

# Esquire

<http://www.esquire.com/blogs/chris-jones/danny-hillis-inventor-1210>

## This Man Is Changing the Way We Solve Problems — and Maybe the Way We Make Magazines

By Chris Jones

**Danny Hillis**, with his giant robot dinosaurs and magical terrain tables, is the first subject of mine who's ever defied written description. Walking through his Applied Minds lab in Los Angeles earlier this fall, I was stunned by the scope of invention, by the limitlessness behind those ordinary-seeming walls. Any one of his projects would be worth a story, but there were literally hundreds. A 10,000-year clock? A cure for cancer? *Giant robot dinosaurs*? How was I going to do justice to him and his brain? How was I going to explain to our readers how that kind of mind works?

And then I saw them, scattered around his office — his sketches and doodles and hand-written notes. *That's how*, I decided.

I sat under the dinosaur and began to draw.

I love drawing. I love the feel of paper with its different weights and textures. I love maps and comics and the sound that a pencil makes. I believe in my heart that there will be an anti-digital revolution someday, that we'll return to newspapers and printing presses and beautiful hand-bound works of art. I refuse to believe that the last people on earth reading real books will be the blind. I refuse to believe that, for the rest of my life, words will be dependent on batteries and tiny fucking sticks.

Which is part of the reason we decided to do my profile of him for [this year's Best and Brightest package](#) by hand. I wanted it to be a defense of paper, to represent the triumph of analog.

Of course, unless we're Danny Hillis, the things we see in our heads don't always come out the way we hoped they might. When I first pictured the five pages you see reproduced below, I saw myself tearing five perfect pages out of my sketchbook and simply scanning them into the magazine. I wasn't thinking about the necessities of modern magazine-making, of copy editing and fact-checking and, you know, legibility.

Those things meant that each part of the story — each snippet of text, each illustration, each arrow or circle or square — had to be done separately. Darhil Crooks, our art director, after looking at me the way people look at puppies that just pissed on the carpet, ended up scanning maybe seventy or eighty of my little sketches and scribbled sentences and began assembling those pieces into a larger whole. Once, I had to draw a single comma on a scrap of tracing paper and file that into the machine. Darhil had to erase the smudges from my pencil. It felt, late at night, something like manual labor.

Is that the future of magazines?

Probably not. It's too much work, for us and for you.

But I hope, at least, that these pages demonstrate the continued possibilities of print. I hope they

reflect the limitlessness I saw in Los Angeles. I hope they inspire someone, somewhere, to dust off their Gestetner or their Underwood, to transmit ink onto paper without the aid of a goddamn laser....

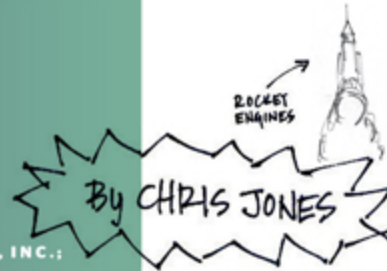
**[READ THE FULL LIST OF 15 GENIUSES WHO GIVE US HOPE RIGHT NOW >>](#)**



Bookshelves at Applied Minds are mounted at a 5-degree angle. "It sets the tone," Hillis says.

# DANNY HILLIS

54, GLENDALE, CALIFORNIA; COCHAIRMAN, APPLIED MINDS, INC.; INVENTOR; THE MAN YOU'VE NEVER HEARD OF WHO COULD MOST CHANGE YOUR LIFE

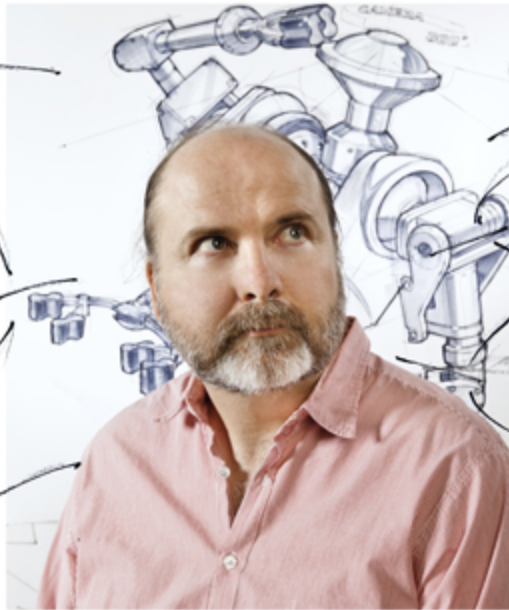


Photographs by PATRICK JAMES MILLER  
dude.

