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Face Pose Recognition Based on Monocular Digital Imagery and Stereo-Based Estimation of its Precision

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Abstract. A technique for automated face detection and its pose estimation using single image is developed. The algorithm includes: face detection, facial features localization, face/background segmentation, face pose estimation, image transformation to frontal view. Automatic face/background segmentation is performed by original graph-cut technique based on detected feature points. The precision of face orientation estimation based on monocular digital imagery is addressed. The approach for precision estimation is developed based on comparison of synthesized facial 2D images and scanned face 3D model. The software for modelling and measurement is developed. The special system for non-contact measurements is created. Required set of 3D real face models and colour facial textures is obtained using this system. The precision estimation results demonstrate the precision of face pose estimation enough for further successful face recognition.