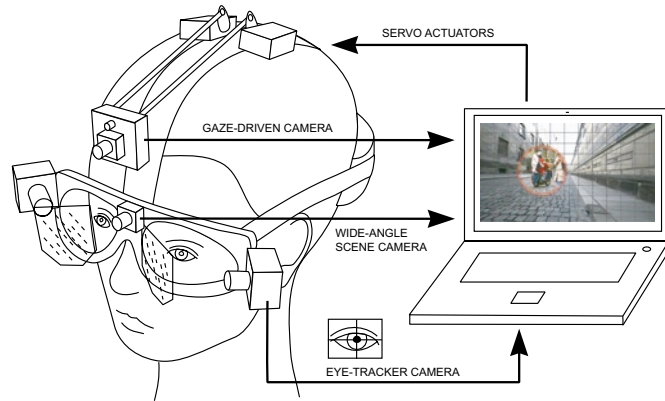


Gaze-Driven Camera

EyeSeeCam HeadCam



The gaze-driven head-mounted camera aligns continuously with the user's orientation of gaze. The eye tracker measures the pupil position and drives the servo actuators accordingly. An off-the-shelf notebook is able to record gaze data and video at up to 600Hz and videos from both eyes, the wide angle scene camera, and the gaze-driven camera at up to 752x480 pixel.

The gaze-driven camera improves the wide angle picture of the scene camera with a sharp image of the gazed detail. The gaze camera itself benefits from natural gaze stabilization reflexes like the VOR or smooth pursuit movements.



Facts

Data Sheet

- sampling rate up to 600Hz
- video frame size up to 752x480 pixel (digital)
- 3D horizontal, vertical, torsional eye movements
- binocular (both eyes)
- accuracy 0.5°, resolution down to 0.01° RMS
- low cost, low weight 170g (eye tracker only)
- video capturing together with online eye tracking
- gaze position on any flat surface (i.e. flat screen)
- latency down to 4 ms
- unobstructed sight with transparent hot mirrors
- mobile, wearable, and battery driven system
- remote control via WLAN, no cabling required
- inertial measurement unit (IMU) with 6 DOF
- requirements: standard laptop with 6-pin firewire

Research & Development

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Funding

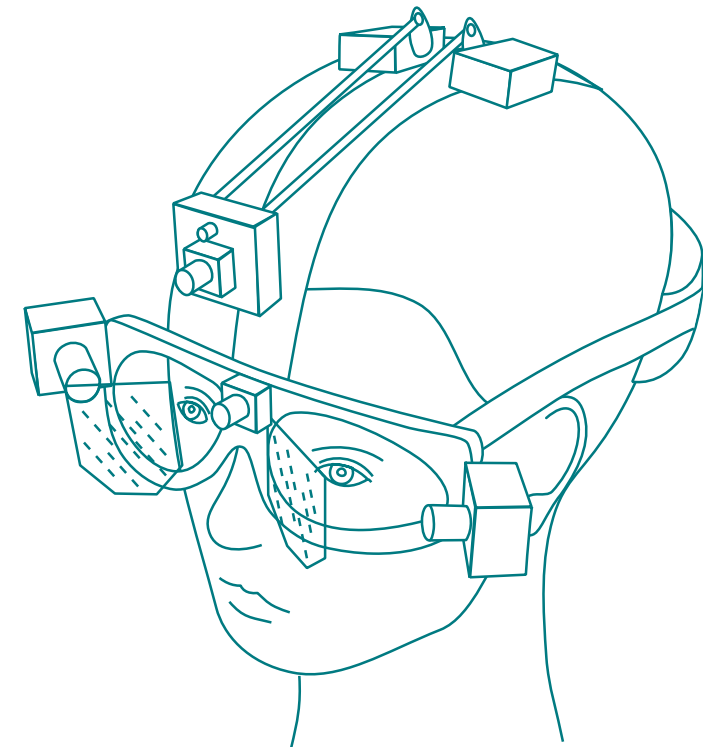


www.forbias.de



www.cotesys.org

EyeSeeCam
www.eyeseecam.com



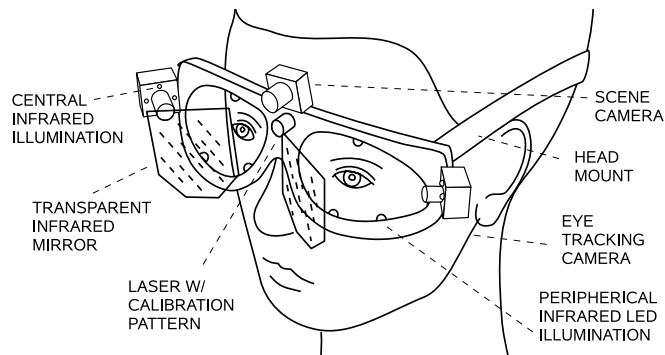
Eye Tracker

EyeSeeCam VOG / EyeSeeCam Scene

Eye tracking systems are used to capture eye movements and gaze behavior in order to make diagnosis of eye movement or vestibular disorders, or - in combination with a wide-angle scene camera - to examine the perception and interaction in natural scenes, with new devices, or with advertisements.

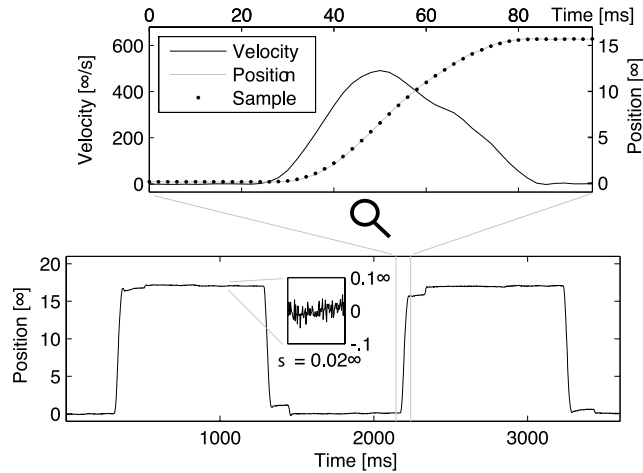


The EyeSeeCam VOG system is a full featured binocular 3D Video Occulo-Graphy system with a high spatial and temporal resolution. The lightweight system is designed to be totally mobile and remote controlled via Wireless LAN. You can connect external analog and digital signals to synchronize and capture additional experimental data. A 6 DOF inertial measurement unit is included by default. A database system enables you to organize your VOG experiments.



Results

High Spatial And Temporal Resolution



Framerates of up to 600Hz make it possible to examine the very details of fast saccades at a spatial resolution of down to 0.02° RMS. While you are in a mobile setup! The total latency of down to 4ms enables you to make real-time analysis, or to trigger other stimuli for an experiment, as we drive servo actuators for the gaze-driven camera.

Gaze in Space



In combination with infrared LEDs or a pair of external stereo cameras it is possible to calculate the intersection of the user's gaze with any flat surface, i.e. a computer screen or a desk, while moving the head freely.

Applications

Health Care and Industry

- Documentation, e.g., of Surgery
- Teaching and Education
- Quality Assurance

Neurology, ENT

- Diagnosis of eye movement disorders
- Diagnosis of vestibular disorders and vertigo

Movie and Video Making

- Documentary and fictional movies
- News and Videart

Security

- Quality assurance of special forces training
- Documentation by a „third eye“

Sports

- Sportsnews
- Movie from the Athlete's perspective

(Neuro-) Marketing

- Shopping behavior
- Advertisement perception
- Ergonomy

Research

- Studies on attention
- „Body language“ during conversation

Consumer Applications

- Sightseeing
- Events