1988: Ph.D. in Electrical Engineering and Computer Science, MIT.

1993: As a graduate student cofounded Thinking Machines, a supercomputer manufacturer. Invented parallel computing w/ 65,536-processor Connection Machine, then the world's fastest computer.

1996: V.P. R&D, Walt Disney Imagineering. Dreamed up new rides, for starters.



1999: Appeared on stamp in Palau.

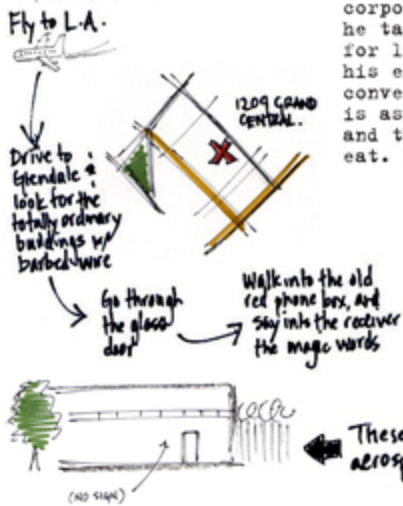
2000: Cofounded Applied Minds, "the little Big Idea company."

2005: Cofounded Metaweb, developing advanced search technology. Sold to Google for undisclosed sum, July 2010.

"DISNEY ENCOURAGED US TO HAVE CRAZY IDEAS, BUT SOME OF OUR IDEAS WERE TOO CRAZY EVEN FOR THEM," HILLIS SAYS. "NOW WE CAN DO WHATEVER WE WANT."

Hillis uses both halves of his brain. He owns more than 150 patents. He sometimes drives an old fire engine to work. He performs complex mathematical calculations by hand, on scraps of paper bordered with doodles. Often his ideas first surface in sketches. He works for private corporations and the military, but then he takes their money and does other things for love. He inspires great loyalty in his employees. He has a ponytail. He ends conversations abruptly. He believes form is as important as function. He has a wife and three children. He doesn't appear to eat. He walks very quickly.

