Taking Flight: Learning Lessons, Tracking Trends and Transferring Knowledge

Carolyn Phillips, Tools for Life
With contributions from Martha Rust, Liz Persaud & Ben Satterfield

www.gatfl.org
www.amacusg.org
Welcome to the Assistive Technology revolution! The world around us is evolving at an astounding rate. Assistive Technology developments have been foundational in this evolution and a catalyst producing positive life-changing results for individuals with disabilities. This talk will present what’s new in AT and in the AT community as we explore where we were, where we are, and perhaps, where we are going. Possible solutions to expedite knowledge transfer from research journals to your clients whether they are school, at home, at work, or in the community will also be discussed.

For Handouts: [http://www.gatfl.gatech.edu/tflwiki](http://www.gatfl.gatech.edu/tflwiki)
Why Am I Here Today?

- Master Our Skills!
- Expand Our Knowledge
- Build Stronger Schools to Create an Amazing, Inclusive and United Community!
L. J.
vs.
Frances V. Phillips
Two

Up and Over

And in between,
The Letters,
Words,
Paragraphs
With Over-Mt.
Like a thunderstorm
In Georgia on a sunny afternoon Full
of Sound
and
Fury
I am drenched
and overwhelmed
I scorch the puddles
(nice mud pit)
I lift and run
and wash clean the concepts.
I then send these thoughts
to you.
I struggle to be understood
by you
Do you understand?
I am now Clear as Mud.

—Carolyn Phillips
Hope begins in the dark, the stubborn hope that if you just show up and try to do the right thing, the dawn will come.

~Anne Lamott
AMAC Accessibility is a social change organization on a mission to create affordable services for governmental, private and non-profits organization working with individuals with disabilities. Services include e-text, braille, captioning, assistive technology, office management software and consulting.
AMAC creates practical solutions that work, with a focus on utility, ease of use, and high quality.

- **Accessibility Consulting** focuses on organizational accessibility needs with evaluation, technical assistance, customer support, and website accessibility solutions.
- **Braille Services** produces customized projects from both print materials and electronic text including partial books and chapters or graphics only using cutting-edge technology.
- **Captioning Services** makes classrooms, meetings, labs, and other audio environments fully accessible for deaf or hard-of-hearing.
- **Professional E-Text Producers** provide high-quality e-text in many formats such as PDF, DOC, DAISY, and HTML.
- **Certified Assistive Technology team** provides on-site and remote assessments, demonstrations, training, and technical assistance for education, work, and daily living environments.

For more information, please visit our website at [www.amacusg.org](http://www.amacusg.org)
Tools for Life Mission

We’re here to help Georgians with disabilities gain access to and acquisition of assistive technology devices and assistive technology services so they can live, learn, work, and play independently in the communities of their choice.
Tools for Life
Georgia’s Federal AT Act Program

• TFL developed Georgia’s Plan for AT
• We serve individuals of all ages & all disabilities in Georgia
  • Over 50,000 thru various activities throughout the year
• TFL Network
  • Assistive Technology Resource Centers
  • Lending Libraries
  • Training and Demonstrations
  • AT Reuse
  • AT Funding Education/Assistance and Resources
• Online Resources
  • [www.gatfl.org](http://www.gatfl.org) - 12,000 unique visitors a month
Welcome to Tools for Life

Tools for Life, Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work and play independently and with greater freedom in communities of their choice.

