

PSFK PRESENTS

THE FUTURE OF WEARABLE TECH

Key Trends Driving The Form And Function Of Personal Devices

A  report in partnership with



About This Report

In the rich canon of science fiction imagined by Isaac Asimov and Philip K. Dick to William Gibson and beyond, people have long been fascinated with a future where humans and machines become one. Whether through high-tech enhancements that restore sight or implants that increase our ability to process and store information, these forward looking visions see the distinction between technology and biology blending into a hybrid state of being where co-evolution is the next phase in human history. And while we might not be quite ready to fully embrace this new era, we're probably not as far off as we may think.

Humankind has always been driven by a desire to augment our natural abilities in order better adapt to and control our environments. Consider the development of primitive tools as an early step in a long road of technical progress that has taken us from animal hides to emotion-reflecting sweaters, Walkmans to iPhones and monocoles to Google Glass.

As we survey the current landscape, we're left to marvel at the increased processing speed of chips, capacity of batteries and precision of sensor technologies that have made current devices smaller, faster and more feature heavy, nearly replacing entire electronic categories in the process. What's more, these innovations are multiplying the rate at which breakthroughs can happen.

Alongside this shift, there has been the natural progression in form factors as these same devices move from our desks and pockets to being subtly displayed on our bodies and one day even merged with them. We are at an exciting stage of wearable tech, a growing class of devices that drives users to rethink our relationship with our technologies. It opens the door for new forms of computing that impact the way we live, work and socialize.

In the following pages, PSFK Labs has summarized 10 trends related to wearable technologies that sit under three larger themes - Connected Intimacy, Tailored Ecosystem and Co-Evolved Possibilities - with the goal of helping people understand the basic features, form and functions of these devices and what they might replace. To support this, PSFK has described each of the themes and trends, along with three best-in-class examples that show how these ideas are manifesting within the marketplace and provided relevant stats that convey potential for growth. Additionally, each trend page includes a list of experts who write about the larger significance of these ideas.

Key Themes Driving Wearable Enhancements



iQ By Intel



This independent report has been kindly underwritten by iQ by Intel. iQ by Intel is a news site that narrates the impact of technology on our lives. It connects readers to the trends and discussions that are moving our planet forward.

Their mission is to highlight how far we've come as a human race, to explore our basic notion of human capabilities and to remind us all of the many ways our lives are connected and enriched through technology.

At its core, iQ is an intelligent system that curates content shared by leading thinkers, engineers and scientists at Intel. iQ is powered by ideas, but it also shares the content grabbing our attention beyond Intel's walls, getting smarter through the developments and discussions from the wider social web.

Their aim is to provide insight into what is driving our belief that technology unleashes the world's human potential to create a better future. iQ is Intel's home on the web to help share this story.

"iQ by Intel" is brought to you by the employees of Intel, our global partners and the Intel Social Media Center of Excellence.

iq.intel.com

"How might we shape a future where wearables, either as discrete devices, or working in concert as a collection of devices, keep people in the flow of their lives such that they don't feel that they have to stop and interact with a device, OS, software or services? To me this is one of the most important opportunities for wearables and one that requires a deep understanding of people and the context of their lives. We need to answer this question in order to keep people in the flow of their lives and empower them to be their best selves."

— Cory Booth, Human Factors Engineer, Intel Labs

"Imagine when wearable devices are with us 24/7. With the amount of data, information, and personal content that will be exchanged, security will become even more important."

— Brian Krzanich, CEO, Intel

"Personal data analytics is a really interesting emerging area. Personal data analytics is a broad label; it includes everything from demographic data, to transactional data, behavioral data and even medical data. The opportunity is about making that data really work – to create value for consumers and companies."

— Genevieve Bell, Futurist and Director of User Experience Research, Intel

Foreword By Piers Fawkes



PIERS FAWKES

Founder, President, PSFK Labs
labs.psfk.com

A perfect storm of innovation in micro-chips, mobile tech, software development, energy efficiency and manufacturing has set the stage for one of the most important eras in computing's history.

In the next five years we will witness the rapid development - and mainstream acceptance - of wearable technology that integrates into every aspect of our lives. Wearable technology will be used to help record the world around us, nudge us into action, communicate information between one another, allow us to control our environment, verify who we are and reflect our wellbeing back to us.

Much of the innovation will develop first through wristbands. A lot of the ideas we describe in the Future of Wearable Tech report will be deployed through these accessories, including the ability to control our privacy by acting as a password device or even interacting with the environment around us.

Other jewelry-like devices will follow - including rings and necklaces. While there is a lot of speculation around the use of computerized glasses, our analysis suggests that while these heads-up displays will offer a unique range of options, they may not develop the full range of services that other wearables like smart clothing might offer. To that end, sensors embedded within clothing will provide a with array of benefits over the next two to five years, with several focused on improving our health and wellbeing.

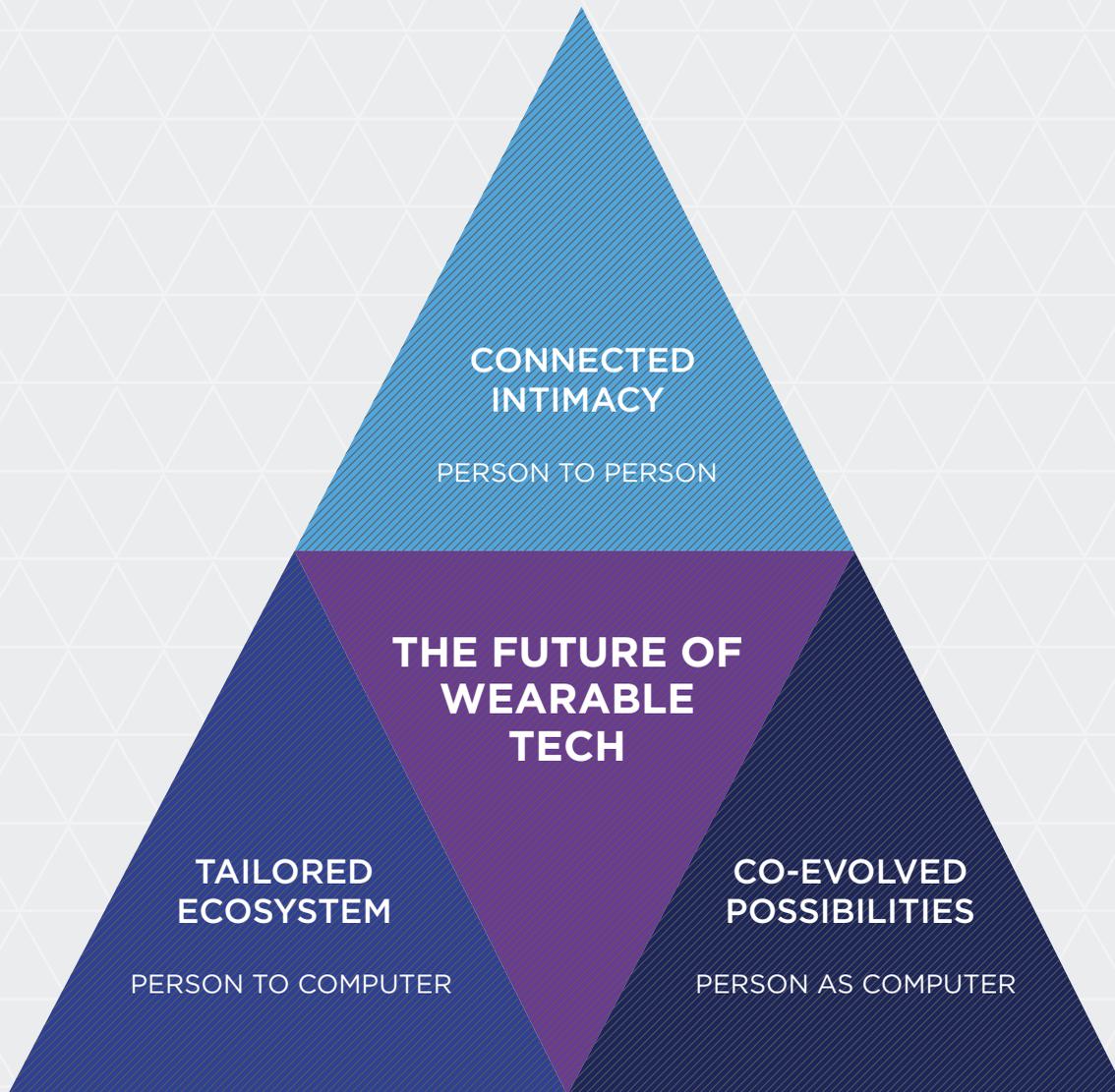
In three or more years, we will start to see an initial acceptance of technology that will be embedded in our bodies. By 2018, bio-integrated computing will have moved from the fringes, where it's at today, to a place where early adopters will widely experiment with it. For those of us who may not be ready for the scalpel, wearables that we can still take on and off will still change the way we work, live and play.

