Featured Innovations

The clothes we wear every day are transforming into devices that make us healthier, stronger, smarter and more connected to our world. Art, science and technology are combining, and the result is leading a wave of innovation we've never seen before. A jacket that barks if you get too close. A collar that instantly inflates into a helmet to protect bicyclists' heads. Electronic tattoos that turn your skin into an interface. *Wired to Wear* is divided into three areas: personal, social and possible. Each section brings together more than 100 innovations that represent the most cutting-edge technology from across this emerging industry. Images are available online at msichicago.org/press.

Personal

Within this section, guests will explore the symbiotic relationship between our body and our clothing. Discover new ways our clothing will keep us healthy and safe, and augment our bodies and take us beyond our physical limits.

SPIDERSENSE, VICTOR MATEEVITSI/QUANTUM XPR

Using the concept developed by Chicago- based entrepreneur Victor Mateevitsi, Ph.D., and built out by technological futurist firm Quantum XPR, guests will navigate a space relying on the haptic feedback, or vibrations, as the vest alerts them to obstacles in close proximity.

SELF-LACING SHOES, NIKE

Nike's self-lacing shoes from *Back to the Future Part II*, on loan from the collection of Ripley's Believe It or Not!, are one of the most iconic representations of wearable technology. These pop-culture pieces from 1989 are displayed alongside its modern iterations, Nike's HyperAdapt 1.0 and the recently announced Nike Adapt BB shoes.

MARLENE DIETRICH DRESS, ELEKTROCOUTURE

In her letters in 1958 to designer Jean Louis, Hollywood starlet Marlene Dietrich asked for a dress that could glow and be interactive. Sixty years later, ElektroCouture, an internationally acclaimed and innovative fashion and tech company, made her dream come true by recreating the dress using 3D printers, laser cutters, LEDs, Bluetooth technology and specially-made Swarovski crystals. This creation symbolizes how inspiration from the past can be used to fashion the future.

D-AIR RACING SUIT, DIANESE

This protective suit senses when a collision is about to happen, inflating automatically to provide its wearer a softer landing. Microfilament Technology and unique software protect the wearer as motion and direction are monitored 1,000 times

per second, and reports them to a computer sewn into the back. This smart suit was designed for motorcycle racing, alpine skiing, mountain biking, and competitive sailing.

AIRBAG HELMET, HÖVDING

The world's first airbag for cyclists is worn like a collar around a rider's neck. In the event of a collision, however, it instantly puffs up to envelop the head to prevent serious injury. Sensors track a rider's movement 200 times per second, and inflates in just one tenth of a second.

PROJECT UNICORN, JORDAN REEVES

Born without a part of her left arm, 10-year-old Jordan Reeves created her own prosthetic—a cannon that shoot glitter. Now at age 13, she and her mother Jen Lee Reeves run a nonprofit, Born Just Right, which empowers kids with limb differences to use science, technology, engineering, and math to create their own solutions.

SAFE CAP, FORD/GTB

Developed to prevent truckers from falling asleep at the wheel, this hat uses an accelerometer and gyroscope to alert drowsy drivers. The cap looks like a trucker hat, and uses vibrations, sound and light flashes to wake the wearer if it senses them dozing off.

ADRENALINE DRESS, BECCA MCCHAREN-TRAN/ TODD HARPLE OF INTEL

Equipped with a tiny computer the size of a button, this dress expands to ward off enemies if the wearer feels threatened. This shape-shifting dress shows how our clothes may one day automatically respond during social encounters. Becca McCharen's designs have grabbed the attention of celebrities including Beyoncé, Madonna, Taylor Swift, Grimes, and Nicki Minaj.

HALO™, AEXOS (ADVANCED EXOSKELETAL SYSTEMS)

Created by brothers Charles and Rob Corrigan, this compression shirt was designed to reduce the effects of whiplash and concussions in athletes. The shirt incorporates technology that allows the shirt's impact- responsive collar to stiffen during a collision on the field or on the ice, protecting an adult or child athlete.

ELECTRIC DREAMS, SUZI WEBSTER/QUANTUM XPR

Electric Dreams explores making the relationship between light and thought tangible and visible. This tentacle-like headdress displays a guest's state of mind when they put on an interactive headset, changing the headdress color as it responds to brainwaves using a microcontroller, EEG sensors, fiber optics and LEDs.and TEDx. She and her family currently live in Columbia, Missouri.

Social

Tech-embedded clothing will give us a new platform to express who we are, share our stories and connect with each other. This section experiments with the idea that our clothes can be used in playful interaction, and taps into our fundamental human need to belong.