Tools for Life and the TFL Network work collaboratively together to accomplish our mission through:

- AT Demonstration
- AT Evaluations and Assessments
- AT Funding Options & Education
- Access to the TFL Lending Libraries
- AT & Durable Medical Equipment Reuse

**Welcome**

**AT Services**

**Try AT**

**Get AT**

**AT Guides**

**Research**
Tools for Life Network

Increasing Access to and Acquisition of Assistive Technology

www.gatft.gatech.edu
Come Visit Us!
Tools for Life AT Demo Lab

- Tablets
- Vision Items
- DME
- Communication
- Games
- Software
- Switches
- Keyboards
Tools for Life
AppFinder
TFL AppFinder
TFL AppFinder

Search by:

✓ App Name

✓ Categories

- Book
- Education
- Environmental Adaptations
- Hearing
- Cognition, Learning, Developmental
- Navigation
- Personal Care and Safety
- Productivity
- Communication
- Therapeutic Aids
- Vision
Guiding Principles

• We – Collectively – are Brilliant & Can find an Innovative Path and Create Brighter Futures

• We must Think, Live and Act from a place of Abundance – We have enough time, money, resources…

• We Must Focus on Abilities!

• YOU have the Power to make the Difference! – Change vs. Progress (Bob Phillips)
Looking Back to See Forward…

In 1990, the internet was something used by fantasy baseball fanatics on CompuServe and mobile phones were the size of toddlers — a luxury for those who could afford to not use pay phones. Satellite TV meant having a massive dish on your property; millions struggled with programming their VCRs to tape L.A. Law; bills were paid by check... in the mail.

By Chris Morran
Knowledge transfer is the practical action of transferring knowledge from one organization to another. Like knowledge management, knowledge transfer seeks to organize, create, capture or distribute knowledge and ensure its availability for future users.

TIP: Universities & Colleges are becoming more agile and actively seeking avenues for Knowledge Transfer.
Assistive Technology Research: 20 Key Articles

Dave Edyburn, Ph.D. (edyburn@uwm.edu)

University of Wisconsin – Milwaukee

January 30, 2014, ATIA, Orlando, FL

Description

Educators, researchers, and developers are increasingly expected to utilize evidence-based practices in the context of interventions used with individuals with disabilities. The purpose of this presentation is to provide an overview of 20 key articles that could form the basis of a reading list or primer on the effectiveness of assistive technology. As an outcome of this presentation, it is expected that participants will gain insight into model research studies that they can use when designing their own assistive technology research. Perhaps more importantly, it is anticipated that the primer will provide the basis of a collegial study group so that organizations can enhance their individual and collective understanding of assistive technology interventions that are evidence-based.
New iOS 7 Features

• September 2013
• Automatically turn on captioning and subtitles
• Fingerprint Security
  – iPhone 5
• Switch Source under Accessibility
  – Allows user to control devices by head movement
Guided Access

• Helps remain on task and focus
• Limit to one app / turn off home button
• Restrict touch input on certain areas of the screen
## Comparing Tablets

<table>
<thead>
<tr>
<th>Property</th>
<th>Android</th>
<th>iOS</th>
<th>MS Windows</th>
<th>Amazon Kindle</th>
<th>Barnes and Noble Nook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number and variety of Tablets</td>
<td>Over 11,000</td>
<td>iPad and iPad mini</td>
<td>Several</td>
<td>Kindle Fire and Fire HD</td>
<td>Nook HD</td>
</tr>
<tr>
<td>Operating System</td>
<td>Android (Jelly bean)</td>
<td>ios7 (Sept 18, 2013)</td>
<td>Microsoft Windows 8</td>
<td>Modified version of Android ICS</td>
<td>Modified version of Android- Microsoft bought 2013</td>
</tr>
<tr>
<td>Apps</td>
<td>860,815 (AppBrain.com updated 9/13/13)</td>
<td>900,000 with 375,000 optimized for iPad/mini (mobileburn.com updated June 2013)</td>
<td>104,917 (winbeta.org updated July 4, 2013)</td>
<td>50,000 in Amazon App store also shop in Google Play Store (theverge.com updated August 2013)</td>
<td>10,000 in Barnes and Noble and have access to Google Play store (barnesandnoble.com updated August 2013)</td>
</tr>
<tr>
<td>Software Updates</td>
<td>As it becomes available on Google</td>
<td>Apple releases updates</td>
<td>MS releases updates</td>
<td>Amazon releases updates</td>
<td>Barnes and Noble releases updates</td>
</tr>
<tr>
<td>Interface</td>
<td>As designed by manufacturer</td>
<td>Icons and widgets designed by Apple</td>
<td>Metro style designed by Microsoft</td>
<td>Modified version of regular Android</td>
<td>Modified version of regular Android</td>
</tr>
</tbody>
</table>