I hope you'll enjoy the Future of Wearable Tech report and the analysis developed after months of research. Kindly underwritten by the IQ by Intel team, we hope that it will inspire the development of an awesome augmentation of the human experience.

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EXECUTIVE SUMMARY



CONNECTED INTIMACY

Wearable technologies are adding new layers to our personal relationships by extending the reach and power of how we communicate and share details about ourselves regardless of distance. The constant connectivity of these devices builds a unique portrait of their wearers and creates a continuous link between people, simulating closeness, changing the way we understand one another and enabling new forms of attention and care.

Long Distance Togetherness

Data Streamed Care

Emotional Mirror

TAILORED ECOSYSTEM

User-centric technologies are beginning to adapt their form and functionality to align with our unique set of needs. Whether customizing their design to fit the unique contours of a wearer's body or responding to a user's emotional state to offer highly personalized feedback, this new breed of devices allows people to better define their interactions with technology, while at the same time enabling more meaningful experiences.

Biometrically Attuned

Responsive Coaching

Bespoke Biotech

CO-EVOLVED POSSIBILITIES

Technology features and designs are evolving alongside our behaviors to take on a more essential role in our daily lives. Whether augmenting people's existing abilities or adapting their interfaces to enable more natural levels of interactions, these devices point to the increasingly sophisticated relationship people have with their technologies.

Augmented Sensory Perception

Authenticated Self

On-Board Interface

Cloud Memory

FUNCTION OF WEARABLES FORECAST

| |  WRISTBAND |  JEWELRY |  GLASSES |  CLOTHING |  EMBEDDED |
|------|---|---|---|--|--|
| 2014 | SUPPORT RECORD NUDGE | | | | |
| 2015 | COMMUNICATE CONTROL VERIFY MIRROR | | AUGMENT | NUDGE SUPPORT | |
| 2016 | | NUDGE AUGMENT | COMMUNICATE CONTROL | RECORD | |
| 2017 | | ALIGN | | RESTORE MIRROR ALIGN | SUPPORT NUDGE AUGMENT |
| 2018 | | | | | RECORD CONTROL VERIFY RESTORE ALIGN |

From wristbands and glasses to clothing and even embedded devices, technologies are undergoing a rapid evolution. In this chart, PSFK forecasts the wearable form factors and corresponding functions that consumers can begin to expect over the next five years.

Support - Data-Streamed Care manages one's personal health

Record - catalog one's personal experience to a Cloud Memory

Nudge - Responsive Coaching leads to better behavior (tailored ecosystem)

Communicate - connected experiences promote Long Distance Togetherness

Verify - password provided by one's Authenticated Self

Control - interact with the world through an Onboard Interface

Augment - enhance natural abilities through Augmented Sensory Perception

Restore - regain movement with the aid of Bespoke Biotech

Mirror - reflect one's wellbeing through an Emotional Mirror

Align - Biometrically Attuned systems personalize one's surroundings

Wearable technologies are adding new layers to our personal relationships by extending the reach and power of how we communicate and share details about ourselves regardless of distance. The constant connectivity of these devices builds a unique portrait of their wearers and creates a continuous link between people, simulating closeness, changing the way we understand one another and enabling new forms of attention and care.

CONNECTED INTIMACY PERSON TO PERSON

Long Distance Togetherness
Data Streamed Care
Emotional Mirror



01. LONG DISTANCE TOGETHERNESS

Wearable technologies are harnessing the power of haptics and other feedback systems to create a tangible connection between loved ones over any distance. These tools simulate togetherness and place precedence on the comforts that only another person can provide.



Hug Simulation Jacket Lets Parents Calm Kids Via Mobile Devices



Wireless Bracelet Lets Users Feel Each Other From Afar



Smartwatch Responds To Touch To Save Long Distance Relationships

SUPPORTING DATA

36 percent of Americans and 27 percent of UK wearable tech survey respondents said that they use wearable tech "to enhance their love lives."

— Centre for Creative and Social Technology at Goldsmiths, University of London, 2013

"A perfect storm of innovation within low power wireless connectivity, sensor technology, big data, cloud services, voice user interfaces and mobile computing power is coming together to pave the way for connected wearable technology."

— Johan Svanberg, Senior Analyst, Berg Insight



HUG SIMULATION JACKET LETS PARENTS CALM KIDS VIA MOBILE DEVICES

T.Jacket is a tablet-controlled jacket that uses embedded air pockets to simulate hugs and calm children without human contact. The jacket is based on 'deep pressure theory', which suggests that pressure has a soothing effect on children with autism or attention deficit disorders who don't process sensory information in the same way as those without the condition. Pockets of air are lined around the waist and shoulders of the jacket and - when instructed to do so via an app - inflate to produce the effect of a hug. For autistic children, the jacket provides the sensations involved with a hug without the potentially distressing human interaction. Although initially developed with autistic children in mind, the T.Jacket may have a wider application for parents with jobs that require them to spend time away from home.

mytjacket.com
yhoo.it/17OePud



WIRELESS BRACELET LETS USERS FEEL EACH OTHER FROM AFAR

TACTILU is a bracelet capable of transmitting touch between two individuals even when they are miles apart. By design group Pangenerator, the bracelet is equipped with a touch sensor which converts swipes and pokes into tactile/haptic motion on its corresponding bracelet. The wearable uses an internet connection and Bluetooth technology to transmit touch between wearers. The current version of TACTILU is in Alpha, with a 50% slimmer design promised for the next version.

tactilu.com
bit.ly/17tevhv



SMARTWATCH RESPONDS TO TOUCH TO SAVE LONG DISTANCE RELATIONSHIPS

Bond is a small module with a touch sensor inside that allows paired device wearers to 'feel' one another from any place in the world. Users simply tap the sensor twice to wake it up, then tap again for up to five seconds to register a "tickle," and a final swipe sends it off to the other linked Bond device. The band also links with Google Maps and lets users leave tickles as they go by 'touching' a fellow Bond-wearer walking by a specific location. Worn either as a bracelet or dangling from a necklace, the concept is currently being funded through the site IndieGoGo.

bit.ly/19Trm0l
bit.ly/16CnIDy

EXPERTS TO FOLLOW



Amber Case
CEO/Geoloqi/
[@caseorganic](https://twitter.com/caseorganic)



Billie Whitehouse
Designer/FUNDAWEAR/
[@BillieWhouse](https://twitter.com/BillieWhouse)

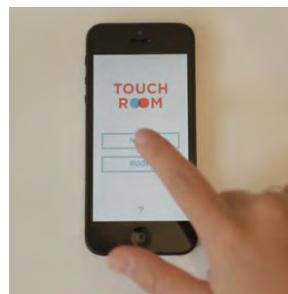


Gadi Amit
President/NewDealDesign/
[@NewDealDesign](https://twitter.com/NewDealDesign)



Vu Nguyen
Tech Evangelism Manager/
Intel/ [@intel](https://twitter.com/intel)

ADDITIONAL EXAMPLES



Fundawear: Long Distance Lovers Connect With Vibrating Underwear Controlled By Mobile Phone
bit.ly/1dhmlaq

Hi-5 To Share: Mechanical Hand Lets Runners High Five Their Friends Online
swoo.sh/1cb9s6F

Touchroom: Virtual Room Lets Friends Touch Each Other From Afar
touchroomapp.com

IMPLICATIONS

- In a hospital setting, patients could communicate with loved ones through haptic feedback to let them know when they are interested in a phone call or to indicate their emotional state.
- Points of interest in a city could be communicated through haptic feedback, enabling synced wearers to 'feel' when someone they know has passed one of their favorite locations.
- Crib sensors connected to a bracelet monitor when their baby/child is restless and allow parents to respond accordingly.