## HOW TO GET HERE

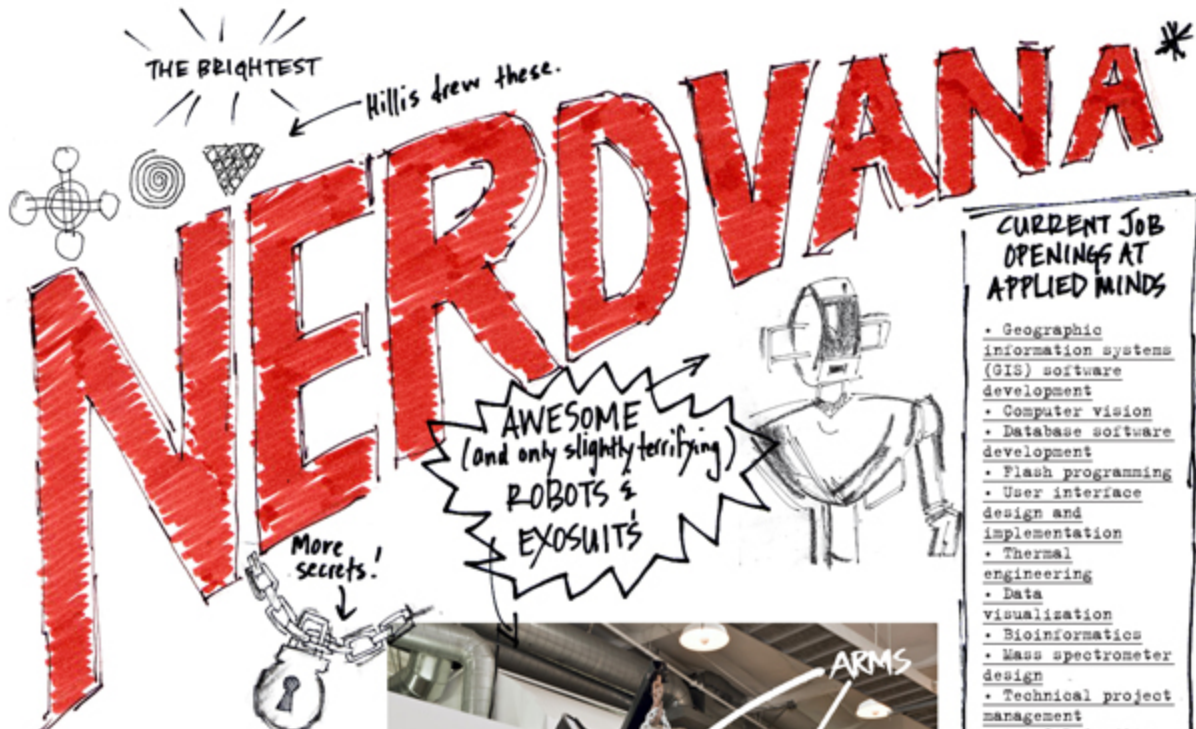


The blue moon jumps over the purple sky.\*

These buildings contain secrets - work for corporations, the military, and the aerospace industry. Applied Minds has a moon lander in there. (Yes, really.)

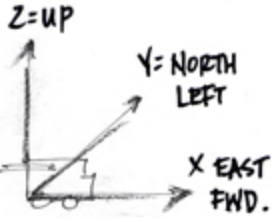
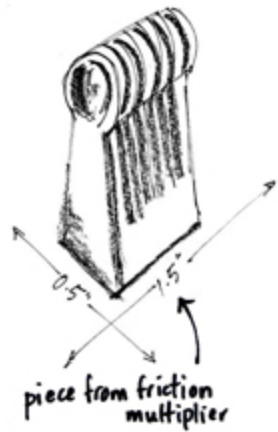
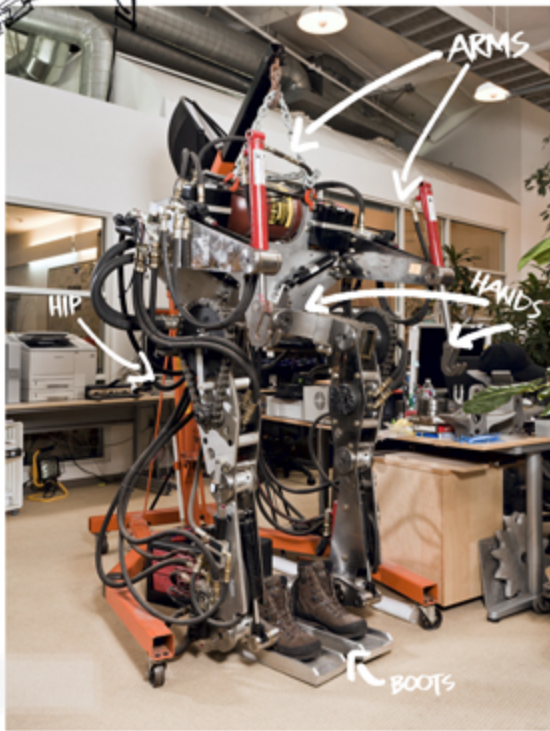


\*No, really.

