

- [Buy Photos](#)
- [DI Blogs](#)
- [DI Podcasts](#)
- [Ad Rates](#)
- [Publication Schedule](#)
- [Contact Us](#)
- [Special Sections](#)
- [Multimedia Archives](#)
- [Story Archives](#)
- [Sudoku Answers](#)
- [Daily Illini Merchandise](#)
- [Illini Media](#)
- [the217.com](#)
- [wpgu](#)
- [buzz](#)
- [Illio](#)
- [Technograph](#)
- [Alumni Club](#)

[Home](#) > [News](#)

UI research makes flexible electronics

By [Peter Kim](#)

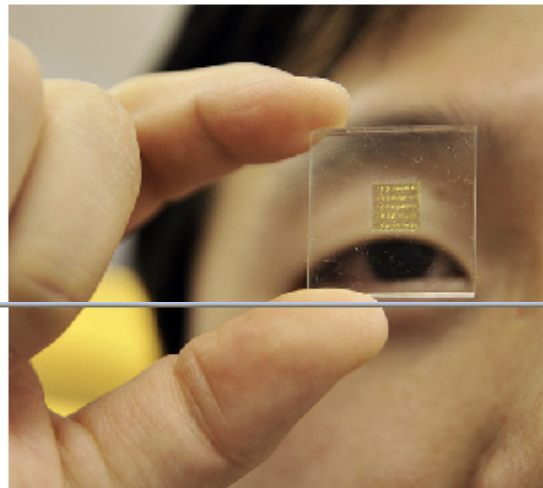
Posted: 4/4/08 Section: [News](#)

[Print](#) [Email](#) [Article Tools](#)

Page 1 of 2 next >

Apple may have presented a new laptop thin as air, but with University research, future laptops could be folded up and put in your pocket.

John Rogers, University researcher and professor of materials science, and his research team have developed electronic circuitry that can be stretched, folded or deformed to wrap around objects. The resilient new electronics could be used to make objects such as foldable computer screens, wrist-wearable cell phones or intelligent medical devices.



Credit: [Patrick Traylor](#)

[zoom](#)

"The potential of this technology is very high," said Dae-Hyeong Kim, researcher and graduate student. "There is a huge demand for this type of technology in the military, cell phone and laptop industries."

Rogers said the research is focused on the application of stretchable circuits and is in collaboration with the University of Pennsylvania Medical School. One of the research projects involves making a biomedical monitoring device that detects and prevents epilepsy. The process requires sensors to be attached to the brain.

A flexible electronic would be able to conform to the sinuous contours of the human brain, Kim said.

Although the technology is not fully developed, many companies have been advertising future products that will use stretchable electronic technology when it becomes available.

The most mind-stretching - and circuit-stretching - example is the Nokia Morph, a sleek, bendable cell phone so thin it would make a Motorola Razr blush.

According to the Nokia Web site, the cell phone could be folded for easier storage in a pocket or for a more "ergonomic" handset shape. Also, the phone could be unfolded for a larger display.

WALK TO CAMPUS!
ADVANTAGE PROPERTIES
 C-U
 217-344-0394
 All of our apartments are 1-3 blocks from Campus!

PROPAGANDA T-SHIRT PRINTING

Presby Hall
 Suite-Style Residences

Suite-Style Residences
Be the first!



Leasing
Center
Open

Come in and reserve yours now
809 Fifth Street, Champaign

217.344.0102
www.presbyhall.com



- Contact Us
- Special Sections
- Multimedia Archives
- Story Archives
- Sudoku Answers
- Daily Illini Merchandise
- Illini Media
- the217.com
- WPGU
- buzz
- illv
- Technograph
- Alumni Club



unfolded for a larger display.

Rogers said there are two keys to making deformable electronics: making the whole chip extremely thin and pre-treating wrinkles into the chip.

"If you have a sheet of paper and a two-by-four, they are essentially the same material," Rogers said. "Why the paper is bendable and the two-by-four is not, is because of the paper's thinness.

Continued...



Page 1 of 2 next >

Article Tools

Share:

 Facebook
  Blogger
  del.icio.us
  Digg
  newsvine




Subscribe:

 My Yahoo!
  Google

The Daily Illini encourages on-topic discussion through article commenting on its articles and blogs. It is our policy not to delete any comments based upon political or ideological point of view. However, we reserve the right to remove comments that are abusive, off-topic or use excessive foul language.

The posting of copyrighted material, including any and all content for which you are not the author, is illegal under Federal intellectual property laws. Such activity will not be tolerated. Comments containing copyrighted material will be removed, and continued violation of copyright law is grounds for being banned completely from commenting on DailyIllini.com.

If you feel any post meets these conditions or merits review, please e-mail our editors at meonline@dailyillini.com.

 Print
  Email
  Article Tools

< prev Page 2 of 2

"We do the same thing on a microscopic scale."

In addition, the active parts of the circuit are sandwiched in between two layers of protective polymer, such as rubber or plastic, Kim said.

"(The chip and the protective layers) are very thin, much thinner than a human hair," Kim said. "They cushion the chip for foldability and twisting."

The second step to creating a flexible electronic is to pretreat wrinkles into the device for wrinkles to become unfolded when electronic is stretched.

"It's just like an accordion," Rogers said.

When an accordion is stretched and compressed, the wrinkles in the accordion allow for the instrument to expand and contract without breaking. The wrinkles in the electronics work on the same scale, he said.

Kim said that when talking about his research, people are often reminded of the movie "Minority Report."

"The scene where Tom Cruise is moving things around on a computer screen in the air - that is not just an imagination of the future," Kim said.

"It is happening now."

< prev Page 2 of 2