[www.bluebugle.org updated by TFL 2013](http://www.bluebugle.org)
Android Device Fragmentation

July 2012: 3,997
Different Android Devices

July 2013: 11,868
Different Android Devices

July 30, 2013
Ben Satterfield
Android Version History

Android 1.5  Cupcake
Android 1.6  Doughnut
Android 2.0  Éclair
Android 2.3  Gingerbread
Android 3.0  Honeycomb
Android 4.0  Ice Cream Sandwich
Android 4.1  Jelly Bean

Android 5.0  Key Lime Pie ???
Locabulary

- Uses GPS to track user location and suggests appropriate vocabulary based on location
  - ie: McDonald's, Starbucks
- A keyboard to type for text-to-speech
- User can tag their own locations and create vocabulary for each location
- Lite version Free; Pro version $130
TechSage (RERC)

- Funded by: National Institute on Disability and Rehabilitation Research (NIDRR), Dept. of Ed
- Timeline: Oct 1, 2013 – Sept 30, 2018
- Amount: $4.6 million ($925k/year) + ~ $1 million GT cost share
- Interdisciplinary: CoA (ID, GIS, AMAC), CoS (Psych), CoE (BME), CoC (HCI/HCC), IPAT (IMTC, Awarehome), GTRI, Emory Ctr. for Health in Aging, CS/Engineering USC
TechSage Mission

To conduct programs of advanced rehabilitation engineering (RE) and technical R&D to increase knowledge about, availability of, and access to effective, universally-designed technologies that enable people to sustain independence, maintain health, safely engage in basic activities of daily living at home and community, and participate in society as they age with disability.
Core Principles and Strategies

- Focus on People with Disability who are Experiencing Age-Related Limitations
- A Basis in User Needs
- UD as the Fundamental Goal of all Efforts
- Multi and Interdisciplinary Approach to Improving Rehabilitation Outcomes
Scope

• Research (Rogers)
  – R1. User Needs (Rogers, Fain, Jones)
  – R2. Effects of Hearing Loss (Bruce, Echt)
  – R3. Exercise Telerobotics (Mitzner, Beer)

• Development (Price)
  – D1. App Development
    • D1.1. Cognitive Training Game (Gandy-Kennedy)
    • D1.2. Route Planning App (Sanford, Guhathakurta)
    • D1.3. Mobile App to Measure Gait (Jones, Johnson)
  – D2. SmartBathroom Technologies (Sanford, Jones)
  – D3. Intelligent Robotics (Kemp)

• Training (Sanford)
  – T1. Online Education (Phillips)
  – T2. Post Secondary Education (Sanford)
  – T3. UD Competition (Rébola)

• Dissemination (Mitzner)
App Factory (D1)

The overall purpose of this project is to advance universal design in the wireless community. The objectives of this project are development, deployment, and adoption of software applications ("apps") to enhance the utility and usability of wireless products and services for wireless customers with and without disabilities.

App Factory output will include apps designed specifically to address barriers to wireless access and use by people with cognitive, physical, sensory, and/or speech disabilities. Wherever practical, these apps will incorporate features useful to all customers, with or without disabilities.

A complementary objective of this project is development of a practical model for consumer participation in the process of app development. This process engages the community of people with disabilities throughout the process of envisioning, designing, testing, refining, and disseminating applications.
Future

• Evening out the playing field
• More schools Bring Your Own Technology
• The Future is Contextual
  – GPS apps
  – Ads on Internet
  – Smart watches
  – Social Media
    • Proust.com

• Martha Rust
A way for you and your family to share and preserve your memories, one question at a time. Create the digital storybook of your life.
The AAC-RERC is a Rehabilitation Engineering Research Center that functions as a collaborative research group dedicated to the development of effective AAC technology. Augmentative and alternative communication (AAC) refers to ways (other than speech) that are used to send a message from one person to another.