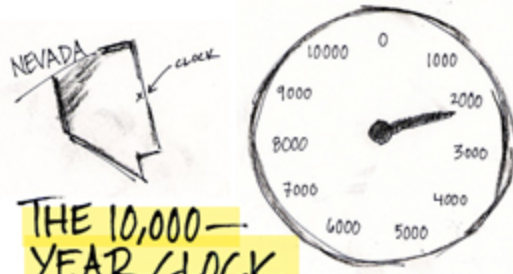


**THE FIGHT AGAINST CANCER**

Cancer is hard to cure in part because treatments that might work for one patient will harm another, sometimes because of the differences in the proteins in their bodies. "Each of us is a different machine," Hillis says. To improve the odds of success, Hillis, through a spin-off company called Applied Proteomics, is leading the effort to map protein biomarkers in the blood of individual cancer patients. The maps are beautiful; they look like maps of the universe, with the proteins showing up as bright lights against the darkness. They will help physicians read biological tumblers, matching patients with their single best treatment.

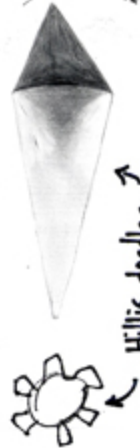
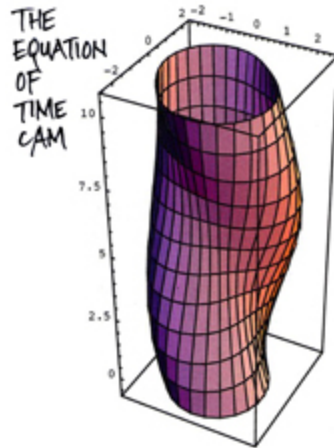


**THE IMPORTANCE OF SLEEP**  
 HILLIS'S TIME IS SCHEDULED MONTHS IN ADVANCE, BUT HE MAKES SLEEP A PRIORITY. "I PROBABLY SLEEP MORE THAN MOST PEOPLE. THAT'S WHEN I GET A LOT OF MY WORK DONE. I'LL GO TO SLEEP WITH A PROBLEM AND WAKE UP WITH THE SOLUTION," HE SAYS.



## THE 10,000-YEAR CLOCK

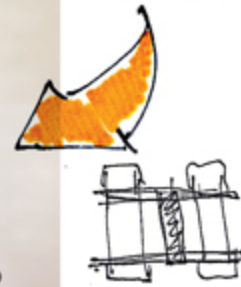
"Today, everything's faster, faster, faster, now, immediately," Hillis says. "I want to live in an age that's bigger than that." Inspired by a semitrue story about the planting of oak trees centuries ago on the grounds of New College, Oxford, in anticipation of having to replace the great beams in the dining hall on some distant day, Hillis helped establish the Long Now Foundation, dedicated to fostering long-term thinking. Central to its work is the building of a huge, entirely mechanical clock that will tell perfect time for ten thousand years. (Hillis now puts a zero in front of the year. We're living in 02010.) Some of the clock's thousands of giant parts are scattered around Applied Minds, including a nine-foot, slow-moving pendulum. It will eventually be assembled in a remote carved-out mountain in eastern Nevada, a time bandit's final destination. "The clock is extremely complicated," Hillis says. "I want it to reward close attention."



CLOCK PENDULUM



NEW WIRING SYSTEM DEVELOPED BY APPLIED MINDS



No idea.

