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## Tech-Overtures

### Innovative ideas and inventions from Toyohashi Tech researchers Quantifying cosmetics: Optical quantification of the spatial distribution of cosmetic facial foundation

Beauty may indeed be in the eye of the beholder, but we could all do with a little help to maintain the 'natural look' just to be on the safe side.

Applying creams and liquids—foundation—to the face and body has a long history, with records showing the ancient Egyptians using 'body paint' to improve their complexion and looks.

Intriguingly, in spite of the countless products offered by the cosmetics industry, the appropriate application of foundation is still more of an art than a science. That is, there is not a scientific way to quantify the spatial distribution of foundation applied to the face.

Now, Shigeki Nakauchi at Toyohashi Tech's Department of Computer Science and Engineering in collaboration with Kanebo Cosmetics Inc., Japan, has developed a technology enabling the quantification and visualization of the 'quality' and finish of foundation applied to the face.

Using this technology, it is possible to produce an optical image of the amount of foundation applied to the face by simply inserting a special filter in front of a camera lens (Fig.1).

For example, this technology enables a direct comparison of the finish of foundation applied by an untrained person (Fig.2 (left)) and a professional make-up artist (Fig.2 (right)).

This technology will be used for the development of materials for base make-up, more informed make-up counseling and techniques for beauticians and so on.

#### Further information

- Shigeki Nakauchi Group : <http://www.vpac.cs.tut.ac.jp/en/index.php?FrontPage>



Fig.1: The role of the filter used for visualizing the finish of foundation applied to the face. The theoretically derived spectral transmittance was realized experimentally using a multilayer film filter made by vacuum deposition technology.

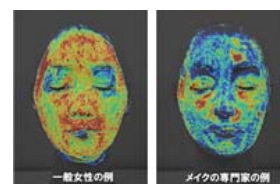


Fig.2: Visualization of the finish of foundation applied by an untrained woman (left) and a professional make-up artist (right). The amount of the foundation applied by the professional is much less than an inexperienced woman, which shows that a trained person applies foundation efficiently in order to achieve a 'natural looking' finish to the make-up.