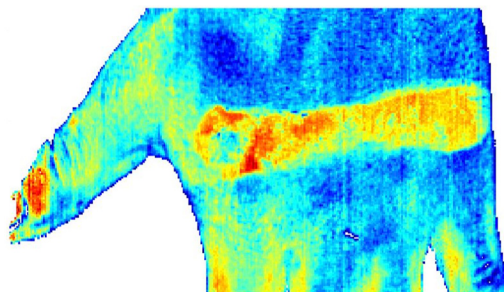


COSMETICS

A SWIR camera based hyperspectral imaging system was used to identify the location and evaluate the absorption of different cosmetics. For the experiments, several different hand lotions were sequentially rubbed in the shape of a strip on the subject's hand and scanned one at a time. The hand was cleaned with isopropyl alcohol before and between lotion applications to normalize the amount of oil on the surface of the skin. The volunteer placed the lotion-covered hand on a moving sample tray which passed beneath the camera. At 100 fps, each scan took about 6 seconds. ChemaDAQ™ software, included in the SisuCHEMA™ hyperspectral imaging system, was used to collect the images and control the camera.

The spectral image below shows the location of the applied lotion based on its spectral differences from the skin.



The spectra reveal differences between the lotions. The following spectra represent facial night cream, moisturizer, and sunscreen. The graphs show that around 5750 cm^{-1} and 4250 cm^{-1} (see circled areas), there are spectral differences that indicate a decreasing presence of oil from the first to the third spectrum. Furthermore, the results indicate that those characteristic wavelengths are appropriate to predict the location, the amount, and the absorption of the respective products.