Current wiring in a Cadillac

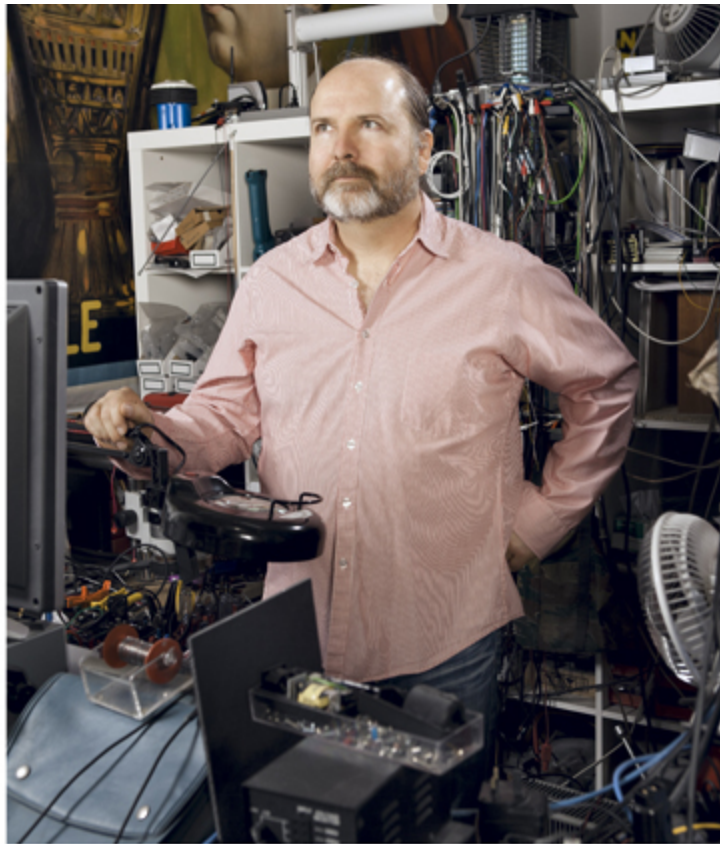
$$C(1 - \epsilon \cos \theta) = a(1 - \cos \theta) + b(1 - \cos \theta)$$

\* NOT A PEJORATIVE, ALTHOUGH SOME APPLIED MINDS EMPLOYEES MIGHT PREFER "GEEK" TO "NERD." ON A FRIDGE NEAR THE ELECTRICAL DIVISION, SOMEONE HAS POSTED A "GEEK HIERARCHY." "PUBLISHED AUTHORS OF SCIENCE FICTION" OCCUPY THE HIGHEST RUNG; "FURRIES" OCCUPY THE LOWEST.

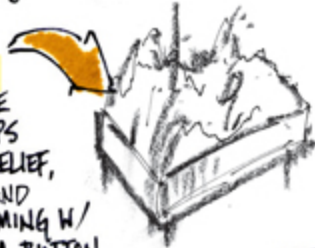
In a controversial essay published in May 1999, Hillis predicted that the Y2K bug was a figment. "But then I worry about things no one else seems to worry about," he says. "Like the Internet crashing. I think that's a real possibility."

### THE BRIGHTEST

There are few divisions within Applied Minds. Employees work on several projects at the same time, and they're free to offer suggestions to their most different-seeming colleagues. (Hillis isn't a fan of specialization: "I think the essence of imagination is a lack of focus.") That allows for a kind of free-wheeling approach to new ideas. If they work, great. If they don't, "nobody's afraid to kill them," he says, "because everybody is working on more than one thing."



A TERRAIN TABLE: LIKE GOOGLE MAPS BUT WITH RELIEF, MOUNTAINS AND VALLEYS FORMING W/ THE PUSH OF A BUTTON.

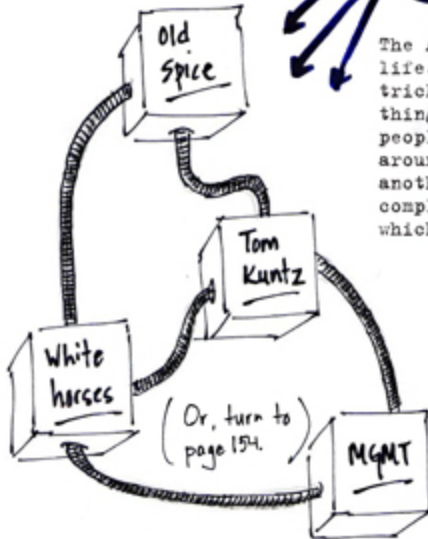


### METAWEB

IN EVERY CORNER: MADNESS & MIRACLES



The Applied Minds creation that will soon filter into your daily life. Rather than using words as the basis of an Internet search—tricky, because the same word can refer to so many different things—Metaweb is built on "entities": more than twelve million people, places, or things that have been carefully documented around the world. As a bonus, how those entities connect to one another has also been coded. That means Metaweb can answer more complicated questions, faster, than other search engines can—which is probably why Google bought Metaweb in July.



