
Press Release - CVPR 2010

Announcing Tandent FR

A Revolutionary New Preprocessor for Face Recognition

Demonstrated Live at CVPR 2010 in Real Time

May 2010, San Francisco. Tandent Vision Science Inc. today introduces a revolutionary technology that substantially enhances the performance of face recognition systems. The **Tandent FR Preprocessor for Face Recognition** accelerates much broader commercial deployment of face recognition technology in settings such as public transportation systems, airports, office buildings, sports arenas, city streets and other outdoor environments.

Breakthrough Technology

The new Tandent technologies are preprocessors that operate between image capture and existing computer vision systems, providing an enhanced input for computer vision algorithms. By replacing input images with Tandent preprocessed images, our technology dramatically improves real-world performance of computer vision systems.

To perform accurately, current face recognition systems require highly controlled lighting for both the face to be identified and the database of images to which it will be compared. Thus, kiosks or other setups with controlled lighting are often used to generate both the database and the image of the face to be identified.

These constraints severely restrict commercial application of face recognition technology since both phases of image acquisition are conspicuous, require cooperation, and are constrained to locations with controlled lighting.

The **Tandent FR Preprocessor**, however, eliminates the need for controlled lighting in the acquisition of both probe and gallery images. This makes it possible to extend accurate face recognition technology into the naturally illuminated world.

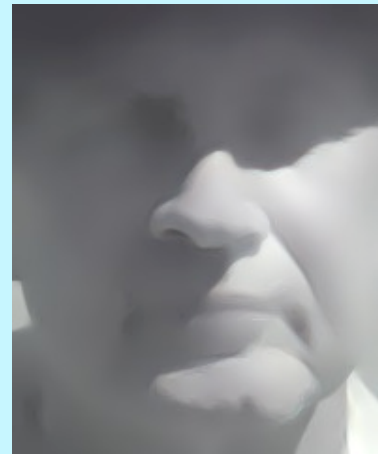
Nearly six years in development, the proprietary Tandent Face Recognition Preprocessor converts a single image from an off-the-shelf still or video camera into an image that simulates controlled "kiosk" lighting. Whatever the original illumination conditions, the preprocessed image depicts only the shading and features used by current face recognition systems and eliminates cast shadows and other unwanted illumination features that confound the recognition process.



Original Image



Reflectance



Illumination

Face recognition applications generally require the use of controlled lighting to capture both the “probe” image as well as the database or “gallery” of images to which the probe image will be matched. These constraints seriously limit the settings and circumstances where face recognition technology can be utilized.

The new Tandent FR Preprocessor, eliminates this need for controlled lighting in face recognition. The top image, for example, was captured in extreme, outdoor lighting. The bottom left image shows the output of the Tandent FR real time preprocessor that is specifically designed for face recognition systems. The preprocessor includes some shading but eliminates cast shadows and other unwanted illumination features. The preprocessed image is designed to be functionally equivalent to controlled lighting. Thus, face recognition systems can now perform in extreme outdoor lighting as well as other settings where illumination cannot be controlled such as mass transit systems, airports, office buildings, stadiums, convention centers and streets. The Tandent real-time face recognition preprocessor is demonstrated live for the first time at CVPR 2010.

Commercial interest in face recognition technology has increased substantially in recent years due to significant technical improvements combined with the rapid worldwide rise in security concerns. Most analysts estimate annual revenues at \$500M to \$1B for the face recognition industry even though current technology performs well only in highly controlled illumination. By markedly improving face recognition in settings where illumination is not controllable, the Tandent FR Preprocessor is positioned to enable considerable global expansion of the face recognition industry.

Since the Tandent FR preprocessor operates in real-time, as demonstrated live for the first time at CVPR 2010, it can be used with video surveillance systems for **real-time identification** of moving persons. High-performance face recognition can now be pursued wherever security is a concern.

About Tandent

Tandent Vision Science Inc. is a privately held computer vision research and development company headquartered in San Francisco with principal research facilities in Pittsburgh, adjacent to Carnegie Mellon University (CMU), and supporting facilities in other locations across the United States. Tandent was founded to solve fundamental problems limiting growth of the computer vision industry. Tandent is a good citizen of the worldwide computer vision community, the exclusive sponsor of the respected Vision and Autonomous Systems Center (VASC) seminar series at CMU and is involved in a wide range of computer vision and human vision research activities.

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Career Opportunities

Tandent Vision Science Inc. is a unique research and development company that has attracted an outstanding group of scientists including distinguished academic researchers, accomplished industrial scientists and some of the most outstanding recent graduates in the field of computer vision. If you are interested in working with us, please visit our website for more information.

Other Information

For other information about our company, please visit our website www.tandentvision.com