Recent activities ...

State of the Science Conference in AAC: AAC-RERC Final Report
The AAC-RERC partners prepared a comprehensive report on the final outcomes of the State of the Science Conference held in Baltimore, MD on in conjunction with the RESNA conference. Copies of the report are available for download.

State of the Science Conference in AAC: Presentations
Melanie Fried-Oken, Janice Light, Susan Fager, and Jeff Higginbotham presented at the State of the Science Conference hosted by the AAC-RERC at the RESNA conference. The presentations are available as webcasts and on YouTube.

Supporting Communication for Adults with Acute and Chronic Aphasia
This new text, edited by Nina Simmons-Mackie, Julia M. King, and David R. Beukelman, describes how AAC and other communication strategies can be used to improve communication for people with acute and chronic aphasia.
Evidence for What Works in Education

We review the research on the different programs, products, practices, and policies in education.

Then, by focusing on the results from high-quality research, we try to answer the question “What works in education?”

Our goal is to provide educators with the information they need to make evidence-based decisions.

Publications & Reviews

Get started with WWC products:

- **Practice guides** help educators address classroom challenges.
- **Intervention reports** guide evidence-based decisions.
- **Single study reviews** examine research quality.
- **Quick reviews** give the WWC’s assessment of recent education research.

- The **studies database** contains all...
E-Readers Can Make Reading Easier for Those With Dyslexia

Sep. 18, 2013 — As e-readers grow in popularity as convenient alternatives to traditional books, researchers at the Smithsonian have found that convenience may not be their only benefit. The team discovered that when e-readers are set up to display only a few words per line, some people with dyslexia can read more easily, quickly and with greater comprehension. Their findings are published in the Sept. 18 issue of the journal PLOS ONE.

An element in many cases of dyslexia is called a visual attention deficit. It is marked by an inability to concentrate on letters within words or words within lines of text. Another element is known as visual crowding—the failure to recognize letters when they are cluttered within the text. In the paper condition students read passages from the Gates-MacGinitie Reading Tests and answered multiple choice questions as shown. In the iPod condition the reading passage was displayed on the iPod (scrolled vertically using a finger on the touch screen) and students read the passage and answered questions using the iPod. Student performance was significantly better in the iPod condition than in the paper condition.
How Emotions Are Mapped in the Body

Dec. 31, 2013 — Researchers found that the most common emotions trigger strong bodily sensations, and the bodily maps of these sensations were topographically different for different emotions. The sensation patterns were, however, consistent across different West European and East Asian cultures, highlighting that emotions and their corresponding bodily sensation patterns have a biological basis.

"Emotions adjust not only our mental, but also our bodily states. This way the prepare us to react swiftly to the dangers, but also to the opportunities such as pleasurable social interactions present in the environment. Awareness of the corresponding bodily changes may subsequently trigger the conscious emotional sensations, such as the feeling of happiness," tells assistant professor Lauri Nummenmaa from Aalto University.

The findings have major implications for our understanding of the functions of emotions and their bodily basis. On the other hand, the study highlights the importance of emotional intelligence in social and personal life.

Different emotions are associated with discernible patterns of bodily sensations. (Credit: Image courtesy of Aalto University)

Related Topics

- Mind & Brain
  - Psychology
  - Borderline Personality

- Articles
  - Emotional detachment

Try brain training tested...
Neuroplasticity research has established, beyond doubt, that instead of being a static cell mass, our brain is actually a dynamic system of neural networks that has the capability of significant growth under favorable circumstances.

Rudraprosad Chakraborty, M.D.
12 Brain Rules –
John Medina Ph.D.