### THE BIRTH OF AN IDEA

Hillis traces the birth of Metaweb to a science-fiction novel he read, *The Diamond Age*, by Neal Stephenson. The protagonist, a young girl, receives a book called "The Young Lady's Illustrated Primer." It teaches the reader exactly what she needs to know when she needs to know it—a perfect, tailor-made education. That was Hillis's inspiration. That's Metaweb," he says.

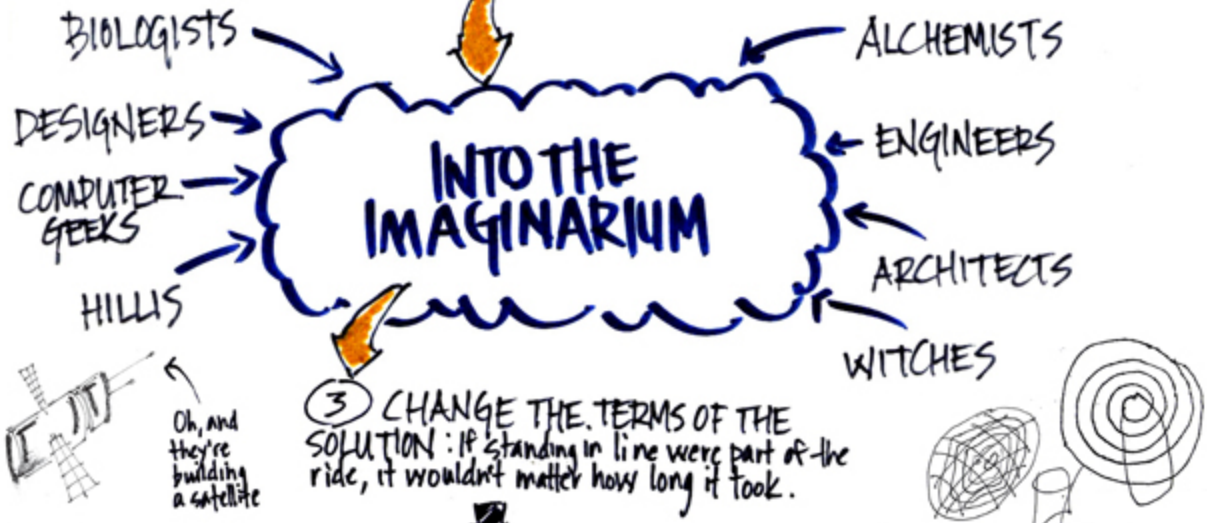
# How it works

(AND HOW YOU CAN DO IT, TOO)

① A CLIENT ARRIVES WITH A PROBLEM: Disney once came with the challenge of how to shorten the long waits for its best rides.

② AN OBVIOUS SOLUTION WILL SURFACE: If we make the rides faster, the lines will move faster.

②a But the obvious solution has some obvious flaw: Faster rides suck.



③ CHANGE THE TERMS OF THE SOLUTION: If standing in line were part of the ride, it wouldn't matter how long it took.

④ A BETTER SOLUTION: No one will mind lines if they're watching giant robot dinosaurs roam the park.

⑤ CONFIRM BELIEF THAT ANYTHING IS POSSIBLE again and again.



GIANT ROBOT DINOSAURS W/ EXQUISITELY DELICATE TOUCH SO AS NOT TO KILL THE KIDS. (IT STILL SCARED THE SNOT OUT OF THEM, SO DISNEY DENIED.) THERE'S ONE OUTSIDE HILLIS'S OFFICE. LIFE-SIZE. SPECTACULAR. (ITS CONSTRUCTION IS A SECRET, BUT HERE'S A PICTURE OF ITS RIGHT KNEE JOINT.)

“For me, in some ways, I have a clearer view of the future than I have of this chair I’m sitting on,” Hillis says. “It’s a perfect place. There are no compromises. Everything is beautiful. The future has no constraints. And the present... is the present. My job is to reconcile those two worlds—knowing all the while that the future isn’t some target, some destination, WE ARE HERE. Because if you’re thinking the right way, by the time you get there, you’ll want to be somewhere else. Somewhere even better.”





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