



POPSCI THE FUTURE NOW COM

Intel Wants Brain Implants in Its Customers' Heads by 2020

Researchers expect brain waves to operate computers, TVs and cell phones

By [Jeremy Hsu](#) Posted 11.20.2009 at 3:00 pm



Mind Trip Intel wants into your brain *Warner Bros.*

If the idea of turning consumers into true cyborgs sounds creepy, don't tell Intel researchers. Intel's Pittsburgh lab aims to **develop brain implants** that can control all sorts of gadgets directly via brain waves by 2020.

The scientists anticipate that consumers will adapt quickly to the idea, and indeed crave the freedom of not requiring a keyboard, mouse, or remote control for surfing the Web or changing channels. They also predict that people will tire of multi-touch devices such as our precious iPhones, **Android smart phones** and even Microsoft's wacky **Surface Table**.

Turning brain waves into real-world tech action still requires some heavy decoding of brain activity. The Intel team has already made use of fMRI brain scans to match brain patterns with similar thoughts across many test subjects.

Plenty of other researchers have also tinkered in this area. Toyota recently **demoed a wheelchair** controlled with brainwaves, and University of Utah researchers have created a **wireless brain transmitter** that allows monkeys to control robotic arms.

There are still more implications to creating a seamless brain interface, besides having more cyborgs running around. If scientists can translate brain waves into specific actions, there's no reason they could not create a virtual world with a full spectrum of activity tied to those brain waves. That's right -- we're seeing *Matrix* creep.

[[Computerworld](#) via [ReadWriteWeb](#)]

RELATED ARTICLES



[Toyota Demonstrates a Wheelchair Controlled With Brain Waves](#)



[The Age Of Telekinetic Cyborg Monkeys Is Upon Us](#)



[Control a Robot with Your Mind](#)

TAGS

[Technology](#), [brain implants](#), [brain scans](#), [brain waves](#), [cybernetic](#), [cyborgs](#), [fmri](#), [intel](#), [interface](#), [matrix](#), [multi-touch](#), [virtual reality](#), [wireless](#)

[Previous Article: Mourning the Death of the Meta Media Experience](#)

[Next Article: CERN Successfully Brings Large Hadron Collider Back Online](#)

42 COMMENTS

[blackspike2710](#)

11/20/09 at 3:38 pm
One step closer to instant porn

[Link to this comment](#)

animemaster

11/20/09 at 4:26 pm

Dude instant porn has been around since like the late 80's early 90's

[Link to this comment](#)

Kaddis

11/20/09 at 4:26 pm

I know I'm going to come off sounding like a nerd, but whatever... this is nothing like the Matrix and everything like Ghost in the Shell (google it if you don't know what it is).

"I didn't mean to rob the bank officer, someone hacked my brain."

[Link to this comment](#)

Jeremy Hsu

11/20/09 at 6:18 pm

Hah thanks, that's a fair point about "Ghost in the Shell" and its emphasis on actual cyborgs. But I wouldn't say this has nothing to do with Matrix-like tech -- those brain interfaces would only work if there was some sort of tech translating brain activity into virtual world (Matrix) action.

[Link to this comment](#)

coolnezz

11/20/09 at 7:18 pm

i don't think so...

[Link to this comment](#)



uncleiroh13

11/20/09 at 10:28 pm

once i saw instant porn i was like XD is a wierd idea and for the lol it took me 5 mins to type this whats this website coming to "instant porn" jeez

[Link to this comment](#)



seatellite

11/21/09 at 3:13 am

"If the idea of turning consumers into true cyborgs sounds creepy, don't tell Intel researchers."

Um... I'm fairly certain this would kick royal ass... Who thinks it's creepy?

[Link to this comment](#)



seatellite

11/21/09 at 3:16 am

Also: Think of the medical applications of this. Now instead of asking "Where does it hurt?" and "On a scale from 1 to 10 how much does it hurt" We can do a simple med-scan and find out EXACTLY what is damaged.

this saves doctors from being forced to "Wait and see" what is going to happen with a patient.

I Love this idea.

[Link to this comment](#)



kormiko

11/21/09 at 4:46 am

This puts new meaning to the phrase "Intel inside."

[Link to this comment](#)

xyvian

11/21/09 at 5:31 am

Now I'm no conspiracy theorist but I don't necessarily want a company (nor the government) to even have the opportunity to track and monitor my actions. It may simply be too much for a greedy or opportunistic entity to refuse monitoring people. This device would be very hard to trust...