The brain is an amazing thing. Most of us have no idea what’s really going on inside our heads. Yet brain scientists have uncovered details every business leader, parent, and teacher should know.
Dr. John Medina- Developmental Molecular Biologist
The power of positive thinking finally gains scientific credibility. Mind-bending, miracle-making, reality-busting stuff...with implications for all human beings, not to mention human culture, human learning and human history.”

OLIVER SACKS, MD:
“Fascinating. Doidge’s book is a remarkable and hopeful portrait of the endless adaptability of the human brain.”

THE LONDON TIMES:
“Brilliant...Doidge has identified a tidal shift in basic science...The implications are monumental.”

V.S. RAMACHANDRAN, MD, PHD:
“Superb. Brilliant. I devoured it.”
ABOUT THE BOOK

THE BRAIN CAN CHANGE ITSELF. It is a plastic, living organ that can actually change its own structure and function, even into old age. Arguably the most important breakthrough in neuroscience since scientists first sketched out the brain’s basic anatomy, this revolutionary discovery, called neuroplasticity, promises to overthrow the centuries-old notion that the brain is fixed and unchanging. The brain is not, as was thought, like a machine, or “hardwired” like a computer. Neuroplasticity not only gives hope to those with mental limitations, or what was thought to be incurable brain damage, but expands our understanding of the healthy brain and the resilience of human nature.

Norman Doidge, MD, a psychiatrist and researcher, set out to investigate neuroplasticity and met both the brilliant scientists championing it and the people whose lives they’ve transformed.
How Your Child Learns Best
Neuroplasticity

When the action is repeated, the more dendrites sprout to connect new memories to old ones, stronger the connections become, the more efficient the brain becomes at retrieving that memory or action.
Overview of the Human Factors and Aging Laboratory

Points of Excellence

- Our research advances both science and practice
- We aim to improve quality of life for adults of all ages
- Students graduating from our lab are very successful

Resources

- Senior-to-Senior Brochure

Sponsors

News

Science20 features on assistive robotics

Participant Information (for older adults)

Older Adults

Younger Adults
Below is a list of current projects in the HFA lab. To view a list of past or completed projects, please visit our archived projects page.

**Healthcare**

Identifying Strategies to Keep Older Adults Healthy in Senior Living Communities

Contact Person: **Sara McBride**

Many older adults choose to make the transition into senior living communities, such as independent living or assisted living. We are interested in understanding the types of strategies used and decisions made by staff in these types of communities that are aimed at supporting residents’ health. By identifying these processes, we may be able to improve training or design decision support systems that could facilitate portions of the decision making process.
CASE STUDY

Product Testing Network: Georgia Tech Launches HomeLab to Help Companies Evaluate In-Home Use of Emerging Health Technologies

Baby boomers have witnessed many technological innovations, and they expect technology to provide them with solutions to help maintain their independence for as long as possible. They are outfitting their homes with products to help them live healthy lifestyles, manage chronic conditions, remember to take medications and remain connected with their caregivers.

To help companies evaluate baby boomers’ perceptions, use and acceptance of home health and wellness technologies, the Georgia Institute of Technology has launched HomeLab. HomeLab is a statewide network of adults 50 years of age and older recruited to evaluate the in-home usability and effectiveness of consumer products designed for the aging adult population.

HomeLab currently consists of 100 homes distributed throughout the state of Georgia; the network is expected to grow to 150 homes later this year and 550 homes by 2014.
Presentation 2: Human-Robot Interaction: The Potential to Support Successful Aging

There is much potential for robots to support older adults in their goal of independent aging. However, for human-robot interactions to be successful, the robots must be designed with user needs in mind.

In the Human Factors and Aging Laboratory, Roger’s lab is conducting research in the nascent field of older adult–robot interactions. In this presentation, Roger will provide an overview of the needs, capabilities, preferences, and limitations of older adults. She will then discuss our current and planned research on the design of robots to support older adults and health care providers. Our focus is on understanding the interactions among user characteristics, robot characteristics, and the context of the interactions (e.g., task demands).