02. DATA-STREAMED CARE

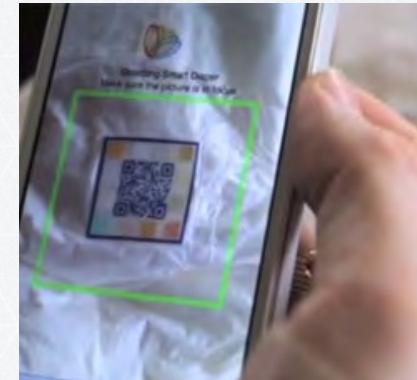
Embedded tracking technologies are being used to remotely monitor individual health and performance, creating a flow of information between device wearers and people who can access and interpret the data. This continuous capture and broadcast of these metrics creates a detailed profile of the person being tracked, allowing experts, physicians or loved ones to respond with highly personalized care, often in real-time.



Tooth Embedded Sensor Relays Eating Habits To Dentist



GPS Tracking Software Helps Team Management Monitor Player Performances



Diaper Detects Health Issues For Babies And Communicates Them To Parents

SUPPORTING DATA

“We need to give context to data in order for the wear-experience to be meaningful and valuable. The ability to tease out new insights from multiple streams of sensor data will bring exciting opportunity in 2014. Wearables that can base-line sport performance and fitness activity then provide individualized feedback to push towards improvement will drive a trend towards individualized, customized exercise plans. It’s no longer enough to measure and provide stats, we need to provide coaching, feedback, guidance or alerts.”

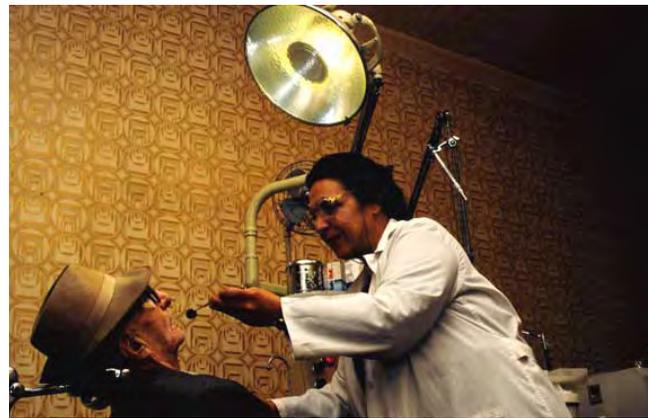
— Stacey Burr, VP Wearable Sports Electronics, adidas

46% of people who tracked their health say that this activity has changed their overall approach to maintaining their health or the health of someone for whom they provide care.

— Pew Research Center’s Internet & American Life Project, 2013

One in three would be willing to use a wearable health and fitness monitor that shares personal data with the government’s health agency or a healthcare provider.

— Centre for Creative and Social Technology at Goldsmiths University of London, 2013



TOOTH EMBEDDED SENSOR RELAYS EATING HABITS TO DENTIST

A tooth-embedded sensor that tracks all eating habits and transfers the information to a dentist. Created by a team from the National Taiwan University, the device fits discreetly between the wearer's teeth and is capable of being mounted to oral fixtures, such as dentures or braces. The current prototype is 94 percent accurate, being able to differentiate between eating, speaking, coughing, smoking, drinking and breathing. The device currently delivers data over Wi-Fi, but the team is also exploring the possibility of adding Bluetooth to the features list.

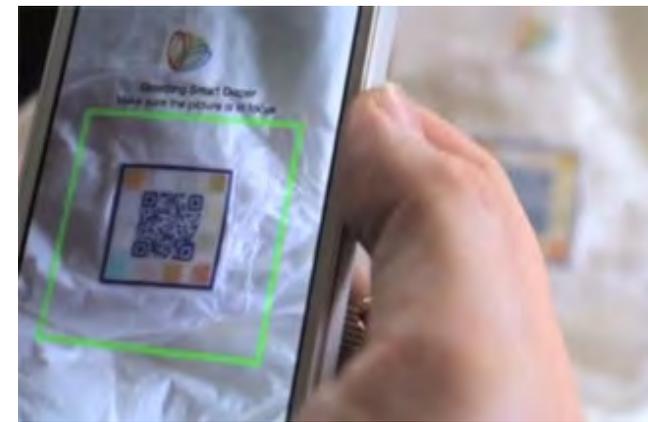
[ntu.edu.tw/english
bit.ly/1ck9ZXd](http://ntu.edu.tw/english/bit.ly/1ck9ZXd)



GPS TRACKING HELPS COACHES MONITOR PLAYER FITNESS

British rugby team the Lions has stitched GPS tracking software into its players' jerseys to help the team's management analyze all aspects of their team's performance. GPS is currently the best available vehicle for capturing such data, and the tracking technology can reveal a player's average speed, when a player's intensity starts to drop, or who is performing above or below their usual levels. Some models even contain a heart-rate monitor sensor which can identify potential problems on the pitch through detailed metrics such as distances run at various speeds, muscular effort in accelerating, decelerating, changing direction and G-forces in collisions. All information can be relayed to the coaches in real-time and they can then make replacements based on the information they see on their laptop screens.

lionsrugby.com
bit.ly/jAGez8
youtu.be/VJMfCZCV48U



DIAPER DETECTS HEALTH ISSUES FOR BABIES AND COMMUNICATES THEM TO PARENTS

Pixie Scientific has developed a smart diaper that can detect possible infections, and transmit the information to a smartphone. At the end of each diaper use, a parent uses his or her smartphone to take a picture of the QR code-like patch. The accompanying app then analyzes the image to determine whether the baby has a UTI, if the kidneys are healthy or whether he or she is dehydrated. The service can even detect Type 1 diabetes. The app will also recommend whether the child needs to be taken in to see a physician.

pixiescientific.com
ti.me/19FkExx

EXPERTS TO FOLLOW



Brian Kopp
Vice President/
SportsVU/[@bkoppstats](https://twitter.com/bkoppstats)



Dave Debronkart
Blogger/e-Patient
Dave/[@ePatientDave](https://twitter.com/ePatientDave)



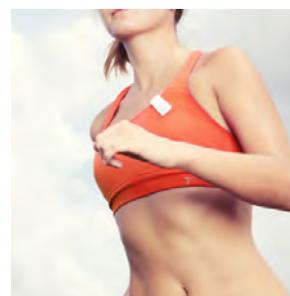
Eric Friedman
CTO/Fitbit/[@fitbit](https://twitter.com/fitbit)



"Personal data analytics is a really interesting emerging area. Personal data analytics is a broad label; it includes everything from demographic data, to transactional data, behavioral data and even medical data. The opportunity is about making that data really work – to create value for consumers and companies."

— Genevieve Bell, Director Of Interaction and Experience Research/Intel/[@feralddata](https://twitter.com/feralddata)

ADDITIONAL EXAMPLES



Mimo: *Wifi Enabled Onesie Visualizes Baby's Vitals On Connected Coffee Mug*
mimobaby.com

Digital Health Feedback System: *Ingestible Pill Computers Collect Data From Inside Patient's Bodies*
www.proteus.com

Sense-U: *All-In-One Tracker Helps Monitor Your Posture*
sense-u.com

IMPLICATIONS

- Through location tracking, experts and loved ones could receive information about where person is at their most calm, happiest state.
- Psychiatrist receives detailed info on stress at work or captured over the course of a day and offer insight based on that data on life changes.
- Coaches could receive detailed metrics on performance and how that correlates to work done in practice leading up to games.



03. EMOTIONAL MIRROR

Sensors and display technologies are being embedded into clothing and accessories to outwardly convey information about the wearer and his/her reaction to the surrounding environment. Responding to everything from an individual's emotional state to their interactions with others with light, color and opacity, these adaptive materials create a novel communication stream that informs both the wearer and those around them.



Workout Gear Visualizes Activity Levels Of Wearer In Real-Time



Clothing Monitors Body And Responds With An External Display



Gaze-Activated Dresses Come to Life When People Stare at Them

SUPPORTING DATA

“We are intertwined with the internet, it’s part of our everyday lives, so people are much more receptive to wearable tech than they ever were before.”

— Namalee Anna-Marie Bolle, Artist

“These trackers make it easier to understand ourselves, our world and the interaction between the two. Ten to fifteen years ago, you were stuck with paper and pencil. Now, you can wear a device that syncs to an application.”