I like my privacy.

[Link to this comment](#)

Daxcious

11/21/09 at 11:45 am

Heck, replace my whole brain and give me a super durable body. I would like to do a quadrillion calculations per nano second and live a quadrillion years.

[Link to this comment](#)

shg89

11/21/09 at 12:57 pm

....I'd be fine with hat.

Plus who wants those ugly implant scars...or to have major surgery?

[Link to this comment](#)

bdhoro87

from coral gables,
fl

11/21/09 at 1:21 pm

I don't get how they can do a fMRI on somebody while they're thinking, and say these are the brainwaves responsible for that thought. Well if they do it like that it would have to be very individualized no? There's a lot of differences between people's brains and the way they think, and what about lefties?

Anyway I'm not too worried about the security issues, because the big companies are already tracking us, and I haven't felt any privacy issues yet. Honesty google already has so much information about me its scary. I mean, they know what I look at every day, they know what I read, the places I go to (if i ask for directions) the games I play, the subjects I'm interested in, the list goes on.

[Link to this comment](#)



kormiko

11/21/09 at 6:38 pm

When the majority of people get this and even if they are being tracked ... the ones that don't get this are the ones government and corporations will be the most interested in. They'll ask, "What are they hiding?"

When it comes down to it, who cares if you are being tracked or not? There will be millions of people with it and you just becomes an anonymous blur among others. It's when you're doing something illegal or embarrassing is when you don't want to be tracked.

But seriously, technology is going to go faster in the coming decades. If you don't want it anymore, there's always Amish country. The pluses of technology outweigh the minuses. Think of life before cell phones, DVRs, GPS, and the Internet. Yes, we can get by without them, but they do make life easier ... and that's what we all want ... because we're lazy. :)

[Link to this comment](#)

themyxscene

11/22/09 at 5:09 am

Why does Intel wants to have this kind of innovative invention? It is no doubt that machines are slowly taking its course to overcome humans capabilities.

In some way it is quite alarming on putting a microchip in our brain is like manipulating what we are doing.

www.themyxscene.com

[Link to this comment](#)

zwoulfers

11/22/09 at 6:09 am

I'm not worried about the possibilities of being watched over. The only thing I really don't want to have to worry about is getting Norton's Anti-virus for my brain.

[Link to this comment](#)

mbrd71

11/22/09 at 10:39 am

What I don't get is how do you control your own thoughts. I tend to think pretty erratically, and I wouldn't necessarily want a machine to follow all of those actions. Seems like it would be a pain to watch TV with more than one person. I sure wouldn't want a surgeon using this. What if a hot nurse walked by?

[Link to this comment](#)

jakezori

11/22/09 at 4:12 pm

I'm surprised intel doesn't realize the implications this would have. Not only is there a legitimate possibility of some sort of mind control through hacking, but there are also insertion problems... This is ridiculously risky, and just plain stupid.

[Link to this comment](#)

dsci4evo

11/22/09 at 4:25 pm

I agree with Kormiko - about the intel phrase ...maybe the whole "intel inside," was planned years in advance. If you're human and chipped, you're no longer human, but become transhuman. This wave of thinking tends to not be a good trend. It is not we the people that want control, as much as those who create this technology, and they're hacking your brain right now, to join the bandwagon to get it implemented when these tech anomolies see fit.

[Link to this comment](#)

[Link to this comment](#)

Azorus

11/23/09 at 3:32 am

The idea of replacing your brain with a computer chip at this point in time is dumb! It takes a massive super computer to imitate a cat's brain, where it makes a complete days worth of thoughts in a week. At best this would be like Chipping your pet, where you can scan your palm over a register and it knows your credit card info. It might be good for anti theft because it could work just in combination with your DNA.

[Link to this comment](#)



wingartist

11/23/09 at 5:05 am

Stupid ideal, why would anyone want to trust a bunch of nerds without any social skills to anticipate what consumers will adapt to? Most people will not allow someone to put a foreign object in their brain let alone get a seasonal flu shot. Intel is acting out just like the quote in Jurassic Park movie where the self-professed "chaotician" Dr. Ian Malcolm said "they were too busy thinking that they can instead of thinking if they should."

[Link to this comment](#)

Cognito85

11/23/09 at 3:00 pm

I would welcome this advancement. To any who take Farenheight 451 seriously YOU ARE A FOOL. Throughout the last fifty years,solutions have be found for every piece of techno-wizardry. You counter hackers with hackers or with homomorphic algorithmys that are being developed as we speak. These algorithmys will constantly adjust to ANY changing situation (no, not AI). Don't freak out, things will be fine, not dark and gloomy as most ppl think linearly.

