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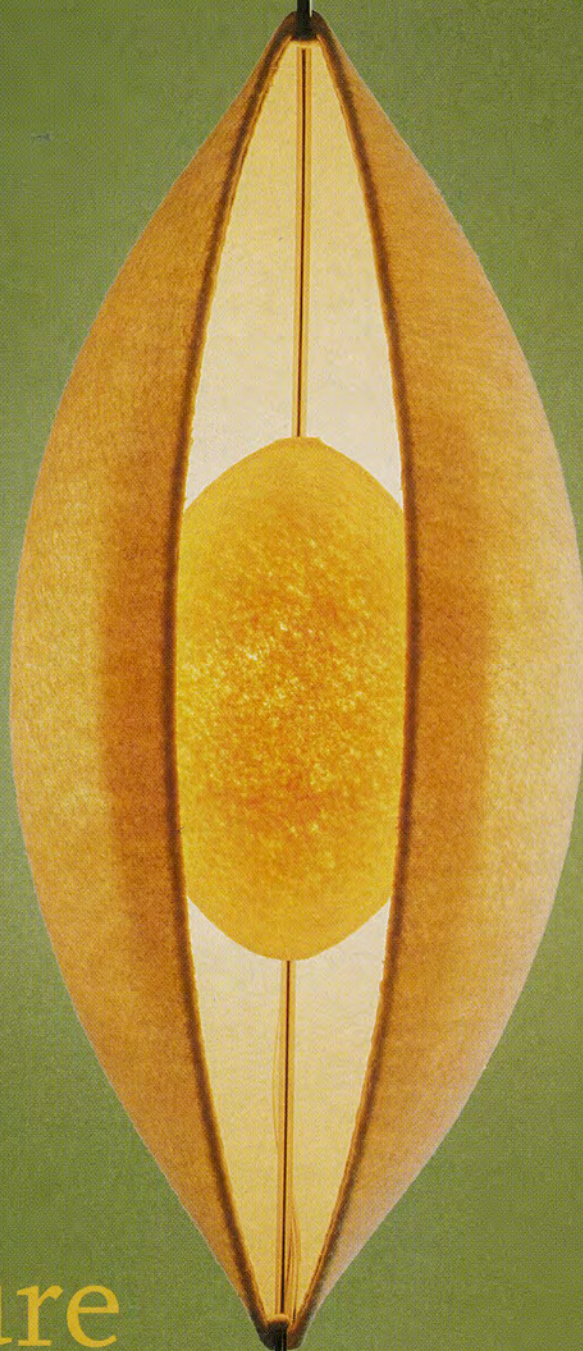
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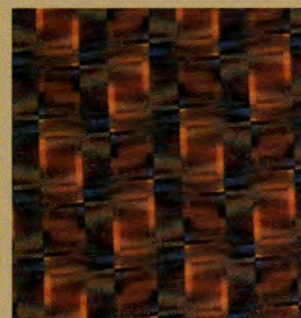
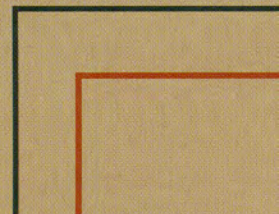
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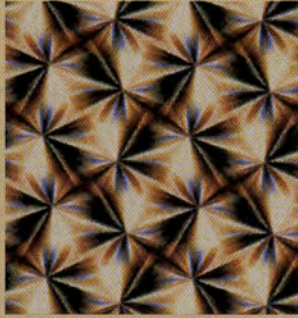
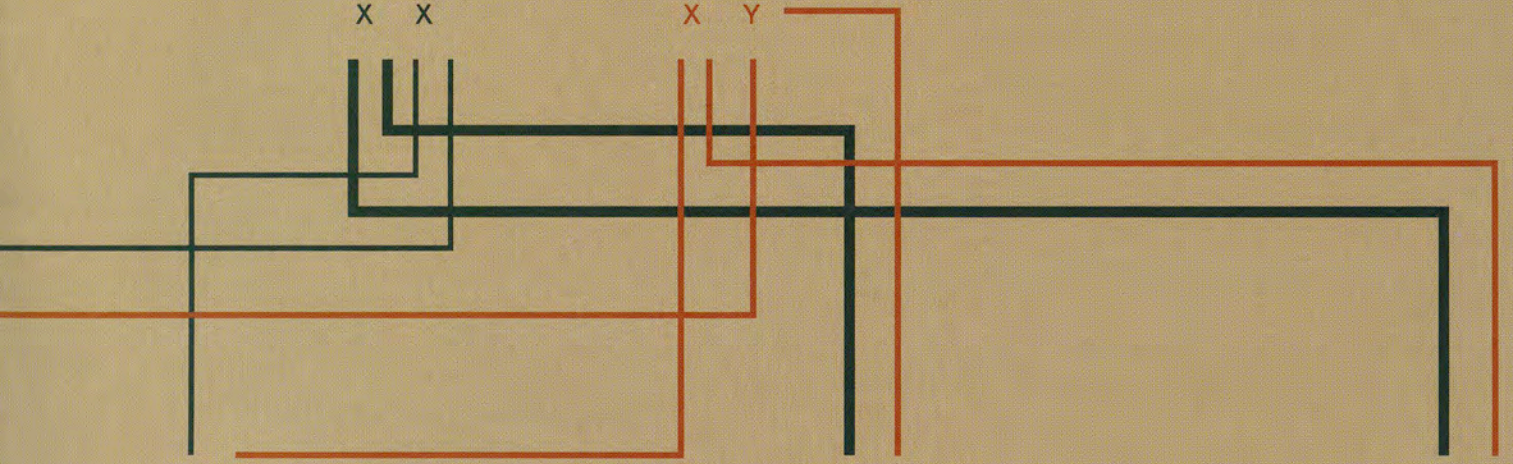
IN A UNIQUE BREW OF MATH AND SCIENCE, MENSWEAR DESIGNER JHANE BARNES DIGITALLY CONJURES UP TEXTILE PATTERNS THAT APPEAL TO TECHIES AND TRENDSETTERS.

