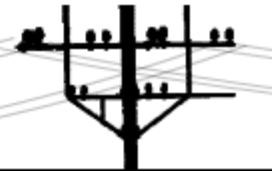


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Rules for Web Startups

"No. 9: Be Agile. There's an old saw about a plane being off course 99 percent of the time, but constantly correcting. Many dotcom-bubble companies that died could have been successful had they been able to change their plans. Pyra was started to build a project-management app, not Blogger. Flickr's company was building a game. eBay was going to sell auction software. Initial assumptions are almost always wrong."

Posted on www.evhead.com

Evan Williams, CEO, Odeo

Fake It Till You Make It

"Remember the Fakester controversy? Had Jonathan Abrams found a way to accommodate hundreds of thousands of passionate users, I don't think we'd have ever heard of MySpace. In the Fakester purge, Friendster is reputed to have deleted 300,000 pet accounts. As a spoof, a guy I know set up Dogster and Catster. The sites now have 170,000 active pets, a bunch of traffic, and a great little business that does whatever the heck pet owners want and gets paid for it."

Posted on rafer.wirelessink.com

Scott Rafer, chairman, Wireless Ink

Posts|[winter olympics](#)

Michael Holden's research helped put men on the moon and might someday put astronauts on Mars. But for now he's got a simpler, and decidedly lower-altitude, mission: putting Americans on medal platforms at the Winter Olympics in Turin, Italy.

The 67-year-old aerospace engineer heads the [Calspan-University at Buffalo Research Center](#) in upstate New York, one of the world's foremost hypervelocity-testing facilities. "If it goes above Mach 3," he says with a cheery English accent, "we test it here." The space race brought the British-born Holden to Buffalo in 1964, and these days he uses wind tunnels to streamline Martian landers, Scram jet engines, bunker-busting missiles, and, in his spare time, the United States' best winter athletes.

Holden, a long-time ace on the powder himself, threw open his doors to elite alpine skiers in the early '80s, after a chance meeting with a Team USA official that led to a question. "Know where we can find a wind tunnel?" Indeed, Holden did. His own research center had been using one to study air flow around buildings, until a budget cut sliced the program and mothballed that particular tunnel. So Holden got to work outfitting it to accommodate his new task of measuring drag on athletes. He installed cameras, modified the floor, and added a videoscreen so skiers could watch themselves in real time. The lab has hosted Olympic gold medalists like Tommy Moe and Picabo Street, and current stars Bode Miller and Daron Rahlves.

Other US teams, smitten with science, have tapped into Holden's know-how as well. The luge, speed skating, and skeleton sledding squads use the tunnel to learn how to go faster. For the US ski jumpers, Holden built a mechanized apparatus of pulleys and torsion bars that allows read-outs to be taken on jumpers suspended from the roof. He has contributed to seven US gold medals, donating time that would otherwise cost more than \$1,000 an hour at the facility.

The 8- by 6-foot metal wind tunnel looks like a square submarine. It has a window on one side and an exterior decorated with autographed posters of Olympic greats. More than a few have inscriptions like THANKS DOC. COULDN'T HAVE DONE IT WITHOUT YOU. Though Holden scoffs at the idea of an official title, two decades of work have rendered him the de facto Team USA physicist.

Holden applies aerodynamic research to the choreography of elite racers as they streak down a mountain at 90 miles per hour. He shows skiers how a single careless move - say, allowing a hand to drift from the body for a moment - can add about 20 pounds of resistance, more than is created by the friction of the skis on snow. That makes a huge difference in a sport where races are won by fractions of seconds. When Holden takes a skier through a tunnel session, they rehearse moving between turns and tucks, scripting a pattern that's low on drag and high on speed.

But it's more than just moving the body correctly. "Getting the suit to fit right, getting the goggles and the helmet on correctly - equipment can account for about 10 pounds of extra resistance," he says. Asked what, exactly, will give US skiers an edge in Turin this year, the old Cold Warrior protects his state secrets and politely demurs.

What Holden *can* talk about is his latest effort at marrying science and skiing. Using strain gauges he built into bindings, he's collecting info on how alpine skiers shift their weight from foot to foot while carving into a hill. At the bottom of the slope, Holden dumps the data into a computer that syncs with a video of the pass down the mountain. Coaches get a graphics-rich display of exactly how a skier moved.

Of course, the engineer knows that all this better-racing-through-science is nothing without world-class athletes. "If they can't ski," Holden says, "they'll still end up in the trees - just a little faster."