[Link to this comment](#)

Oakspar77777

11/23/09 at 4:11 pm

I think what they are really going for here is a universal remote to everything remotable stuck in your head.

Look at the light switch and think, and the light goes on or off.

Look at the TV and think, and navigate a channel guide menu or the volumn.

Look at the cell phone and think, and it dials scrolls through your calllist of people.

Of course, fighting over the remote is going to be interesting when everyone in the room has one.

Put a scan-chip in my hand to serve as my federal ID and access to my federal bank account that serves as my total assessts/debt account and obolish physical money and credit/debit cards.

Put a few more chips in my fingers so that I can type on any surface (or play piano for that matter).

Throw in some built in storage so I can't lose my USB drive.

I'm not even sure I've hit science fiction yet. Love the idea, but in a world where I still live on broadcast TV and dial-up internet, 2020 is much to ambitious - a lot like those "home of the future" displays from the 50s.

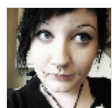
[Link to this comment](#)

papamambomunc

11/24/09 at 5:06 pm

We already have a giant chip in our homes, we call it television

[Link to this comment](#)



Eviscerated

11/24/09 at 7:25 pm

It's hard to choose a side with this one. Seatellite makes a good point about potential medical benefits, but of course one shouldn't ignore potential ulterior motives. No one likes to seem like a conspiracy theorist, but the damage something like this could cause and the potential power someone could have over the public through this is unnerving.

[Link to this comment](#)



kennedyj10

11/26/09 at 8:36 am

Personally, for me, I would not have anything placed in my brain. If evolution saw fit that I didn't need it, so be it.

Also, does anyone realize how lazy the human race is. Are we honestly

that lazy that we want to control things with our brains.... Bring on the "Jabba the huts"...

[Link to this comment](#)

mikeymike

11/26/09 at 1:00 pm

if intel does this then that means that possibly everyone's brain patterns would have to link up somewhere at say a main pc/server etc.. which means if a person can control that then the retards who have these implants in their brains could be manipulated. PLZ INTEL GET THIS OUT ASAP!

[Link to this comment](#)

kairin2001

11/26/09 at 5:04 pm

Um, yeah, lets all be track-able at all times. and what will happen when the chip in my head gets hacked??

[Link to this comment](#)

wojownik5649

11/27/09 at 11:41 pm

This is pretty interesting. Sure any privacy you have is eliminated, but I think its amazing. Just think of something and have it appear on a tiny contact computer screen. (I saw it on beyond tomorrow) which is pretty interesting. imagine having a live driving direction screen in your eye. with arrows pointing which way to turn. :D instant porn FTW

[Link to this comment](#)

pepsideity

11/28/09 at 5:51 am

if it works i hope they fix the bugs.. if not it will give a whole new meaning to "Blue Screen of Death"

[Link to this comment](#)



V3RTIGO

11/30/09 at 8:04 pm

I hope no one will be able to hack my brain waves and make a toaster attack me, or turn me into some sort of zombie. Also would you have a connection to Xbox live or PS3 network?

[Link to this comment](#)

jmpost

12/01/09 at 2:20 pm

We are the Borg. Resistance is futile. You will be assimilated.

[Link to this comment](#)



TeuffelHunde

12/01/09 at 10:25 pm

Revelation 13:16-18 And he causeth all, both small and great, rich and poor, free and bond, to receive a mark in their right hand, or in their foreheads: And that no man might buy or sell, save he that had the mark, or the name of the beast, or the number of his name. Here is wisdom. Let him that hath understanding count the number of the beast: for it is the number of a man; and his number is Six hundred threescore and six.

[Link to this comment](#)

mitch5566

01/11/10 at 7:53 pm

you guys are missing out on a large concept, however "hoky poky", we will never know if our minds are being hacked right now. Think about it.