BY CHRISTINA VALHOULI



X X

X Y



MENSWEAR DESIGNER JHANE BARNES found inspiration for her upcoming collection in a most unusual place: the laboratory of GlaxoSmithKline, where scientists are mapping the human genome. Although this may seem like a strange place to seek inspiration for designing shirts, socks and ties, it's business as usual for Barnes.

The 47-year-old designer has long distinguished herself with trippy textile patterns, which are entirely computer-generated and based on concepts from the realms of math and science—such as algorithms, genomes and galaxies. For her spring 2002 collection, Barnes is delving into the DNA codes of different kinds of cancers to generate patterns, giving all-new meaning to “geek chic.”

“My patterns are based on sequences of the four bases that make up human DNA, and I’m calling the collection Life,” Barnes says. Her previous collection, Space, was inspired by information exchanges with a friend who works at SETI (Search for Extra Terrestrial Intelligence) in Mountain View, Calif.; Barnes christened some of her Space shirts after stars and galaxy clusters.

Now operating a 10-person firm in New York, Barnes has always had a penchant for math. Growing up in Phoenix, Md., Jane (as she then spelled it) Barnes dreamed of attending Cal Tech and becoming an astrophysicist. But math wasn't her only passion; she loved designing clothes. “I made weird things, like jumpsuits that zipped from my feet all the way to my chin,” she explains.

After Barnes failed trigonometry in her junior year of high school, her teacher told her she'd better rethink her career choice. So instead of Cal Tech, Barnes studied at New York's Fashion Institute of Technology (FIT). As she began

making a name for herself in design circles in the '80s—designing shiny, asymmetrical suits for the likes of John Lennon, Elton John and Barry Manilow—Barnes never lost touch with her passion for math and science.

Textile design and mathematics are, after all, natural brethern. The first modern computer, for example—designed in the 1830s by Charles Babbage but never built because its concept was way ahead of the technology of the time—was based on the principles of the Jacquard loom. The computer could be operated with two punch cards: one for data, the other for instructions. The loom is a physical equivalent to the mathematical X/Y axis, with full-size punched pattern cards controlling the action of the yarns. In 1890, math and looming crossed paths again, when the Jacquard loom served as the inspiration for U.S. Census Bureau worker Herman Hollerith's “adding machine.” He launched a business—International Business Machines, better known as IBM—that utilized punch cards to compute information. It wasn't until the late 1950s that the punch-card computer technology was replaced by the modern-day silicon chip.

