Exploring Assistive Technology Strategies & Solutions

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With contributions from Carolyn Phillips and Ben Satterfield
www.gatfl.gatech.edu
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.

For Handouts: [http://www.gatfl.gatech.edu/tflwiki](http://www.gatfl.gatech.edu/tflwiki)
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.
Who are We Serving

Over 54,000,000 individuals in the United States have disabilities that affect their ability to:

- see
- hear
- communicate
- reason
- walk
- perform other basic life functions

Public Law 108-364

People with disabilities are the largest minority group in America.

This group cuts across racial, ethnic, religious, gender and age boundaries.

Anyone can become a member of this minority group at any time.
Tools for Life
Georgia’s Federal AT Act Program

• TFL developed Georgia’s Plan for AT
• We serve individuals of all ages & 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 at www.gatfl.gatech.edu
Learn More about AT through Hands-On Demonstrations

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.
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
Get a Financial Loan to purchase AT

The CFII - The Center for Financial Independence & Innovation, Inc. (The CFII) is a nonprofit organization dedicated to helping individuals with disabilities and their family members advance their financial independence and security.

Obtain AT through our AT Cooperative Buying Program

The Georgia AT Depot is a state-wide buying cooperative for assistive technology for customers in the state of Georgia. The Georgia AT Depot is modeled after the Maryland AT Co-op, which has operated a successful cooperative buying program since 1998. The Georgia AT Depot is a collaborating partner with the Maryland Co-op. In this way we can provide Georgia customers the best discounts possible.

Obtain Reused/Gently Used AT Devices

gTRADE, Georgia’s Online Equipment Exchange, encourages members to offer AT and DME for sale or donation to others who may benefit from using technology unneeded by others.

FODAC - Friends of Disabled Adults and Children (FODAC) is Georgia’s statewide provider of home health and durable medical equipment. FODAC has distributed 20,000 wheelchairs and thousands of other pieces of DME since 1986. Internationally, 65 countries have received some equipment over those years.
Direct AT Service Activities

• Web-based Funding Guide

• A resource for locating funding sources for AT devices and services. This guide was developed to make the funding process easier and to assist consumers in getting the assistive technology they need.

• New resources added frequently!
DOLLARS & SENSE
NAVIGATING THE AT FUNDING STREAM

HOME
GETTING STARTED
FUNDING SERVICES AND SERVICE PROVIDERS
SAMPLE MATERIALS
AT RESOURCE CENTER

Please use the drop-down lists below to search...

Age Groups Served
Geographic Areas Served
Serves People with the Following Disabilities
Type of Funding Provided
Types of Services Provided

Show all ages
Show all geographies
Show all disabilities
Show all funding sources
Show all services provided

Search
Direct AT Service Activities

• FREE resource for finding and exchanging assistive technology (AT) devices online

• Place an ad requesting items for sale, donation, or needed

• gTRADE and Tools for Life encourages members to offer AT devices and information for sale or by donation to others who may benefit from using technology and equipment no longer in need by others

• This online equipment exchange program was developed to make AT devices and services available and accessible to Georgians with disabilities

• www.gtradeonline.org
<table>
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<td>AMIGO</td>
<td>$600</td>
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<td>56</td>
<td>Daily Living Aids</td>
<td>Accessible sink with chrome faucet</td>
<td>$250</td>
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Find Your Local AT Program
http://www.resnaprojects.org/allcontacts/statewidecontacts.html
Find Your Local Reuse Program

http://passitoncenter.org/locations/search.aspx
Exploring Assistive Technology
Defining Assistive Technology

• Assistive technology – “Any item, piece of equipment, product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.”

• Assistive technology service – “Any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device.”

Public Law 108-364
Staying off the FAST Track!