[Link to this comment](#)

galen wright

02/06/10 at 7:51 am

My name is Galen John Wright and I am 49 years of age. Twenty years ago a doctor in Sacramento, CA, during an appointment injected a neural implant into my spinal trunk for experimental purposes without my knowledge or permission. It in fact this was medical rape. For the past twenty years I have been used in a experiment in the testing of this spinal trunk implant. It broadcasts and receives a telemetry signal on a twenty-four hours a day basis across the entire country. The neuro-electronic interface implant in my lower spinal trunk ties into every area of the brain and body and turned me into a synthetic telepath. It is my hope to find a group that is aware of implant technology, and to be able to understand what is being done to me. The implant will be shown in a MRI scan and the signal being broadcast would be shown in a anechoic chamber test. This has been a twenty year crime committed against me. I have been use to control computers for the past twenty years with this technology that was

injected into my spinal trunk. This is old technology and I will travel to you to prove it. Also will travel out of the country to have it removed.

[Link to this comment](#)

bond304

03/04/10 at 7:44 pm

A lot of you are PROBABLY taking this all wrong. MOST LIKELY, the chips would only be able to pick up brain waves and transmit them wirelessly to other devices. In order to control you, they would need to be specifically built with electronic pulse emitters AND intel would have to figure out how to not fry peoples brains, or at least not make them spazz out. At any rate, its not going to control us, i would love to have one of these in my brain (assuming they are safe and surgery is safe). It would make life much easier and could only pose as a threat in the far future.

[Link to this comment](#)

emulouscretien

04/12/10 at 1:53 am

Any of you ever watch Dune? Imagine if everyone on earth were forced by the governments to either accept an implant or go to prison, anyone with an implant who breaks the law will have their implant explode. Instant death, no more terrorism and no more war. No more revolution, no more crime.

If you even think in a way the establishment does not like, your implant will explode and the problem is instantly solved. And if you are a psychopath or sociopath, watch out because this implant will be put in your head first.

Of course this situation is entirely fictional, and of course we know our fellow humans would never want to try something like this, it would make a great plot for a sci-fi movie.

[Link to this comment](#)

Sherms

04/13/10 at 11:44 am

Dom, dom dom, dom dom!!

Fuck off Intel, you know where you can stick your chip implants, and it ain't anywhere near my cranium!!

[Link to this comment](#)

gamenomad

04/24/10 at 1:58 am

Hmm, freaky and awesome at the same time. I guess we need to develop and see where this is going. After all, new (and freaky) technologies always frightened people and wanted to stop the research. And about the surgery, invasive surgery will be no more in not so much time, with all the development in nano-technology.

You remember the movie 1984? Well, were in 2010 and theres no totalitarian government. And the world is just growing better, with less radical political ideology and globalisation. People from all countries talk and share ideas on the Net, institutions like the UN and International Monetary Fund are getting more important, while countries still keep their culture and territory. Some say it's the dawn of an obscure and big bad totalitarian government, others, like me, says this is progress, for the best. Some will say that I'm retard or crazy or whatever, but let just say that it is quite tough to expose a complex and quite controversial ideology NOT in your mother tongue!

Don't forget that there's more "good" people out there than "bad" people. Just think about open source software!

Also, I think we need to respect each person ideology. You can't just say "This is how the world should work because this is how I think it should be". I don't think that every "way of thinking" other than mine is scrap, I take what is good in these and change my way of thinking.

P.S: That's tough English! Especially for 2 hour AM!

[Link to this comment](#)

Cedricshort1

04/26/10 at 11:07 pm

You all watch to many moveis and vedio games. Look at it this way you get the implant, just reprogreme it after they implant it and make your own firewall so they cant controle you. If you play games like me then you understand that with something like this hell nobody could really keep up with your thoughts not evan computers. but in my book use the implant to learn thangs you dont know like playing the gutiar are if you are in bad medicale condiciane it would help to find away to get you well quicker.

p.s.

If i was offered the chance I would try it. And if your worried about being tracked are spyed on you minase well go live the omish because the longer you pack you cell phone are labtop are the satallites in space are working every body in the world is pretty much screwed.

[Link to this comment](#)

Jazzy Breeze

05/11/10 at 11:11 pm


Ouch! This frightens me, yet I am certain by the time it is a reality we will accept this technology like we did the aerospace all those years ago. Yet, I just feel that this could be an opportunity for the criminal and the unjust to take further control of many people across this wonderful planet called earth. I will reserve my judgment until this is a reality.

Jazzy

www.valuemobility.co.uk

[Link to this comment](#)

To comment, please [Login](#).

2010 **DREAM COME TRUE** SWEEPSTAKES
 YOU COULD WIN A GRAND PRIZE OF **\$25,000!** [CLICK HERE](#) 

Copyright © 2009 Popular Science
 A [Bonnier Corporation](#) Company. All rights reserved. Reproduction in whole or in part without permission is prohibited.

