

Acquisition of Eye Images in the Gaze Tracker based on Depth Sensor and Zoom Camera

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Abstract— We designed and developed a gaze tracking device to provide comfortability in gaze tracking and freedom of head movement of a user to be applicable to the large display environment with a long Z distance. We also propose the method of stereo calibration and pixel mapping between the wide-angle camera and the depth sensor, and the method of PTZ calibration between the wide-angle camera and the zoom camera to make the device continuously and effectively track and capture the eye image even though a user's irregular movements in 3D space

Keywords— Calibration, Gaze, PTZ, Tracking



HeeKyung Lee was born in Daegu, Korea, in 1976. She received her BS degree in Computer Engineering in 1999 from Yeungnam University, and MS in Information & Communication Engineering in 2002 from KAIST-ICC.

In 2002, she joined Electronics and Telecommunications Research Institute (ETRI) of Korea and now serving as a senior member of engineering staff. She participated in “TV-Anytime” standardization and IPTV GSI Metadata standardization. She currently involved in the development of gaze tracking technology. Her research interests include personalized service via metadata, HCI, Gaze Tracking, Bi-directional advertisement and video content analysis.



Jeongil Seo was born in Goryoung, Korea, in 1971. He received the Ph.D. degree in electronics from Kyoungpook National University (KNU), Daegu, Korea, in 2005 for his work on audio signal processing systems.

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Hoon Jo was born in Ulsan, Korea in 1986. He received B.S degree in 2012 at Hanyang University in Seoul, and has been studying on a master's and doctorate integrated program at same university. The major field of study of the author is computer vision.

He has been researched vision sensor based gaze tracking in the graduate school. He published three related conference papers: A robust gaze tracking method for users wearing glasses (Jeju-si, Jeju-do: Workshop on Multimedia, 2013), Fast and accurate locating method of pupil center and glints for gaze tracking (Bangkok, Thailand: IWAIT, 2014), and Eye feature localization under visible light (Seoul, Korea: IEIE Signal processing society, 2014) His current research interest is stereo vision