IRIDESCENCE, BEHNAZ FARAHI

Commissioned by the Museum of Science and Industry, this collar's 200 quills use custom-made actuators and vision-activated technology to follow your gaze and react with life-like behavior. Inspired by the plumes of a hummingbird, it moves based on a guest's facial expression. For example, when an angry face is detected, the collar expresses anxiety with fast jittery movements.

THUNDERSTORM DRESS, AMY WINTERS, PH.D.

This garment reacts to the noise in its surrounding environment. At first, the dress flickers as a guest claps their hands, then fully illuminates in a pattern of lightning bolts as the sounds increases in volume. The dress was created using holographic leather and sound-reactive, animated electroluminescent panels.

PIX BACKPACKS, PIX

Wear your emotions on your backpack with this customizable digital backpack. With a PIX backpack, you can design your own artwork or select from a library of images, then send them wirelessly from your phone. PIX was created by a group of young inventors from Ukraine. Thirty prototypes later, and fully funded through Kickstarter, they're manufacturing this innovative backpack.

HOLY DRESS, MELISSA COLEMAN

Using a voice sensor, copper conductors, and warning lights, the Holy Dress is a wearable lie detector. If the wearer tells a lie, it will give them an electric shock. The dress was built as an artist's statement on technology's role in our lives.

BARKING MAD, SUZI WEBSTER

This jacket and interactive wearable responds to infringements on personal space. Built with proximity sensors, this coat barks more and more aggressively if someone gets too close.

INFINITE FLOW BY GOOGLE

Created as a collaborative interactive installation between Jacquard by Google team and Japanese creative firm WOW, guests direct Google Jacquard fabric using the interactive cloth as an interface to control a series of fans and lights that allow it to float gracefully.

Possible

This section showcases a world of new possibility created by the mashup of fabric and technology. Guests will experience new ways to dream, prototype and create as they view ideas that have been turned into devices we will use in the not-so-far-off future.

GRAVITY JET SUIT, RICHARD BROWNING

Guests can view Gravity Industries' Jet Suit, which is comprised of five small jet engines and an exoskeleton. Created by Richard Browning, chief test pilot and founder, this jet suit can travel more than 30 miles per hour and ascend to 12,000 feet.

LEVI'S® COMMUTER JACKET X JACQUARD BY GOOGLE, JACQUARD BY GOOGLE

Tap your cuff to change the song, feel a vibration on your sleeve when your Lyft or Uber is arriving, or gesture to hear navigation. Jacquard is technology that is sewn into fabric, expanding the functionality of our clothes. Sensor grids are woven throughout the garment, creating interactive surfaces that function as a touchscreen.

WORLD'S SMALLEST WEARABLE DEVICE, JOHN ROGERS, PH.D.

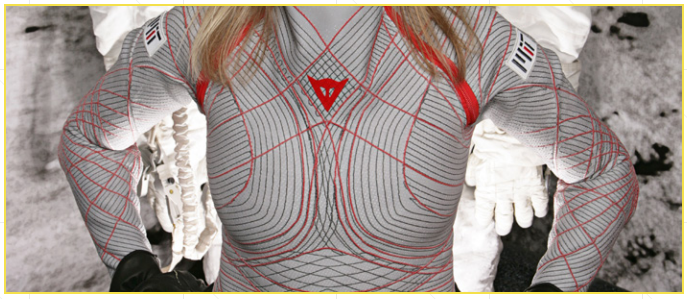
This wireless, battery-free temporary medical "tattoo" can monitor a person's vital signs and wirelessly transmit them to a computer. Created by Northwestern University scientist John Rogers, Ph.D., this small, bio- integrated electronic device has gone through successful testing with human babies, replacing adhesives tapes with hard-wire connections that can leave scars on the fragile skin of babies being cared for in neonatal intensive care units.

SMART TATTOO, MICROSOFT

Created with gold and metal leaf, this material can turn skin into an interface. DuoSkin enables the wearer to control their mobile devices, display information, and store information on their skin while serving as a statement of personal style.

SPIDER DRESS, ANOUK WIPPRECHT/ TODD HARPLE OF INTEL

If the sensors on this dress detects the wearer is getting nervous, its 3D-printed legs will extending, "pushing" those nearby away. Approach calmly, and the legs gently wave to "invite" you closer. Anouk Wipprecht built the Spider Dress as a tool to create a safe zone, and consulted social science research about the three rings of distance we keep around us—public, private, and intimate.



BIOSUIT™, DAVA NEWMAN, PH.D.

NASA currently uses bulky 300-pound spacesuits that can make it difficult for astronauts tomaneuver. Dava Newman, Ph.D., created an active- compression, flexible design that uses full body laser scans to create a custom fitting suit. Using Spandex and “muscle wire” to wrap tightly around the body, this suit protects against the harsh elements of outer space.