Presentation 3: Aware Home Technology to Support Aging-in-Place

Imagine if your home were “aware” of your activities so that it might help you remember what it was you went into the kitchen for or whether the visitor at the front door is someone you know or even what the proper procedure is for performing a recently learned home medical procedure. An aware home is not from the world of science fiction—it is within the realm of science. Such technological developments have the potential to enable older adults to maintain their functional independence and to “age-in-place.” They also have the potential to support families caring for children with developmental disabilities or individuals recovering from illness or injury. An innovative research program at Georgia Institute of Technology is focused on developing psychological and computer science to support home activities.

The presentation will include examples of health care technology, communication technology, and memory supports. These examples demonstrate the complexity of the issues involved in designing the computationally capable home of the future and provide direction for future research and development efforts.
Products and Services

VGo is an all-in-one solution that includes everything you need to establish your physical presence in a distant location.

With the VGo solution, an individual's presence is replicated in a distant location such that they can interact and perform their job in ways not previously possible. Now they can see, be seen, hear, be heard and move around in any remote facility – just as if they were there. VGo will enable businesses to increase productivity of remote and travelling employees, healthcare providers to deliver lower cost services and improved quality of care, and homebound students to attend school – all with a great user experience and at an affordable price.

What is VGo?

How does it work?

How does it compare?
VGo Telepresence Robot

- Enables a person to replicate themselves in a distant location and have the freedom to move around as if they were physically there
- Reduces travel costs
- School
- Hospital
- Work from home
People with Disabilities in the Work Place

Sector: Business

VGo increases productivity and effectiveness while lowering costs by enabling a person to get to a location instantly and easily. VGo is not designed as a replacement for in-person interaction but rather as the next best alternative to “being” in the workplace. VGo also eliminates the deficiencies associated with other video solutions that are locked to a TV or computer monitor by providing 100% remote controlled mobility.

In addition to “being” at work from home, VGo can help people who can get to the workplace, but who cannot practically move about the facility or campus. A VGo can be used to enable a person to move around in one part of the facility while they are physically in another.

The benefits of using VGo in the workplace include

- Getting to places previously inaccessible increases opportunities
- Freedom of movement increases personal interaction with others
- Quality of life improvements by expanding the work and social environments
- Costs can be reduced by lowering or eliminating select transportation expenses, and by communications and speeding decision making
“Exploring New Ideas with Advanced Social Robotics”

— an extension of humankind. RoboKind.
Robots4Autism is the next generation of autism intervention.

Request a Demo and More Information

A revolutionary humanoid robot that engages children faster than traditional therapy and intrinsically motivates them to learn.

Our autism robot delivers innovative and research-based lessons that teach all aspects of social understanding. Our goal is to augment traditional therapies by increasing children's abilities and confidence.
Meet NAO!
Humanoid robot helps train children with autism

by David Salisbury | Posted on Saturday, Mar. 23, 2013 — 1:11 PM
Adaptive Robot-Mediated Intervention Architecture (ARIA)

• “NAO has been programmed with a series of verbal prompts, such as “look over here” and “let’s do some more,” and gestures such as looking and pointing at one of the displays, that imitate the prompts and gestures that human therapists use in joint attention training.”

• The protocol begins with a verbal prompt that asks the child to look at an image or video displayed on one of the screens.

• If the child doesn’t respond, then the therapist provides increasing support by combining a verbal prompt with physical gestures such as turning her head or pointing.

• When the child looks at the target then the therapist responds with praise, such as telling the child, “good job.”
“One of the key elements of ARIA is its closed loop design. The robot adapts its behavior to each child automatically depending on how he or she is responding. The cost of robotic systems like this will continue to come down in the future so it should easily pay for itself by supplementing human intervention.”

"In addition, ARIA is not designed to replace human therapists, who are in short supply, but to leverage their efforts. “A therapist does many things that robots can’t do,” said Sarkar. “But a robot-centered system could provide much of the repeated practice that is essential to learning.