Barnes' passions for art and science merged again at a trade show in 1992, where she met mathematician Bill Jones, who was selling

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x

y

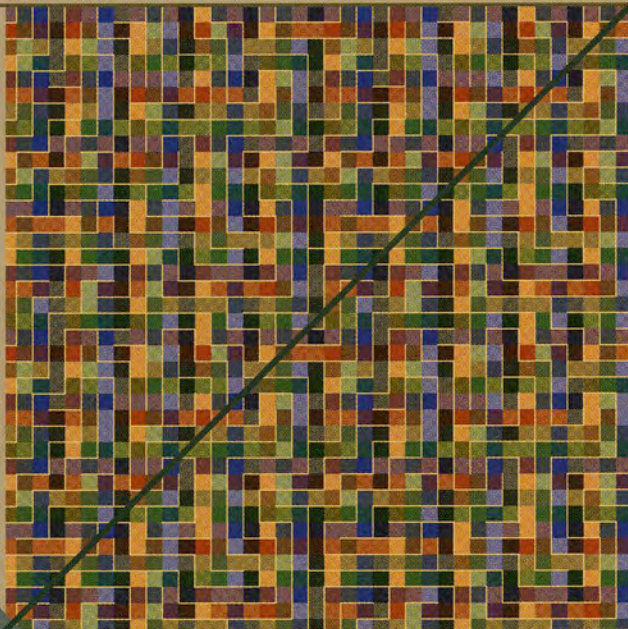
his Weavemaker textile-design software. "The loom is really Boolean algebra plus matrix multiplication," Jones told Barnes, trying to convince the designer to adopt the software to design her textiles. Barnes agreed to try out the software to inspire new fabrics, but it wasn't until Jones later reconfigured Weavemaker for Mac use and incorporated some of Barnes' suggestions that the designer really bought into the idea and started designing fabrics exclusively on the computer. To this day, Barnes continues to collaborate with Jones and his business partner James Cartwright, a physicist at Syracuse University, on Designer Software LLC.

SO HOW DOES A DESIGNER start with the human genome and end up with a design for a man's tie? Easy: Sitting in her midtown Manhattan office

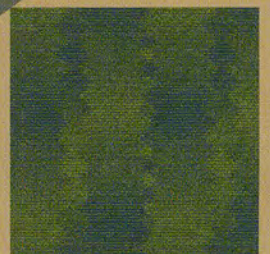
surrounded by two Mac G4s, Barnes logs on to the Human Genome Project Web site and copies a long sequence of bases that encode a particular protein that may play a role in lung cancer. She assigns a color to each letter, pastes it into her design program, and starts clicking. With each click, a different pattern appears, based on computations developed by Barnes, Jones and Cartwright.

Most of the digitally designed fabrics are based on algorithms, which Cartwright likens to a recipe for a cake. "When you make a cake, you always have to follow certain rules, like pre-heating the oven and using flour, butter and eggs," he explains. "But if you're always making the same cake, it gets boring, so you add chocolate, nuts or berries." Or in Barnes' case, cancer, stars or galaxies.

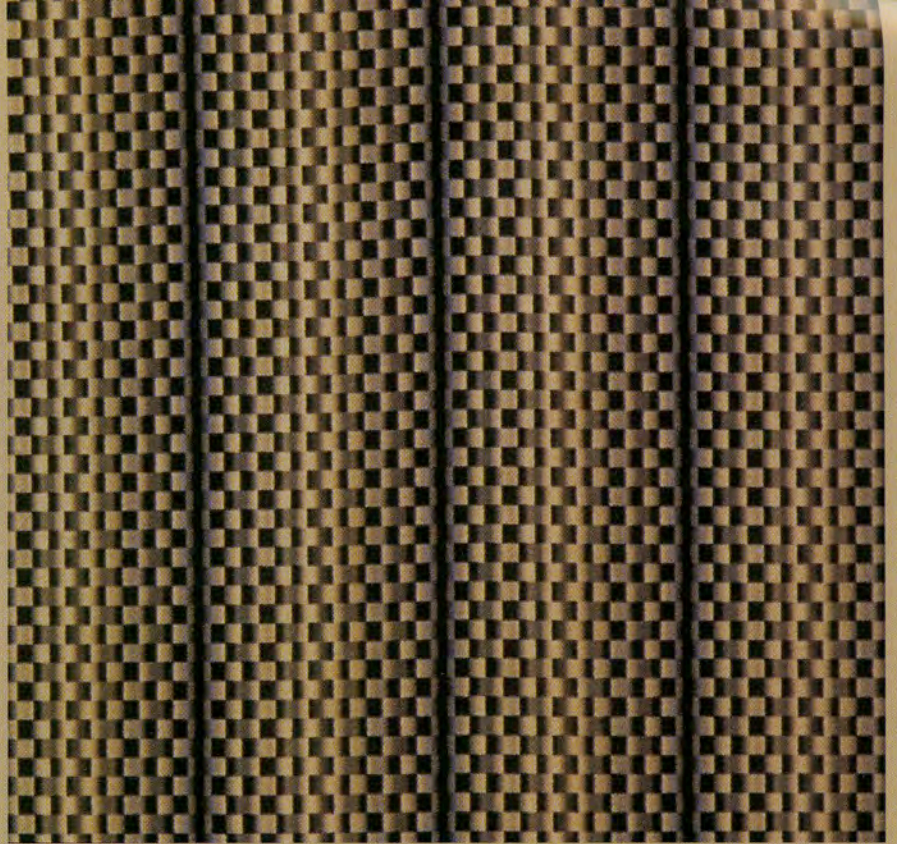
But using a computer to design does more than just generate "pretty patterns." It gives Barnes