— Ernesto Ramirez, Community Organizer, Quantified Self



GAZE-ACTIVATED DRESSES COME TO LIFE WHEN PEOPLE STARE AT THEM

Fashion designer Ying Gao has conceived two dresses that use eye-tracking technology to light up when someone stares at them. The dresses, named No(where) and Now(here) are made of photoluminescent thread and use embedded eye tracking technology to become activated by a spectator's gaze. The concept technology causes the dress to light up in novel, impromptu ways by activating in accordance with the people looking at it.

yinggao.ca
bit.ly/12z1Qer



WORKOUT GEAR VISUALIZES ACTIVITY LEVELS OF WEARER IN REAL-TIME

Radiate Athletics has developed interactive compression wear that visually informs wearers of the intensity of their athletic performance by changing colors in accordance with their body's thermal-output. To change colors in real-time, special atoms within the fabric gain a carbon electron when valence electrons are accelerated through the application of heat, affecting the way that the atoms reflect light-waves. The color of the garment changes to correspond with the muscle groups being targeted by specific exercise, giving wearers a visual reference for their workouts.

radiateathletics.com
youtu.be/6oKMEEnuNhw
bit.ly/1eOnT6



CLOTHING MONITORS BODY AND RESPONDS WITH AN EXTERNAL DISPLAY

The Ger Mood Sweater by Sensoree interprets emotions and displays the wearer's mood instantly as an interactive light display. Sensors in the dress detect bodily rhythms along with excitement levels and translate that data into a palette of colors. For instance, the sweater will turn blue if the wearer is feeling calm, or pink if they are excited. The bowl shaped, high collar is embedded with LEDs that reflect onto the wearer for instant bio-feedback, acting as a visual display for onlookers.

sensoree.com/artifacts/ger-mood-sweater
bit.ly/19ruCOO

EXPERTS TO FOLLOW



Katherine Moriwaki
Assistant Professor of
Media Design/Parsons

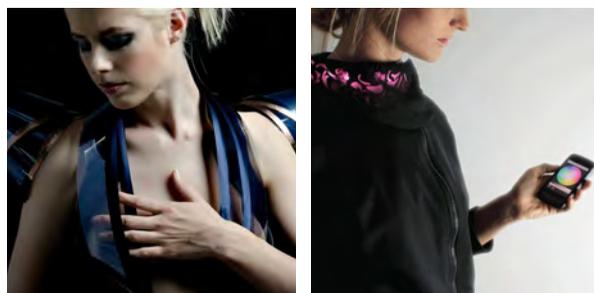


Daan Roosegaarde
Founder/ Studio
Roosegaarde/
@SRoosegaarde



Prasenjit Tito Chowdhury
Executive Producer/
FashionXT

ADDITIONAL EXAMPLES



INTIMACY 2.0: Dress Turns Clear When Wearer Is Stimulated
studioroosegaarde.net

Lume: Color Changing Clothing Responds To Sound And Nearby Environment
jorgeandsther.com/lume

Cadbury Joy Jacket: Interactive Jacket Lights Up As Wearer Eats Chocolate
www.technologywillsaveus.org

IMPLICATIONS

- At work, wearables could indicate times where they are particularly busy on a task and require solitude, and vice versa.
- At networking events those with shared social networks or interests could share similar hues to help facilitate connections and ice-breaking.
- Help children or teens with difficulty identifying their emotions create a private journal over the course of the day to help them identify different mood states.

Wearable technologies are beginning to adapt their form and functionality to align with our unique set of needs. Whether customizing their design to fit the unique contours of a wearer's body or responding to a user's emotional state to offer highly personalized feedback, this new breed of devices allows people to better define their interactions with technology, while at the same time enabling more meaningful experiences.

TAILORED ECOSYSTEM

PERSON TO COMPUTER

Bespoke Biotech
Biometrically Attuned
Responsive Coaching



04. BESPOKE BIOTECH

Advances in 3D printing capabilities have enhanced the way that materials can be created to support individual needs and requirements, offering exciting possibilities for advances in the medical field. These innovations have the power to change people's lives through 'good enough' designs that deliver enhanced fit comfort, performance and functionality at a fraction of the cost of existing production methods.



Printed Prosthetic Offers The Functionality Of A Human Hand



3D Printed Exoskeleton Lets Handicapped Girl Use Her Arms For The First Time



3D Printed Hip Fits The Individual And Reduces Recovery Time

SUPPORTING DATA

"By 2019, sales of 3D printed products for the medical and dental markets will reach \$2.8 billion."

— SmarTech Markets Publishing, Dec. 2013



PRINTED PROSTHETIC OFFERS THE FUNCTIONALITY OF A HUMAN HAND

Dextrus is a 3D printed myoelectric robotic prosthetic hand that offers much of the functionality of a human hand. Created by British roboticist Joel Gibbard, the prosthetic hand can be connected to an existing prosthesis using a standard connector. It then uses stick-on electrodes to read signals from a person's remaining muscles, which can control the hand, telling it to open or close. Dextrus is a part of the Open Hand Project whose goal is to make robotic prosthetic hands more accessible to amputees, while allowing anyone to improve and customize designs themselves for everyone to share.

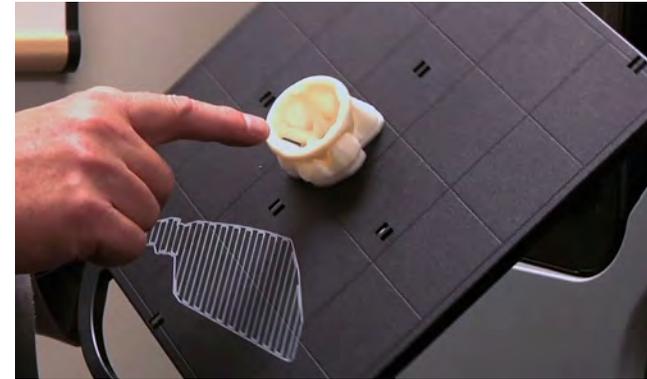
www.openhandproject.org
dailym.ai/1g6p9Qp



3D PRINTED EXOSKELETON LETS HANDICAPPED GIRL USE HER ARMS FOR THE FIRST TIME

Researchers at the Alfred I. duPont Hospital for Children in Wilmington, Delaware have developed a 3D printed robotic exoskeleton enabling a handicapped child to move freely for the very first time. The patient, Emma, had been born into a condition known as arthrogryposis and would not gain the ability to lift her arms as she developed. The WREX exoskeleton was manufactured using a 3D printer to create a prosthetic light enough for Emma to use freely, while incorporating hinged bars and resistance bands to help her move her arms in space with very little residual strength. The WREX was designed to assist arthrogryposis sufferers as young as six and offers the opportunity to scale production, allowing researchers to customize and print exoskeleton designs to each patient's unique specifications using their own CAD software.

bit.ly/192Dq1h



3D PRINTED HIP FITS THE INDIVIDUAL AND REDUCES RECOVERY TIME

The Mayo Clinic in Phoenix Arizona is using 3D printers to enable customized joint replacement surgeries and has successfully printed its first custom hip. To begin, the clinic enables doctors to send a 3D file of their patient's CT scan to a printer which will then print out a 3D model of patient's hip joint. The implants used in hip replacement are biocompatible and made to resist corrosion, degradation and wear. The 3D printed hip will reduce the cost of creating artificial hips and may allow healthcare providers to build hips that better fit the physical dimensions of specific individuals.

www.mayoclinic.org

EXPERTS TO FOLLOW



Miguel Nicolelis
Scientist/Duke University/
[@MiguelNicolelis](https://twitter.com/MiguelNicolelis)

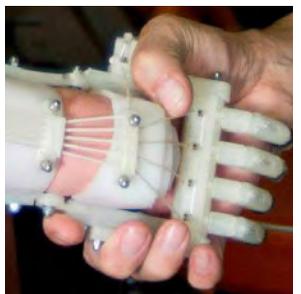


Bre Pettis
CEO/MakerBot/[@bre](https://twitter.com/bre)



Ben Kaufman
CEO/Quirky/
[@benkaufman](https://twitter.com/benkaufman)

ADDITIONAL EXAMPLES



Robohand: *Open Source Prosthetic Hand Can Be Printed For \$150*
bit.ly/19f7NBY

3D Printed Regenerative Protocell Shoes:
3D-Printed Shoes From Synthetic Biological Material Repair Themselves Overnight
shameesaden.com

Bespoke Innovations: *3D Printed Covers Help Amputees Beautify Their Prosthetics*
www.bespokeinnovations.com

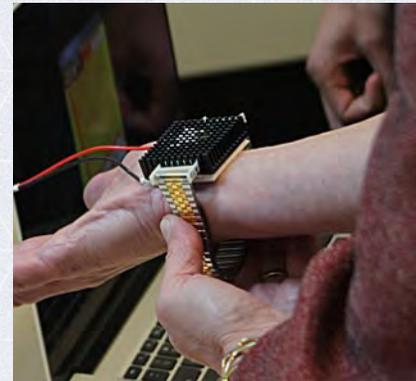
IMPLICATIONS

- _ Tech allows wearers to program certain gestures to correspond with certain actions (e.g. unlock) according to their own requirements.
- _ Build safer environments by enabling routine actions to create a beacon for others (e.g. checking the blind spot while driving activates turn signal).
- _ Build electronics into makeup and other wearables which enable quick access to a variety of personal devices.