This research was supported by a Vanderbilt University Innovation and Discovery in Engineering and Science (IDEAS) grant, National Science Foundation award 0967170, National Institutes of Health award 1R01MH091102-01A1 and by the Meredith Anne Thomas Foundation.
Access4Kids: Tablet Computers and Children with Disabilities

December 10, 2012 — Ayanna Howard, a Georgia Tech professor of electrical and computer engineering, and Hae Won Park, a Georgia Tech graduate student, have developed and created Access4Kids with the goal of helping children with limited mobility, “giving them the ability to use what’s in their mind so they have an outlet to impact the world.” Access4Kids is a wireless input device that utilizes a sensory system to measure pressure, which translates a child’s physical movements into fine-motor gestures that enables them to control and interact with a tablet computer. The current model of the device can be worn on the forearm or the arm of a wheelchair and the child uses their fist to hit the sensors. However, Howard is working on the development of a second prototype with wireless sensors that could be placed in any location the child is capable of hitting. The device has received positive feedback from children and has also received recognition within the industry, as the device was a finalist in a recent Intel-sponsored competition and was demonstrated to and received well by the British Consulate before the Paralympic Summer 2012 games. Access4Kids could significantly impact the lives of those children with an orthopedic disability by providing them the ability to use tablet computers and other touch screen devices they have, up to this point, been barred access.

ADDITIONAL INFORMATION
Access4Kids

Principal Investigators:
Ayanna Howard, PhD
Giancarlo Valentin
Hae Won Park
**The Device:**

Access4Kids is a unique assistive input device that enables access to rehabilitation apps for children with limited upper-body motor control. The wireless device utilizes a sensor system that translates any physically possible body press/swipe movements into fine-motor control gestures. Access4Kids, coupled with a supporting software library, enables control of off-the-shelf apps or control of custom-made apps to facilitate the delivery of effective therapy opportunities for children lacking fine motor skills.

**Access4Kids Demo**

![Access4Kids Demo](image)

**How has APDC helped?**

This project is funded by APDC. When the project joined the consortium the device was in the prototyping stage of development.
Tongue Drive System (TDS):
A Brain-Tongue-Computer Interface

Intraoral Tongue Drive System (iTDS) Technical info

Clinical Trial Completed
If you have tetraplegia, live in Atlanta, GA or Chicago, IL, and interested in participating in the upcoming clinical trials, please do contact Dr. Ghovanloo.
Electronic Sensors Printed Directly on the Skin

New electronic tattoos could help monitor health during normal daily activities.

By Mike Orcutt on March 11, 2013

Taking advantage of recent advances in flexible electronics, researchers have devised a way to "print" devices directly onto the skin so people can wear them for an extended period while performing normal daily activities. Such systems could be used to track health and monitor healing near the skin's surface, as in the case of surgical wounds.

So-called "epidermal electronics" were demonstrated previously in research from the lab of John Rogers, a materials scientist at the University of Illinois at Urbana-Champaign; the devices consist of ultrathin electrodes, electronics, sensors, and wireless power and communication systems. In theory, they could attach to the skin and record and transmit electrophysiological measurements for medical purposes. These early versions of the technology, which were designed to be applied to a thin, soft elastomer backing, were "fine for an office environment," says Rogers, "but if you wanted to go swimming or take a shower they weren't able to hold up." Now, Rogers and his coworkers have figured out how to print the electronics right on the skin, making the device more durable and rugged.

"What we've found is that you don't even need the elastomer backing," Rogers says. "You can use a rubber stamp to just deliver the ultrathin mesh electronics directly to the surface of the skin." The researchers also found that they could use commercially available "spray-on bandage" products to add a thin protective layer and bond the system to the skin in "a very robust way," he says.

Eliminating the elastomer backing makes the device one-thirtieth as thick, and thus "more conformal to the kind of roughness that's present naturally on the surface of the skin," says Rogers. It can be worn for up to two weeks before the skin's natural exfoliation process causes it to flake off.