- *Geoffrey Gagnon*

Posts|off-off-broadway

It has become passé for fringe theater to reinterpret classic works in new, often bizarre ways - *The Importance of Being Earnest* performed by dominatrices, *Death of a Salesman* in a disco. But on February 8 in New York City, the underground theatrical superstars Les Freres Corbusier premiere the first production of *Hedda Gabler* in which half of the major roles are played by robots. Not humans in funny suits, but walking, talking machines performing live onstage. It's titled, naturally, *Heddatron*.

Aaron Lemon-Strauss, the show's producer, has an unassuming air - you wouldn't expect him to be responsible for this kind of craziness. And over lunch recently in Union Square, he makes a convincing case that his approach to the play is anything but mad. "*Hedda Gabler*, of all Ibsen's plays, is about transcendence, the desire to escape this world and the characters' inability to escape the roles society shapes for them," he says, looking down at his vegetarian chili, then back up as though it had spoken to him. "It made perfect sense: robots."

Hedda Gabler, which many consider Henrik Ibsen's masterpiece, tells the story of a deeply conflicted woman whose world comes crashing down when she's faced with the success of a former lover. The resulting tensions between loyalty, social position, and her own heart drive the action. *Heddatron* is considerably less linear. It bounces from robots enacting a doomed staging of *Hedda Gabler*, to student book reports on Ibsen's plays, to a mother in Ypsilanti, Michigan, whom the robots abduct to star in their production, to Ibsen's house, where the playwright lives with his overbearing wife and what the script terms a kitchen slut. The 19th-century Swedish playwright August Strindberg also appears, carrying a sack of used condoms and writing plays with a Sharpie that's glued to his crotch.

Heddatron features some humans, but the robots will rule the stage when the play opens at the [HERE Arts Center](#) on Sixth Avenue. They're being assembled by The Botmatrix, a cooperative of alpha-geek graduates of NYU's Interactive Telecommunications Program. Onstage, the actor-droids will live in Robotforest, a wonderland straight out of *Tron*, made from a wall of configurable LEDs that blink and pulse. As the play progresses, the thespoids will gradually take over the stage, so that by the final curtain, all the major roles except Hedda - Judge Brack, Eilert, Berta, Aunt Julie - will be performed by remote-controlled robots. The bots' lines will be delivered using prerecorded text to speech. Some will be humanoid, others small and wheeled. Their designs are inspired by robots of yesteryear, like Elektro and Sparko, spokesrobots for Westinghouse Electric in the 1930s.

All of which suggests that the performance might be - dare we say? - robotic. It might be difficult for machine actors to convey the full dimensions of the human condition. But Elizabeth Meriwether's strange script cuts to the heart of Ibsen's story: A woman chained up in her own life struggles to break free of social programming. That struggle is mirrored by the robots, who attempt to escape their own programming and achieve true AI - self-awareness. Just as Hedda rails against a world that can't hear her, the robots represent potential that one day may be unleashed.

The human actors in the play have already been cast, so the production team won't have the chance to audition them with the robots. Not that the humans would mind. "I've auditioned with great people and with terrible people," says one of the actors. "You always want to look better than the people you read with. I can work with a robot."

- Mike Daisey

Posts|manufacturing

A tall, broad-shouldered senior at North Dakota State University, Jeremy Lee is what's typically called a farm boy. For two generations, his family has raised cattle and grown wheat, canola, peas, and sunflowers on about 2,000 acres in central North Dakota. Lee himself has been tinkering with tractors since he was old enough to hold a wrench. Today, however, he spends most of his time at the [Center for Nanoscale Science and Engineering](#) in the pancake-flat and often frozen city of Fargo. Lee builds thumb-sized radio frequency sensors and is in his final semester of work toward a degree in electrical engineering.

At NDSU's Research Park, where the center is located, Lee's story is typical. Phil Boudjouk, a university vice president and one of the founders of the burgeoning research park, says farm boys (and girls) "have a built-in respect for machinery. They have designers' eyes. They're always seeing how to improve a piece of machinery. And they make mistakes once." These characteristics, along with an unusually strong work ethic, are so common, Boudjouk says, that faculty members have long fought over "who gets the farm kid" in a class.

Now it seems that people like Jeremy Lee will have opportunity to match their talent. The center and other technological projects in the state have recently received \$225 million in seed money, courtesy of US senator Byron Dorgan. For the past four years, the North Dakota Democrat has pushed aggressively to create a high tech corridor in the Midwest, running along the eastern edge of the Dakotas.