05. BIOMETRICALLY ATTUNED

Wearable technologies and embedded sensors are passively gathering information from their users to create conditions which are optimized to an individual's current needs. These personalized settings can control aspects like lighting, temperature and music to create an environment that can continually adapt to a person's changing moods or activities.



Responsive Bracelet Sends Thermoelectric Pulses To Heat Or Cool A Person's Entire Body



Smartphone Enabled Bracelet Tailors Suggestions Based On Mood And Diet



Earbuds Monitor Wearer's Mood To Help Pick The Next Song

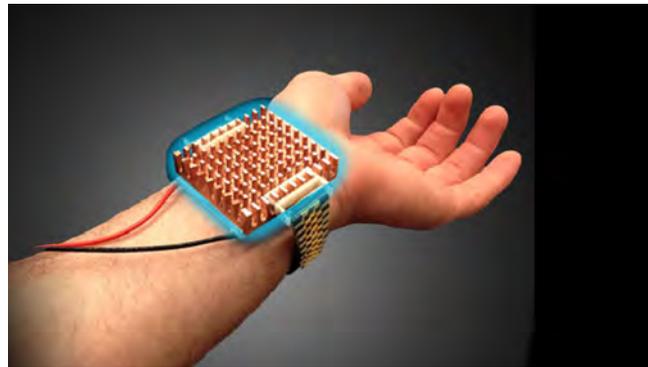
SUPPORTING DATA

"What will I be wearing in five years? Stilettos that lock my refrigerator when I haven't walked far enough to burn off my calories of the day!"

— Anina Net, CEO, 360 Fashion Network

"This wearable technology (wearables) can engage with our other senses and with the effects of gravity"

— Kim DeReuter, Head of Mobile, Cheil Worldwide



RESPONSIVE BRACELET SENDS THERMOELECTRIC PULSES TO HEAT OR COOL A PERSON'S ENTIRE BODY

Wristify is a thermoelectric bracelet that directs pulses of hot or cold waveforms at its wearer's wrist to help them maintain a comfortable body temperature. Developed by MIT engineering students, the bracelet monitors air and skin temperature, and sends tailored pulses of hot or cold waveforms to the wrist to help them maintain thermal comfort. In addition to providing relief at a personal level, the working prototype is intended to significantly reduce energy consumption in buildings by cooling only individuals, as opposed to the entire structure.

engineering.mit.edu
bit.ly/1gmoUEA
bcove.me/9xw0s4g5



EARBUDS MONITOR WEARER'S MOOD TO HELP PICK THE NEXT SONG

Microsoft is working to incorporate health monitoring and mood detection into a pair of earbuds in a project called Septimu. Capable of monitoring heart rate, temperature, and other biorhythms, the in-ear device would be able to communicate with an associated mobile app called Musical Heart to select the most appropriate music depending on the user's mood. Developed by researchers at the University of Virginia Center for Wireless Health, the app uses biorhythms to pick up on the wearer's current mood and then plays a song best suited to remedy the situation. This means if a person had a sudden bout of anger while taking the subway to work, Musical Heart would select a soothing song to bring their heart rate and breathing back to normal. The earphones incorporate sensors such as thermometers, inward-facing microphones and IMUs - which work a lot like accelerometers - to pick up on key indicators throughout the body.

research.microsoft.com/en-us/projects/lifex
bit.ly/17UGPP7
youtu.be/wQmTeXDaV7k



SMARTPHONE ENABLED BRACELET TAILORS SUGESTIONS BASED ON MOOD AND DIET

The EmoPulse Smile Bracelet Smartphone is a phone that can be worn as a bracelet, and features sensors that can pick up on the wearer's stress, mood, diet, and overall well-being. The smartphone wraps around the users wrist and features a flexible material for its twin displays. The Smile runs an algorithm-based, custom Linux AI operating system, and uses biosensors embedded in the device to gather information about its wearer, which help automate certain processes. After watching a few movies or listening to streamed music, for example, the system will recommend more content based on user tastes and/or emotional responses, and the accuracy of the predictions will increase over time with continued use. The sensors could also be used alongside virtual physical trainers to help keep users in shape with personal, monitored workouts.

emopulse.com
bit.ly/1aeEP3V
youtu.be/EMoWbnAqAwE

EXPERTS TO FOLLOW



Jennifer Healy
Research Scientist/Intel
Labs/@intel



Usman Haque
Director/Haque Design +
Research/@uah



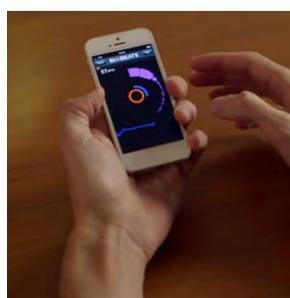
Karl Martin
Founder, CEO/
Bionym/@KarlTheMartin



"During the next era of personal computing, the biologic problem shifts to a computational problem in the treatment of cancer. Computing doesn't get any more personal than when it saves your life."

— Renee James, President, Intel

ADDITIONAL EXAMPLES



Vest Concept: Air Conditioned Vest Monitors Wearers And Keep Factory Workers Cool
bit.ly/1bE1Vz2

BioMuse: Headphones Turn Quantified Self Data Into Therapeutic Music
biobeats.com

Oxitone Watch: Watch Alerts Wearers Of Future Heart Attacks
oxitone.com

IMPLICATIONS

- To enhance recovery in a clinical setting, lighting, music and other calming inputs could sync to a patient's biological rhythms to promote a healing environment.
- In an office, the stress from overwrought workers could activate calming music or barr employees from accessing their computers to encourage them to take a walk or break.
- Embedded shoe technology could detect potential medical problems and firm up an arch or relax based on the wearer's condition and activities.

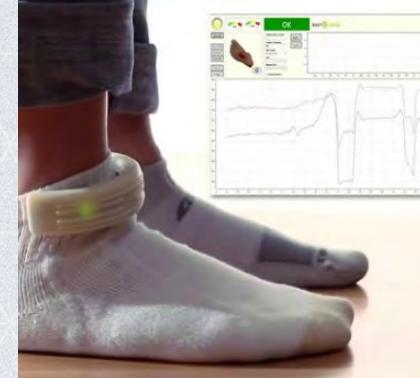


06. RESPONSIVE COACHING

Sensor technologies are being seamlessly integrated into products and apparel to seamlessly monitor performance and offer specific feedback without impeding movement. These technologies allow users to take an informed approach, improving everything from posture to fitness activities by acting on specific recommendations that have resulted from accumulated data and research.



Running App Personalizes Workouts Based On Current Stamina



Sensor Embedded Socks Help Prevent Injuries Before They Happen



Strap Notifies User When Posture Is Slipping

SUPPORTING DATA

“In 2014, the addition of elegant and effective electronics to the product portfolios of sporting goods manufacturers will be significant. The best wearable electronics will engage the user with simple presentation of pertinent biometric information, and ultimately will enable athletes of all levels to proactively participate in their health and wellness-and keep them fit for life.”

— Paul Litchfield, Vice President, Advanced Concepts at Reebok

Today’s devices need to evolve into something more than single purpose fitness trackers or external smartphone notification centers in order to be truly successful.”