During the two weeks that it's attached, the device can measure things like temperature, strain, and the hydration state of the skin, all of which are useful in tracking general health and wellness. One specific application could be to monitor wound healing: If a doctor or nurse attached the system near a surgical wound before the patient left the hospital, it could take measurements and transmit the information wirelessly to the health-care providers.
ASL brings innovative products to our clients! We are here to help each client reach their full potential – our team creates products and designs as a direct result of the needs of those we serve. Our goal has always been independence and equal rights for those we work with.
Interact More, Touch-less

Elliptic Labs’ ultrasonic touchless gesturing transforms the way you work, play and collaborate.
Google announces Calico, a new company focused on health and well-being

MOUNTAIN VIEW, CA – September 18, 2013 – Google today announced Calico, a new company that will focus on health and well-being, with an emphasis in particular the challenge of aging and associated diseases. Arthur D. Levinson, Chairman and former CEO of Genentech and Co-founder of Apple, will be Chief Executive Officer and a founding investor.

Announcing this new investment, Larry Page, Google CEO said: “Illness and aging affect all our families. With some longer term, more fundamental thinking around healthcare and biotechnology, I believe we can improve millions of lives. It’s impossible to imagine anyone better than Art—one of the leading scientists, entrepreneurs and CEOs of our generation—to take this new venture forward.” Art said: “I’ve devoted a lot of my life to science and technology, with the goal of improving human health. Larry’s focus on outsized improvements has always fascinated me, and I’m tremendously excited about what’s next.”

Art Levinson will remain Chairman of Genentech and a director of Hoffmann-La Roche, as well as Chairman of Apple.

Commenting on Art’s new role, Franz Humer, Chairman of Hoffmann-La Roche, said: “Art’s track record at Genentech has been exemplary, and we see an interesting potential for our companies to work together going forward. We’re delighted he’ll stay on our board.”

Tim Cook, Chief Executive Officer of Apple, said: “For too many of our friends and family, life has been cut short or the quality of their later years too often lacking. Art is one of the crazy ones who thinks it doesn’t have to be this way. There is no one better suited to lead this mission, and I am excited to see the results.”

Contact

Leslie Miller
Google Corporate Communications
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Ten days with Google Glass

By Will Shanklin
December 23, 2013

Gizmag shares some more thoughts about being part of the Google Glass Explorer program

Image Gallery (7 images)

Here at Gizmag, we're very interested in the present and future of wearables and wear tech. So we thought it was fitting to sign up for the Google Glass Explorer program, to give you a better idea of what Sergey Brin and company are cooking up in Mountain View. Though we aren't quite ready to do a complete proper Google Glass review, we want to share some more thoughts from our first ten days with Glass.

My first few days with Google Glass were mostly about the self-doubt factor. For the first part of the day, I wore Glass for most of my professional and personal life. My co-workers and roommates became accustomed to the device as I went about my daily business. I think they were more interested than anything, asking questions about what it does and how it's supposed to work. The idea of glasses that can read messages, launch apps, and access the internet through voice commands is a bit hard to take in.

In my first ten days with Glass, I've found that the most exciting thing about the device is the impact it has on other people. It's a conversation starter. And since I'm a writer, it's a conversation starter that's often accompanied by questions and ideas for stories. People who see me wearing Glass want to know how it works and what kind of apps are available. They want to know if it's comfortable to wear all day and if it's easy to use.

On the professional side, I've found that Glass has opened up new opportunities for content creation. I've been able to record video and take photos in situations where it wouldn't be appropriate to use a camera. And even though I'm not a professional photographer, it's been fun to experiment with different angles and perspectives.

On the personal side, Glass has been a great way to stay connected with friends and family. I've been able to keep up with their lives and share my own experiences in real-time. It's been a great way to stay in touch when I'm away from home.

Overall, my first ten days with Glass have been a mix of excitement and frustration. The device is still in its early stages of development, and there are definitely some rough edges. But the potential is there, and I'm looking forward to seeing where it goes in the future.
When once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.

— Leonardo Da Vinci
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