The senator is promoting one technology in particular - radio frequency identification tags, which are essentially high-powered barcodes used by businesses that want to track their products. No larger than flecks of pepper, the current RFID chips are easily scanned and connected to databases that reveal all sorts of information: for example, when a steak was packaged and shipped, where it has traveled, what temperatures it has endured, and other information. It could even include the entire history of the steer - a boon to watchers of mad cow disease, as well as to gourmards. In fact, researchers have been working on electronic animal tags since the 1970s.

North Dakota's red-state politics also play to its RFID ambitions. In addition to their product-tracking capabilities, RFID systems can record and transmit all sorts of personal information, like which toll gates people pass through and what time they leave work. Not surprisingly, commercial efforts to trace consumer behavior have spawned an RFID opposition front, with activists pushing some state legislatures, such as California's, to consider bills banning RFID uses that might pose a threat to privacy. North Dakota, however, has never been a hotspot for ACLU-style activism, and it isn't likely to become one.

Currently, the university is happily working with several RFID-related firms, and one company, Silicon Valley-based Alien Technology, plans to break ground in spring on a plant in Fargo that will produce up to 10 billion electronic tags in its first year. This would turn Fargo into one of the largest RFID manufacturing centers in the world, creating a slew of jobs for people like Jeremy Lee.

- *Todd Oppenheimer*

Posts|sterling

Sony and Bertelsmann were once the prides of Japan and Germany. Having grown up to become

world-spanning megacorporations, they spawned a reckless delinquent named Sony BMG. As children often do, the youngster is having a hard time finding its way in the world - selling music, in particular, as well as controlling the distribution of music it manages to sell. So [Sony BMG](#) resolved to turn your computer into a battleground.

The war, of course, is the struggle to control unauthorized duplication of copyrighted material. Music fans demand to make copies, and to its credit Sony tried to meet them halfway. But en route to the meeting place, the company turned down a path that leads to a dark future.

On at least 50 titles released last year, Sony BMG included software that allows users to make up to three copies. To count the number of duplicates made, the discs install programs on the user's computer. And to keep savvy customers from monkeying with the software, the company included a rootkit, secret code that makes itself and the copy-protection files invisible.

The ability to hide files is an invitation to every hacker with, well, something to hide. Miscreants use it to cloak programs designed to take control of the host computer. Players of online games use it to conceal cheats. But there was more to Sony BMG's rootkit. The code could also send information about the user's system back to the mothership.

Blogger Mark Russinovich wrote about the Sony BMG exploit in November, and music fans exploded in righteous fury. After much denial and obfuscation, Sony BMG provided an uninstall routine. It also stopped manufacturing rootkitted titles and recalled those it had shipped. But the damage had been done. More than 2 million discs were already in consumers' hands, ready to blast holes in the system of anybody unfortunate enough to pop one into a CD drive.

I'm not going to scold Sony BMG. The problem here is larger than one company's effort to own its customers' desktops and spy on their behavior. The real issue is the blurring of lines between blackhat hacking and legitimate business. It's one thing when Russian gangsters take over a few million computers to shake down online casinos. It's another when commercial enterprises adopt the same methods to protect their market. At that point, good corporate citizenship devolves into vigilantism and the implicit trust between supplier and customer unravels.

Sony BMG isn't the only company to have mistaken malicious exploits for mainstream business practices. The British software developer First 4 Internet, which licensed the rootkit to Sony BMG, built its product on techniques developed for creating viruses, and the company's programmers left a trail of newsgroup requests for information about hacks like crippling CD drives. Ironically, First 4 Internet appropriated parts of its music player from an app known as LAME - a bald infringement of the LAME copyright.

Imagine the mayhem if this kind of attitude were to become widespread: Coca-Cola would use your desktop to propagate spam about its latest bottle-cap sweepstakes. Vonage would keep Skype offers from reaching your inbox. Samsung would make sure that, when your browser tried to load Sony.com, it reached a fake Sony site where nothing worked. Companies would compile vast archives of customer data merely because they could, hoping they'd stumble on a revenue model.

It's time for lawmakers, trade groups, and public-interest organizations to get down to the hard work of hammering out standards for what businesses can and can't do to customers' computers. Such an effort will need to be international, because the Net knows no bounds. It will need to come up with simple, understandable language for end-user licensing agreements. It will need to draw red lines around unacceptably invasive hacks and map gray areas between spying and market research.

I'm not holding my breath, though. After all, we asked for this. We didn't want to ruffle the feathers of the goose that laid the golden egg of technological progress, so we allowed manufacturers to claim more and more control over the ways we use their products and what they can do with our information. It should come as no surprise that they're using that power as a cover for bigger, possibly more lucrative schemes.

You may not be interested in the digital rights war, but that doesn't mean you'll have the luxury of sitting on the sidelines. Because the other side is very, very interested in you.

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