✓ Frustration
✓ Anxiety
✓ Stress
✓ Tension

- Lee & Phillips
Tools for Life AT Demo Lab

- Tablets
- Vision Items
- DME
- Communication
- Games
- Software
- Switches
- Keyboards
DXT Fingertip Vertical Wireless Mouse

- Ergonomic Relaxed Neutral Wrist and Hand Position
- Precision Grip for Accurate Navigation
  - Small muscles and joints of the fingers have higher processing abilities
- Instantly Switches Between Right and Left Hand
- Video
LED Handheld Magnifier

- Handheld
- LED light provides natural bright lights
- Easy storage
- Reading
- Sewing
Transformer

- Portable video magnifier
- Moveable camera to see items far away
- USB port connects its to a laptop
- Great for students and employees with low vision
- Can change background colors
Interpretype

• Allows individuals who are deaf and/or hard of hearing to communicate with a hearing individual by text
• Connect a braille display via Bluetooth
• Save conversations
LOMAK

Light Operated Mouse and Keyboard

- Hand or head pointer controls a beam of light that enters, then confirms, function
- Confirmation of keys reduces errors and increases the speed of operation
- Keyboard can be operated with small movements and does not require a lot of energy

- www.lomak.co.nz
Logitech Wireless Touch Keyboard

- Wireless control
- Low-profile keys
- Range of up to 33 ft
- 3.5 inch multi-touch/gesture touchpad
Eyegaze Edge

- Eyegaze System
- Control computer and tablet using your eyes
- Environmental Controls
- Communication
Automatic Feeder

- Mealtime Partner
- Different mounts
- Battery operated
- Bowl tops controls amount of food
- Control Pause time between spoonful
- Adjustability of the spoon
A Closer Look AT for Aging Well
Aging in Place: Strategies & Solutions to Consider

- Entrances
- Hallways
- Staircases
- Kitchen
- Bathrooms
- Bedrooms
- Living room
- Storage Spaces
• Half-Step-consider using if the first step is too large

• Anywhere lighting- Such as stick-n-click or Push on Lights to brighten up dark staircases

• Skid resistant indoor/ outdoor rugs/ mats

• Keyless locks

• Handrails/ grab bars
• Stair lifts- look for one with a seat configuration that is height-adjustable, compact and folds up (so others in your house can use the stairs). The ideal stair lift should also have a full backrest for maximum seated comfort.

• Half-Step- consider using if the first step is too large, works for indoor and outdoor stairs

• Anywhere lighting- Such as stick-n- click or Push on Lights to brighten up dark staircases
Hallways

- Anywhere lighting-Such as stick-n-click or Push on Lights to brighten up dark staircases
- Skid-resistant rugs
- Smoke alarm for deaf/hard of hearing
- Organize cords- cost efficient use toilet paper rolls
• Lighting
• Cords organized
• Make sure boxes proper weight
• Consider storage that has pull out drawers
• Reachers
• Step stool
Kitchen

- Automatic soap dispensers
- Automatic trash cans
- Automatic appliances (can openers)
- Jar grippers/Jar openers
- Adaptive utensils/ cups/ plates
- Adaptive cutting boards
- Fire alarm for deaf/ hard of hearing
- Motion sensor faucets

- Smart appliances (fridge)
- Pill reminder with alarm
- Pullout drawers for cabinets
- Push on lights
- Reachers
- Talking scales
- Color coded measuring cups/ spoons
- Longer sleeved pot holders
- Step stool
More Kitchen
Living Room

- Non-Slip rugs
- Proper height furniture
- Remote for TV
- TV Ears
- Magnifier
- Stands for books/tablets/food
- Cords organized (declutter)

- Lighting
- Environmental controls for Lights/blinds/etc
- Easy to reach phones
- Easy assist lift for chairs
Bedroom

- Lighting
- Talking alarms
- Bed shaker
- Dressing stick
- Long handle shoe horn
- Easy to reach bedside lights
- Easy to reach phone

- Cord organizer
- Night lights
- Chair (for getting dressed if needed)
Bathroom

- