

Measuring wrinkles, sun damage with software

By [Stefanie Olsen](#)
Staff Writer, CNET News

SAN JOSE, Calif.--I never thought I could say definitively that 7 percent of my face is wrinkled, 30 percent of my pores are inflamed and on a scale of 50, my California sun-soaked skin scores 26 for ultraviolet damage.

I tested, firsthand, emerging bioscience technology that applies hard numbers to my skin's health. With two flashes of white-light digital imaging to my face and some sophisticated mathematical algorithms, the system I subjected myself to could calculate all that frightening detail in a few minutes.

When patents are finalized in the next year, the technology will also be able to forecast a patient's likelihood for skin cancer as a consequence of UV sun damage, according to Raj Chhibber, CEO and founder of BrighTex Bio-Photonics, the Silicon Valley-based maker of Clarity Pro.

"Diagnostics are key to assessing your health. Early intervention can solve a lot of problems," said Chhibber, a physicist by trade.

"We put a doctor in a computer," Chhibber said.

The technology is not out on the market yet, but it's poised for release next month to a number of high-end spas, medical health clinics, cosmetics companies and researchers, Chhibber said. He said he could envision an exam costing anywhere from \$50 to several hundred dollars at a commercial spa or clinic, depending on its stature. (For their privacy's sake, he would not release names of customers.)

With the tool, doctors and aestheticians will be able to recommend creams, salves or surgeries based on skin condition, and then show patients before and after effects of recommendations. [Independent researchers](#) may also be able to test, quantifiably, the claims of those companies selling antiaging procedures or

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corrective creams. Cosmetics companies will be able to produce similar research and back up their claims--or not.

All this could shake up the cosmetics industry, which has long sold its antiaging products with subjective claims of worth. [Technology](#) that can be used to fact-check product efficacy could ultimately be a blemish on sales. Or it could boost an already booming market for facial antiaging products, which is worth more than \$10 billion in the United States annually.

Creams that claim to reverse aging can easily sell for hundreds or thousands of dollars. Health spas promoting chemical peels, micro-dermabrasion treatments, facials and Botox have popped up all over the country. Just turn on the TV for shows like "Extreme Makeover" and "Nip/Tuck" to see that facelifts and collagen implants are child's play when it comes to the country's fixation with youth.

Computer diagnostics for [skin health](#) could be the next generation of the business. After all, advancements in science and technology are merging at a fast clip, and demand for ever-better data about health is catching up.

"Hopefully we can help people understand what's helping them by understanding the process and show people the reality of UV damage," said Chhibber.

In Asia, Chhibber said, demand for such diagnostics may be more robust because spending on looks is much greater. And many Americans venture overseas to get facial procedures done because it's much less expensive than in the United States. "We don't know how Americans will accept this," he said.

At least one California company likes the results.

Ray Mead, founder of a skin specialist in Carlsbad, Calif., recently met the BrighTex team at an antiaging conference in Las Vegas. People at the conference who tested his company's product, [Lumiere, an LED light-therapy treatment](#) for removing age spots, tried Clarity Pro before and after the treatments and found that Lumiere worked, Mead said.

"We had people go measure the size of their pores, their number of chromofours (or acne-causing bacteria) and then get light therapy. They could immediately see some result (in a follow-up test), and that's atypical to get immediate results. It set those guys back a bit, like, 'Wow, this really works,'" Mead said.

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I was among the first to trial Clarity Pro in a Spartan office park here in San Jose. BrighTex is housed in a large, two-story building of dark-mirrored glass. It's part of a collective of biotech companies that form the [San Jose Bio Center](#), an incubator for start-ups. Walking down BrighTex's dark and empty hallways, you can tell the company, like many in the industry, is still in its infancy. BrighTex employs only four people, all related to Chhibber.

Chhibber's nephew Ash Chhibber, an engineer who specializes in medical image processing, developed the algorithms and proprietary software for Clarity Pro. The software is loaded onto a Dell laptop, which is connected to hardware for taking digital imagery of the skin.

The hardware, a white box much like the eye doctor's device for testing depth perception, takes two pictures of your face to capture details on the skin and subdermis.

The software then instantly measures skin-tone evenness, pore health (including excessive oil, bacteria, a combination of those, and worst, deep inflammation). It also can detect the skin type of a patient--if, for example, that person's skin burns moderately but tans gradually. And it measures skin moisture, elasticity and UV damage, all predictors of how one might age.

The technology includes facial and pattern recognition algorithms that can assess the skin's "signatures," or patterns of damage. Each pattern is significant in identifying the type of photo-damage and how to treat it. Cancer, for example, carries particular skin signatures. The software can plot zones on the face and target regions for analysis, such as zones 4 and 5 in the eye area.

In contrast, BrighTex's more established competitor, Canfield Technologies, does not apply numbers to UV damage.

The system also references known dermatological scales, such as the Fitzpatrick scale, which classifies skin types. The software can then make recommendations for how long you should be in the sun, for example, based on individual skin type.

BrighTex consulted doctors, dermatologists and other skin specialists to develop the software to recognize and detect skin conditions. To bolster it for assessing cancer risks, the company plans to reach out to the dermatology community. "We hope that dermatologists will buy the system, test it out and bring it to the next level," the senior Chhibber said.

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Clarity Pro sells for between \$12,000 and \$25,000 depending on the extent of equipment the buyer wishes to own.

Chhibber longed to enter the biotech field before founding BrighTex a year ago this month. He worked in the semiconductor industry for more than 20 years, measuring and inspecting wafers at companies such as Thermowave and Nanometric. But he saw new horizons in biotech by taking his knowledge of image processing--or the ability to recognize features or patterns in chips--to facial recognition and dermatology.

Detecting UV damage in skin is a big area of interest for Chhibber because by paying attention to such things, people can ultimately help prevent the onset of cancer, he said. Clarity Pro will provide the data on various kinds of UV damage in the skin, and researchers should be able to extract information and knowledge about thresholds for detecting cancer, he said.

Eventually, Chibber would like to develop diagnostics systems for detecting breast cancer. He's been inspired by diagnostics centers in India that for a smaller fee than a hospital would charge, will give people a battery of tests such as CT scans, blood tests or MRIs. People get tested before going to the doctor or hospital. Similarly, he envisions low-cost diagnostics in the United States to offset the high-costs of health care.

As for me, I've surely become a dream consumer for the skin-oil salesman hawking antiaging creams and youth elixirs--but never surgeries.

At least now I might be able to tell which of those creams work. And with luck, my numbers will drop.

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