

FAST TALK



Charge of the Light Brigade

Advances in LED and organic LED (OLED) technologies transform light into an inspiring ingredient that refashions everything from home decor to electronics.

Interviews by KATE ROCKWOOD

Business Development Manager
Philips, Aachen, Germany

Kristin Knappstein

Knappstein, 41, is helping Philips bring OLEDs to market by selling do-it-yourself kits, including glowing sheets called Lumiblades, to kick-start their use within the creative community.

"OLEDs are a disruptive technology. Traditional lighting manufacturers are always thinking dollar per thousand lumen. They aren't going to be the ones that drive innovative applications. When we show OLEDs to people in architecture, product design, or surface design, they say, 'Wow.' They understand it not as a light source, but as a material.

OLEDs by themselves are not nice, but if you add sensors or programming, then you get something great. That inspired us to get this technology—much earlier than normal—out of labs and into the hands of creatives. They can make a product based upon the OLED being flexible, being a mirror, or having the option to be structured. We get their juices flowing, and they start developing products. We want to prevent this from becoming just another light source."



Founders, Because We Can
Oakland, California

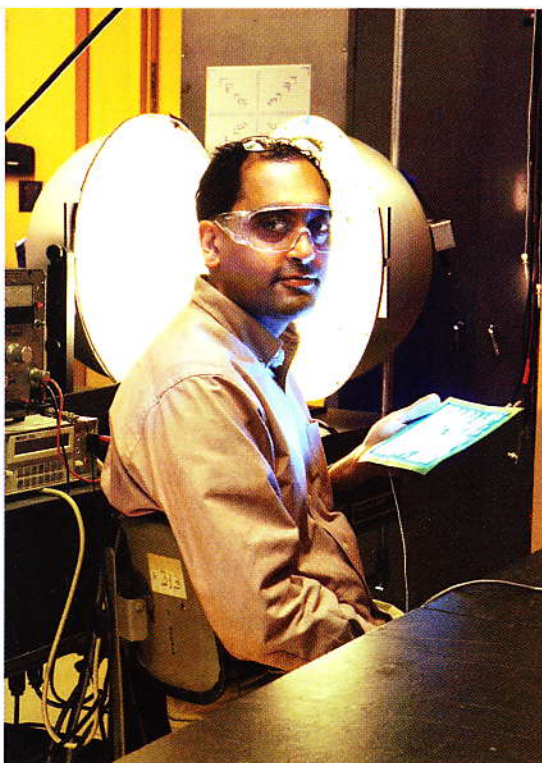
Jeffrey McGrew & Jillian Northrup

McGrew, 35, and Northrup, 32, are a husband-and-wife design team who have completed projects for Wikipedia, Clif Bar, and Timbuk2, and recently collaborated with open-source hardware designers Evil Mad Science to create interactive LED-infused coffee tables.

McGrew: "We have three tables—the Wave, the Ripple, and the Pulse—with the same lighting on the inside. They see change and light up in response. If you set something down on it, it lights up, but then calms down and stops twinkling. When you move that item, it will light back up again."

Northrup: "We wanted to showcase two different ways you can use light. The Wave typically has a glass top, so you're seeing everything—the circuit board, the LEDs, the patterns they're making. The Ripple and the Pulse are more of a secret because they have this frosted top that just looks like a really nice table. When you interact with one of them, it becomes more than a table. You get this second, wonderful experience."

McGrew: "The two big problems LEDs have always had—they weren't very bright and were very expensive—are going away. We're leveraging whatever we can get our hands on to help us make cool stuff."



Scott Birnbaum

Birnbaum, 48, helps Samsung think about how LED applications can push consumer electronics to do more than ever before.

"Today, we use LED for backlighting, which enables a very slim form—the width of your finger—plus higher contrast ratio, better picture quality, and longer battery life. Those same LEDs can be turned on and off at a very high frequency, much higher than what your eyes can notice. We recently demonstrated visual light technology that uses the backlighting on a

notebook, computer, or digital sign to broadcast a frequency of light. Samsung has so many devices that can operate well with each other, this can make a kind of unique statement. If you see a TV ad for a new car, you can hold up an enabled device such as a cell phone and capture which dealers are selling that car, at what price, and what incentives are being offered. Things that can't normally be shown on a television commercial or an airport sign can reach consumers in a much more personal way. I'm a gadget guy. It's really fun to look into the future to see what consumer experiences are going to look like."

**Head, Advanced Technology
Program OLEDs, GE Global Research
Niskayuna, New York**

Anil Duggal

Duggal, 44, leads the GE team that's creating OLED lighting sheets, which are produced the way ink is applied to newsprint.

"Organic LEDs are very thin (100 nanometers) organic materials—plastic polymers combined with dyes—that you sandwich between two electrodes, put a voltage across, and light comes out. OLEDs are such an acceptable idea now that your next-door neighbor has application ideas and she wants them. GE has committed to offering OLED lighting sheets as early as the end of 2010. But to make this a reality that's good for our business, we need to produce more than 100 lumens per watt and a long lifetime, better than what fluorescents can do today. OLEDs can do it, but no one wants to pay for a lightbulb what you spend on a TV. Our challenge is to try to marry low cost with performance. We're not going to have that solved in 2010, but we're hoping we'll be there in 2015. OLEDs really excite people, but give us a little time!"



**VP, LCD Group, Samsung
San Jose, California**



Hannes Koch

Koch (right), 34, and his cofounders Florian Ortkrass (left), 34, and Stuart Wood, 29, are designing art that transforms LED and OLED technologies into interactive experiences.

"OLEDs offer a new way of engaging in light, so the idea of turning them on and off with a normal light switch, that's last-century thinking. By mixing camera tracking and gesture tracking with OLEDs, our *You Fade to Light* piece uses the human body to control the intensity and quality of the light. As soon as people understand that, they start moving in silly ways, dancing and quite generally enjoying themselves.

We see a huge potential for this kind of interaction to be implemented in our day-to-day environment. We're making a Swarm Light chandelier, which is three big LED cubes housing this object that reacts to sound. If you shout at it, the chandelier will shy away from you. It's really a basic piece of artificial intelligence, but we still call it a chandelier because a) people understand it better, and b) because it is."

Principal, Random International
London