

60 TB Hard Drives?

Seagate just shattered the record for storage density on hard drives by using a novel recording method to stuff 1TB into a square inch. That's nearly twice the old record. Hard drives are about to get huge.

Seagate squeezed all of that data into that tiny space by using "heat-assisted magnetic recording" instead of perpendicular recording to write data to disk.

ExtremeTech reports:

HAMR, which was originally demonstrated by Fujitsu in 2006, adds a laser to the hard drive head. The head seeks as normal, but whenever it wants to write data the laser turns on. Reading data is done in the conventional way. Just so you understand how small the magnetic bits are in a HAMR drive, one terabit per square inch equates to two million bits per linear inch; in other words, each site is just 12.7 nanometers long — or about a dozen atoms.

In the short term the technology will result in new 6TB 3.5-inch desktop drives and 2TB 2.5-inch laptop drives. Currently the largest capacity drives are 750GB and 3TB respectively for laptops and desktops. That's already an impressive boost in capacity. In theory, though, HAMR should allow hard drives to write up to

10TB per square inch, which means that in the future you could potentially cram about 60TB onto a 3.5-inch drive.

...<http://gizmodo.com/5894934/breakthrough-opens-door-for-60tb-hard-drives>

Bits per Square Inch

Seagate's latest hard drive has hit a milestone: it manages to squeeze in a data density of one terabit per square inch. It uses some extremely complex heat-assisted magnetic recording to do that, and in the process doubles the storage capacity of current hard disks. If that's not enough to get your head round, how about this: the hard disk contains more bits in a single square inch than the Milky Way has stars.

...<http://gizmodo.com/5894778/new-hard-drives-have-more-bits-per-square-inch-than-the-milky-way-has-stars>

The Lytro Camera

Heard on Morning Edition
March 1, 2012

STEVE INSKEEP, HOST: Just when you thought you had all the latest photography gear, along comes something new. A

California-based company released a different kind of camera yesterday called the Lytro. It's about the size and shape of a stick of butter, and the photos it takes capture light in a completely new way. Our colleague David Greene took the Lytro out for a test drive.

DAVID GREENE: Yeah, I came over to the National Portrait Gallery in Washington, D.C. and I brought along Keith Jenkins, who's in charge of multimedia and photography at NPR. Tell me exactly what I'm looking at here.

KEITH JENKINS: Well, what it looks like is a giant sized tube of lipstick. But it is made by Lytro, and it is a camera using cutting edge technology of light fields to create images that have the potential of being three-dimensional, because we are not only capturing color and brightness, but we're also capturing the direction of light.

GREENE: So light fields capturing direction of light, are these things that regular cameras haven't done in the past?

JENKINS: The traditional cameras don't do this. This is the first camera on the market that will allow you to create images like this.

GREENE: And when you say images like this, what exactly are we creating with this camera?

JENKINS: Well, the claim to fame of this camera is that you never to focus. What it really means in

practice is that you take a picture, bring it into software in your computer, and voila, you are able to focus on any particular point in the picture — focused on the face, focused on the background. This camera allows you to selectively focus after you take the photograph.

GREENE: Well, can we try and snap a few photos here? We're in this gorgeous atrium with a lot of light. And I know we didn't bring a laptop or anything with us, but if we go back to the office we could load some of these up, right?

JENKINS: Definitely, and we can take a look at how this works.

GREENE: Well, Keith and I have now come back into our offices and brought the camera back. And, Keith, can we load some of these photos up?

JENKINS: Yes, we can. Our flower is coming in. Almost immediately, you can kind of see that the flower is close-up in the foreground. The roof of the atrium is the background. Let's click on something in the background.

GREENE: Wow, so the background just came into crisp focus and the flower is now blurry.

JENKINS: We have a leaf that was behind it that now is in focus. But we just watched it shift again, so

we've got a fair amount of focus on the wall. Both the flower and the leaf in the foreground are now out of focus.

GREENE: And this kind of stuff you could never do in the past, with cameras we've been used to. Is that right?

JENKINS: You could not do this with cameras and you could not do this in Photoshop. And what you do here is pretty instantaneous. So you just click on a section of the picture and it comes in to focus.

GREENE: You know, when I first heard that we were going to take a look at this camera, my first impression was to be sort of uncomfortable. Because it felt like it was taking even more of the magic out of photography. I mean you can sort of take this photo, come back to an office and make it into something new. Is that what's going on or is there some new magic here?

JENKINS: Yeah, I think that the digital revolution has robbed a lot of people of the magic of photography. I like to refer to it as the magic of the, you know, the 19th century, where we were working with chemicals and processes that were just being invented by doctors and others. And for the most part, we really didn't understand it all that well, but everybody adopted it.

Digital technology has given everybody the capability, in the pocket, to have something which can produce great images, and you really don't need to think about it. And this camera, for me, feels almost like it's returning some of the magic. Because it's using 21st-century technology to create almost, you know, multidimensional images. And that's something which is brand-new and feels like it's part of the magic of our century.

I don't understand it completely. But I recognize that it's pretty cool and pretty neat, and cutting-edge, and maybe will create a whole new era of photography in the next few years.

GREENE: Alright. Well, Keith, thanks for coming on this field trip with me.

JENKINS: My pleasure.

GREENE: It's Keith Jenkins. He's in charge of Photography and Multimedia NPR. And he was introducing me to the new Lytro camera, which is available now. And if you want to play around with some of the photos that we took, you can go to our website, NPR.org.

...<http://www.npr.org/templates/transcript/transcript.php?storyId=147665130>

April Calendar

April 2 — Amiga-By-The-Loop Chapter
7:30 PM — Main Grand Prairie Library
901 Conover Drive, Grand Prairie

April 2 — Board of Director's Meeting
Approximately 9:15 PM — Location TBD

April 26 — Newsletter Deadline — 8:00 AM

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