— Johan Svanberg, Senior Analyst, Berg Insight

60 percent of Americans and 53 percent of UK wearable tech survey respondents said that wearable tech “helps them feel more in control of their lives.”

— Centre for Creative and Social Technology at Goldsmiths University of London, 2013



RUNNING APP PERSONALIZES WORKOUTS BASED ON CURRENT STAMINA

My ASICS is an app that helps runners to their own personal trainer by creating adaptive training plans that evolve as their workout continues. The app is designed to understand how a runner's body is responding to the workout utilizing a series of software algorithms to better calculate what type of workout best suits their changing needs. My ASICS works by constantly molding a plan around the runner's performance levels, progressively pushing them harder to increase the intensity of their workout, and helping them reach their fitness goals faster.

myasics.us
bit.ly/1aYTu4Y



SENSOR EMBEDDED SOCKS HELP PREVENT INJURIES BEFORE THEY HAPPEN

Sensoria has developed a pair of sensor-embedded socks that not only tracks traditional fitness data such as the number of steps, speed and total distance a user has traveled, but also provides data about running form and technique. The socks keep tabs on a person's weight distribution and the form of their feet while standing, walking and running. Using this data, it's possible to identify poor running styles and prevent injuries before they happen. An accompanying app delivers simple advice about how to unlearn poor running tendencies. It can also benchmark and analyze performance to give sock wearers a clearer picture of how their performance improves in tandem with their technique.

heapsylon.com/welcome-to-sensoria



STRAP NOTIFIES USER WHEN POSTURE IS SLIPPING

The LUMOBack is a position sensor that users strap around their waist to measure their posture and sleeping positions. The device is programmed to buzz when users slouch. With the help of an iOS app, it also tells how many steps users have walked and how many times they stood up during the day, even reminding them to stand every thirty minutes or so and offer more detailed feedback on posture. The app also offers even a posture score that rates users compared to the average LUMOBack user. The passive monitoring provides an easy way to monitor and improve daily posture.

lumoback.com

EXPERTS TO FOLLOW



Steven Dean
Designer/Prehype/
@sgdean

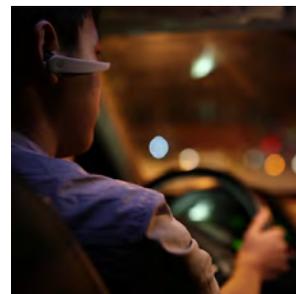
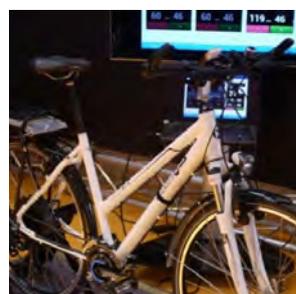


Nirinjan Yee
Founder, President/
BreathResearch



Kevin Kelly
Senior Maverick/
WIRED/@Kevin2Kelly

ADDITIONAL EXAMPLES



MENTORBike: Personal Tracking Data Controls Exercise Bike's Level Of Difficulty
bit.ly/1au4T7g

Vigo: Energy-Gauge Headset Monitors Blinks To Keep Wearers Awake
kck.st/1gE3HWj

UP24: Fitness Band Alerts Users When They Have Not Moved For An Hour
jawbone.com/up

IMPLICATIONS

- _ Sensors could detect when a person has been sedentary for long periods, and recommend a stretching or health routine.
- _ Sensors would help students learn about which subject material stimulates their brains the most, and provides recommendations which support lateral thinking in an educational setting (you may also like type recommendations...)
- _ Fitness tracking technology could monitor activity levels and provide a nudge to indicate when to rest or when to push activities.

Technology features and designs are evolving alongside our behaviors to take on a more essential role in our daily lives. Whether augmenting people's existing abilities or evolving their interfaces alongside natural inputs to enable more intuitive control, these devices point to the increasingly sophisticated relationship people have with their technologies.

CO-EVOLVED POSSIBILITIES

PERSON AS COMPUTER

Augmented Sensory Perception
On-Board Interface
Authenticated Self
Cloud Memory



07. AUGMENTED SENSORY PERCEPTION

Hybrid technologies are being closely aligned and sometimes integrated with the human body to enhance existing perceptions and abilities. Whether through biomedical research or DIY ‘hacks’, these innovations are designed to overcome personal challenges, while pushing the boundary in terms of what is possible.



Biohacked, Implanted
Headphones Allow User To
Echolocate



Hearing Aid Glasses Use Bone
Conduction To Amplify Sound



Zoomable Contact Lens Could
Assist Those With Degenerative
Eye Conditions

SUPPORTING DATA

“If you’re going to put a machine in the loop that’s coprocessing what is being seen, ask what does the machine do that the user can’t do? This will provide a sixth or seventh sense to people.”

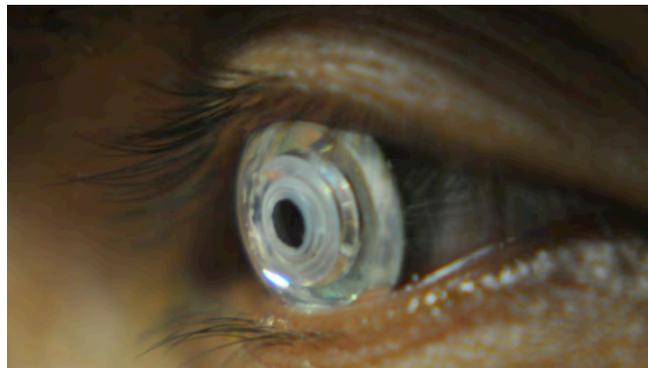
— Stephen Balaban, Co-Founder, Lambda Labs

“Ten years from now, assuming we can’t cure neurodegenerative diseases like Alzheimer’s human-computer interfaces will be able to do things like identify the people around you.”

— Mary Lou Jepsen, Google X Display Group Lead
University of London, 2013

53 percent of Americans and 39 percent UK wearable tech survey respondents said that wearable tech has ‘made them feel more intelligent’.

— Centre for Creative and Social Technology at Goldsmiths
University of London, 2013



ZOOMABLE CONTACT LENS COULD ASSIST THOSE WITH DEGENERATIVE EYE CONDITIONS

An international team of researchers have created the first telescopic contact lens prototype that provides wearers the power to zoom their vision by almost three times. Developed by Eric Tremblay and colleagues at the Swiss Federal Institute of Technology, the telescopic lens works by having a central unmagnified optical path that is surrounded by a ring of optics that magnify the view 2.8 times. Liquid crystal shutters then block one or the other of these optical paths, allowing the wearer to switch between regular and magnified vision through a polarized filter. The telescopic contact lens is just 1.17mm thick, allowing it to be comfortably worn and could be especially useful for people with age-related macular degeneration.

bit.ly/18bCjf2



BIOHACKED, IMPLANTED HEADPHONES ALLOW USER TO ECHOLOCATE

DIY biohacker Rich Lee had sound-transmitting magnets implanted into his ears, which allow him to compensate for his loss of vision by learning to echolocate. With the headphone implants, he could begin interpreting the shape and dimensions of his surroundings based on how they react to emitted sound waves, much in the same way that a bat perceives its surroundings. Lee's device additionally allowed him to perceive sound to a high degree, using it like a stethoscope to hear his wife's heartbeat pulsing. To make the magnets implant-safe, they were coated in a layer of gold and then encased in "implant grade bio-proofing."

bit.ly/120wRa4



HEARING AID GLASSES USE BONE CONDUCTION TO AMPLIFY SOUND

NuWave glasses help to amplify sound for the hearing impaired by transforming sound waves into vibrations, functioning in a similar capacity to a traditional hearing aid. Its bone conduction transducers are ergonomically positioned to carry mechanical vibrations against the temporal bone to the inner ear. The Wireless Research Engineering Resource Center (RERC) led a team of Virginia Tech students to develop NuWave glasses in hope of helping the hearing disabled find a new, discreet way to experience sound.

bit.ly/13Kcjk
bit.ly/1aQ8vGc

EXPERTS TO FOLLOW



Zach Liebermann
Co-Founder/EyeWriter/
[@zachlieberman](https://twitter.com/zachlieberman)

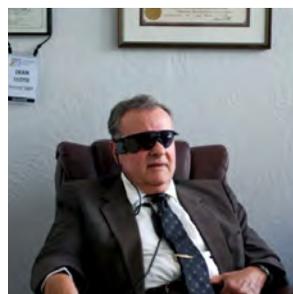


Neil Harbisson
Cyborg Artist/
[@NeilHarbisson](https://twitter.com/NeilHarbisson)



Steve Mann
Researcher/Augmented
Reality Digital Eye Glass

ADDITIONAL EXAMPLES



Argus II: Camera Equipped Glasses Restore Partial Vision To The Blind
2-sight.eu/en/product-en

Sign Language Ring: Sign Language Ring Translates Hand Movements Into Spoken Words
bit.ly/1aSIIFd

3D Printed Ear: Prosthetic Ear Can Hear Beyond Normal Human Ability
princeton.edu

IMPLICATIONS

- Exoskeleton technology could be able to sense muscle fatigue and adapt to its form and structure, to provide rest to muscles which need time to heal.
- Embedded clothing technology could assist in the recovery process for muscle strains providing support where needed, and loosening up where muscles are stronger.