This pattern illustrates how Barnes used DNA sequencing and human genomes as inspiration for her upcoming collection, *Life*. "It's a maze-looking design that circulates colors assigned to the A, C, G and T bases of human interferon beta precursor," Barnes says. "That's a mouthful, but it's a simple rule that designates 'A' to equal a certain color and a certain size square—and the same for 'C,' 'G' and 'T.'"



“Sometimes I get e-mails from scientists who recognize certain patterns,” Barnes says.



infinite control over her work. She starts the design process one step earlier, by creating her own fabrics first, then manipulating the warp and weft of her looms through equations. “Most designers just do the pattern, send it off to the mill, and the mill interprets it,” she says. “I get it exactly the way I want, and it’s also more cost-efficient. When I’m done, I send them my digital file and that’s all they need.”

Another advantage of Barnes’ digital approach is that her software instantly weaves her patterns, whereas most textile-based programs are only surface-level applications that don’t allow the designer to see multiple color layers in loom-like reality. “Just a year ago I’d have to design the pattern and then spend another few hours putting in all the technical stuff,” Barnes says. “I’d get to the end and say, ‘Hmm, I don’t like this anymore.’ Now it’s instantaneous.”

Barnes does everything on her computer now, from her initial sketch to the completed weave, prompting some critics to ask, “Who’s really designing here?” It’s a question that Barnes has heard many times, and it still irks her.

“I believe there’s no reason to do anything by hand because everything, whether it’s furniture or textiles, has to go into the computer in its final stages anyway,” she says. She explains that she could do every step of her process by hand on graph paper, but it would take 10 times longer. She holds up a round piece of paper with hundreds of

sinusoidal shapes—a pattern for a glass-etched tabletop. “Can you imagine doing this by hand?” she asks. “You’d go crazy.”

Although the computer has sped up Barnes’ design process and opened up new possibilities, very few of her colleagues are adopting these methods. “What’s unusual about what I’m doing is that I’m generating patterns based on rules,” she says. “Other people are just using the computer to create designs much faster.”

Barnes’ typical customer understands and appreciates her mathematically inspired design process. “The fan customer knows it, and so do some of the tech guys. And sometimes I get e-mails from scientists who recognize certain patterns,” she says.

Even consumers who don’t quite “get” Barnes’ approach seem to appreciate her designs. “Her clothes are very cerebral and terrific,” says Mark-Evan Blackman, chair of the men’s fashion department at FIT. “Most people just have an emotional response to her clothes. They either like it or they don’t.”

Like it or not, Barnes’ clothes are everywhere—Neiman Marcus, Sak’s Fifth Avenue, Bloomingdale’s and Nordstrom—and her patterns have even appeared in math textbooks and as part of the Ohio Math Works Project, an educational initiative aimed at making math fun for 7th–9th graders. When she’s not researching the human genome or contemplating advanced algorithms, she tags along with a surgeon friend who lets her sneak into the hospital to watch open-heart surgeries.

Perhaps human anatomy is the next source of inspiration for this technologically inclined menswear designer. Or maybe it’s music: “I’d like to take my patterns and translate them into notes and vice versa to see what I get,” she says. “Who knows? It might just be a lot of noise.”

Christina Valhouli is a New York-based freelancer.