08. ON-BOARD INTERFACE

Wearable technologies are enabling new forms of control by empowering their wearers to use gestures and other natural inputs to interact with their devices. By tapping into existing human behaviors, these solutions can reduce even complex computing tasks into intuitive actions for any skill level of user.



Electronic Make Up Lets You Activate Gadgets By Blinking



Wristband Allows Wearers To Program Gestures Into Specific Actions



Photos Taken With The Blink Of An Eye

SUPPORTING DATA

“Wearable computers are a way of amplifying you. It makes it much faster to do things like take photos, and you become addicted to the speed of it, and it lets you do more fast, and easily”

— Mary Lou Jepsen, Google X Display Group Lead

“Apps and services will need to take into account a far broader spectrum of use cases, contexts and methods of interactivity.”

— Kim DeReuter, Head of Mobile, Cheil Worldwide University of London, 2013



ELECTRONIC MAKE UP LETS USERS ACTIVATE GADGETS BY BLINKING

Electronics designer Katia Vega has created a prototype for makeup products that incorporate low voltage circuitry to detect when someone winks, converting this action into an electrical signal to communicate with other devices. The range of products which include metallic, false eyelashes and conductive eyeshadow, have been used to launch a miniature drone into the air and activate LEDs adorning headwear.

katiavega.com
bit.ly/15lqvh4



WRISTBAND ALLOWS WEARERS TO PROGRAM GESTURES INTO SPECIFIC ACTIONS

TapTap is a wearable wrist device that can communicate and control other apps through gesture and touch. The device has only one "button" — a capacitive sensor that is directly linked to another TapTap device through a Bluetooth connection to a phone. Its creators have isolated six distinct gestures that can be captured by TapTap's accelerometer, gyroscope and capacitive sensors and mapped to specific actions. For instance, if a call comes in that a wearer doesn't want to answer, a double shake of the wrist could switch their phone to silent mode. TapTap is releasing an API to third-party developers that would allow them to map their own gestures onto games, literally making the wristband a joystick, or apps that could benefit from a remote interface or its sensor data.

kck.st/17tnU8r
bit.ly/1gROLDLDR



PHOTOS TAKEN WITH THE BLINK OF AN EYE

Winky is a third-party app developed for Google Glass that enables Glass wearers to snap an image whenever the internal camera notices the wearer specifically blinking their eye. The app bypasses the need to speak a photo-taking command or use the side-mounted touch control panel on Glass to take a photo. Instead, the user simply winks slowly after firing up the app, and the device instantly and discreetly takes photos of whatever the wearer has in front of them. The tweak is the handiwork of Mike DiGiovanni, Emerging Technology Lead at Roundarch Isobar enabling people to more easily take pictures at the spur of the moment.

bit.ly/1bEagjG

EXPERTS TO FOLLOW



Jay Silver, Intel
Maker Research
Scientist/Intel/@intel



Pranav Mistry
Director of Research/
Samsung/
@pranavmistr



Pattie Maes
Research Scientist/MIT/
@PattieMaes



"What's holding back wearables in this marketplace?...They don't integrate all the features you want. You still have to have something else with it. And you're not solving the real problems that people want solved at the time....So then we asked: How do we fix that? Then we came up with a simple answer: Make everything smart."

— Brian Krzanich
CEO / Intel / @Intel

ADDITIONAL EXAMPLES



Finger Scanner: Wearable Barcode Scanner Cuts Down On Grocery Lines
bit.ly/1cbFdm4

Read And Run: Device Lets Runners Tap To Turn Pages To Read On The Move
bit.ly/15le8wP

Automatic Activated Blink Signal: Turn Signals Activate When Cyclists Raise Their Arms
bit.ly/LXmnLM

IMPLICATIONS

- Tech allows wearers to program certain gestures to correspond with certain actions (e.g. unlock) according to their own requirements.
- Build safer environments by enabling routine actions to create a beacon for others (e.g. checking the blind spot while driving activates turn signal).
- Build electronics into makeup and other wearables which enable quick access to a variety of personal devices.



09. AUTHENTICATED SELF

Wearable and embedded technologies are being linked with individual users to expedite the verification process when accessing other connected devices and systems. By syncing to a wearer's unique characteristics these technologies ensure better privacy and security controls, while eliminating the need to remember passwords and other protocols.



Smartphone Provider Introduces Ingestible Password Pill For Devices



File Transferring Chip Transforms Fingers Into USB Sticks And Access Key



Wristband Converts Heartbeat Into Unique Password For Devices

SUPPORTING DATA

“Passwords and ID cards can be stolen, shared or compromised. You can't forget or lose your fingerprint, so it's (biometric authentication systems) effective and affordable way to identify a variety of populations.”

— Richard Agostinelli, President & CEO, DigitalPersona

“Authentication is irritating. In fact its so irritating only about half the people do it, despite the fact there is a lot of information about you on your smartphone, which makes you far more prone to identity theft.”

— Regina Dugan, SVP of Advance Research, Motorola



INGESTIBLE PASSWORD PILL CREATES SEAMLESS ACCESS TO DEVICES

Wireless company Motorola has successfully developed an ingestible technology that could allow its forthcoming phones to identify users. Created by Proteus Digital Health, the FDA-approved pill creates an individual 18-bit signal that is detectable by external devices like a phone, computer, and even car. After a person swallows the pill, the acids in their stomach power it, essentially converting their entire body into an authentication token to access devices.

proteusdigitalhealth.com
dailym.ai/15dQxai



FILE TRANSFERRING CHIP TRANSFORMS FINGERS INTO USB STICKS AND ACCESS KEY

inTouch technology is a concept that uses a ring, bracelet, or 'smart fingernail' to transfer information between devices simply and securely. Developed by researchers from the VTT Research Center in Finland, when wearers touch their device with an inTouch ring, a special icon appears that allows information to be uploaded. After touching another device equipped with the same technology, users can initiate a download from the ring back into the device. The device has a small amount of memory, and is powered by a special antenna. The ring or bracelet can also act as a password or security device to unlock doors, start a car, or power up a laptop.

vtt.fi
bit.ly/1bAa1Fy

EXPERTS TO FOLLOW



Rob Girling
Co-Founder/ArteFact/
@RobGirling



Regina Dugan
Senior VP/Motorola
Advanced Technology
and Projects



Dhani Sutanto
Artist/@dhanisutanto



WRISTBAND CONVERTS HEARTBEAT INTO UNIQUE PASSWORD FOR DEVICES

The Nymi wristband identifies a wearer by their unique cardiac rhythm to authenticate their identity as an alternative to using passwords or PIN codes for devices. Created by biometric technology company Bionym, Nymi functions on a 3-factor security system, which includes the wristband, the wearer's unique heartbeat and a smartphone or device registered with the Nymi app. When the Nymi is clasped around a wrist it powers on, and by placing a finger on the topside sensor while the wrist is in contact with the bottom sensor, an electrical circuit is completed. After feeling a vibration and seeing the LEDs illuminate to indicate the authentication process is complete, the wristband wearer can securely unlock any Nymi-paired device.

getnyimi.com
ti.me/1a6KpmC



"Imagine when wearable devices are with us 24/7. With the amount of data, information, and personal content that will be exchanged, security will become even more important."

— Brian Krzanich/CEO/Intel

ADDITIONAL EXAMPLES



xNT implantable Chip: Pin-sized RFID Tag Makes Implantable Verification Technology A Mainstream Occurrence
bit.ly/Jz8Ktb

Geak Ring: NFC-Enabled Ring Can Store Password Information And Access Devices
bit.ly/117HCQf

iHeart Locket: Scannable Locket Acts As Password For Kids' iPad Diary
www.dano2.com

IMPLICATIONS

- Medical history could be in a pill form, and in the event of a crash, first responders would have immediate access to that data.
- Promote flexible work/educational environments through wearable devices which allow people to immediately access and pick up the projects they are working on from anywhere.
- Embedded tech could allow users who to come into contact with one another and exchange contact information quickly



10. CLOUD MEMORY

Automated tools are allowing people to instantly transcribe the events and experiences that make up their daily lives and store them in the cloud for later access. By capturing, recording, and preserving memories in a digitized format, these devices allow people to return to these moments at any time and create meaningful stories that can be shared with others.



Wearable Camera Life Blogs By Snapping Photos Throughout The Day



Wristband Automatically Records Audio Memories Throughout The Day



Sensor Monitors Brainwaves To Shoot Hands-Free iPhone Footage

SUPPORTING DATA

Photos are still the most popular piece of personal content that we share right now, but the amount of personal data from wearables, videos and even sound files that we upload to the Web is growing exponentially.

— The New York Times, May 2013

“The big thing about augmented memory is access time.”

— Thad Starner, Technical Lead/Manager, Google Project Glass



WEARABLE CAMERA LIFE BLOGS BY SNAPPING PHOTOS THROUGHOUT THE DAY

The Autographer is a hands-free, wearable camera that takes thousands of photographs a day and creates a daily diary of photos for its users. Wearers drape the device onto their person and the device uses its six on-board sensors which include GPS, color, accelerometer, motion detector, magnetometer and thermometer, to determine the right moment to snap one of its images. For instance, Autographer might capture an image when the wearer speeds up as they run for the bus or turns around to greet a friend, and has the built-in functionality to ensure that the photo will be taken properly. The camera has a five-megapixel sensor, OLED display, 8GB of on-board storage and Bluetooth for sharing pictures.

autographer.com
engr.co/1cg8j00



WRISTBAND AUTOMATICALLY RECORDS AUDIO MEMORIES THROUGHOUT THE DAY

Kapture is an always-on wristband that automatically records candid moments of audio throughout a wearer's day. The device listens in on conversations and functions as a 60-second buffered loop. The loop continuously overwrites itself until the user taps the device to save a clip. The saved file is downloaded to a smartphone where the duration can be shortened, named, tagged, filtered, and shared. The company has already raised \$300,000 in seed funding and will be turning to Kickstarter to raise the remaining funds to bring it to production.

kck.st/17oQ437
bit.ly/rCv6PQ



SENSOR MONITORS BRAINWAVES TO SHOOT HANDS-FREE IPHONE FOOTAGE

Neurocam is a wearable camera system that uses brainwave sensors and a smartphone camera to identify what the wearer is interested in and then automatically records the footage and saves it in an album. The system consists of a headset with a brainwave sensor. The user attaches his or her iPhone to the headset and the iPhone camera "sees" what the wearer is looking at through a prism and analyzes the wearer's brainwaves via an iPhone app. The app assesses the wearer's interest on a scale of 0 to 100 and if the wearer's brainwaves indicate an interest level of at least 60, the system automatically records the scenes and saves them in five-second GIF clips. Neurocam is the latest from the Neurowear project, which looks into devices that use brainwaves and bio-sensors.

neurowear.com
engr.co/1g8EIK3

EXPERTS TO FOLLOW



Richard Banks
Principal Design
Manager/Microsoft
Research/@rbanks

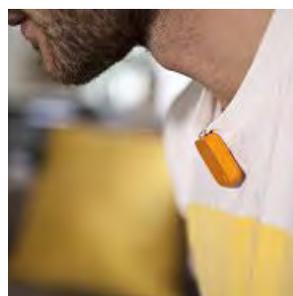


Thad Starner
Technical Lead/
Manager/Google Project
Glass/@ThadStarner



Matt Webb
CEO/Berg/@genmon

ADDITIONAL EXAMPLES



BULT Helmet: Extreme Sports Helmet
Features Built In HD Camera
bulthelmets.com

Narrative: Clip On Camera Creates Instantly
Shareable Photographic Memory
getnarrative.com

Evernote: Wearable Interface Adds Evernote
Connection Through Voice Commands
evernote.com
bit.ly/1l7180y

IMPLICATIONS

- _ Wearables could monitor mental flow state and encouraging users to blog or journal at their peak creative time.
- _ Wearable camera automatically correlates images to create a highlight reel of your day, life, game, or social event.
- _ Biofeedback information can let people know what activities or locations their minds and bodies best respond to, helping people quantify their happiness by documenting where and when they are feeling at their best.



How Intel Sees The Future of Wearables

The Intel® Edison development board is a tiny, ultra-power-efficient development platform the size of an SD* card that can be designed to work with most any device—not just computers, phones, or tablets, but also chairs, coffeemakers, and even coffee cups. The possibilities are endless for entrepreneurs and inventors of all kinds.



www.intel.com/edison

The Intel Edison board features a low-power 22nm 400MHz Intel® Quark processor with two cores, integrated Wi-Fi and Bluetooth*, and much more. The unique combination of small size, power, and rich capabilities makes the Intel Edison board a game changer, lowering the barriers to entry for thousands of visionaries.

Intel Edison board-powered devices can cooperate in highly customized and sophisticated ways. These devices don't have to be hardwired one-trick ponies; they can house multiple apps that can be downloaded and installed just like we do with phones and tablets.

The product-ready, general purpose compute platform is well-suited to enable rapid innovation and product development by a range of inventors, entrepreneurs and consumer product designers when available this summer.



The Mimo Baby onsie by Rest Devices uses the Intel Edison processor to monitor your babies heart rate and temperature.

PSFK Labs

At PSFK, We Tell The Future

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Built on the belief that true greatness is born of both insight and foresight, our creative consultancy, PSFK Labs, is a recognized leader in innovation strategy that helps brands navigate change, overcome business challenges, and position themselves at the forefront of tomorrow. Leveraging our global network of experts and groundbreaking approach to trends research and analysis, we work with the world's leading companies to develop forward-thinking services, products, and experiences. PSFK Labs is proud to collaborate with global leaders in innovation such as American Express, BMW, Intel, Target, and Pepsi to imagine the future and shape the world of tomorrow.

Version 1.0.2.1



PSFK Labs
42 Bond Street, 6th Floor
New York, NY 10012 USA
labs.psfk.com

Piers Fawkes
President & Founder
piers.fawkes@psfk.com
+1 646.520.4672

Scott Lachut
Director of Research + Strategy
scott.lachut@psfk.com
+1 646.520.4672

TEAM

Project Leads
Piers Fawkes
Scott Lachut

Creative Director
Peter Surrena

Lead Consultant
Tim Ryan

Designer
Tahui Lee

Research and Editorial support
Andrew Vaterlaus-Staby
Dory-Carr Harris
Caroline Bottger
Wes Robison
Rachel Oliner
Libby Garrett
Lin Qiu
Tim Ryan

Press Contact
Nestor Bailly
nestor.bailly@psfk.com

iQ By Intel

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Bryan Rhoads, iQ by Intel.
Bryan leads content marketing for Intel's Integrated Media Team and is the designer and Editor-in-Chief of iQ by Intel
bryan.g.rhoads@intel.com

Luke Kintigh, iQ by Intel.
Luke is a member of Intel's integrated media team as a global content strategist and is the managing editor of iQ by Intel.
luke.b.kintigh@intel.com

iQ by Intel is an online magazine curated by Intel employees that narrates the impact of technology on people's lives. The publication connects readers to new ideas around design, technology social and big data.

iq.intel.com

Private Briefings & Indepth Research



PSFK Labs offers the opportunity to help your organization understand the contents of this report and how the trends driving the future of wearable tech might impact your business. These tailored presentations can be provided at your offices or via web-video conference.

In addition, PSFK Labs could be tasked to apply its research methodology to deep-dive into any subject. The survey would describe a future and the role the client, its partners and customers will play within it.

Contact our business development team at +1 646 520 4672 or via sales@psfk.com for more information.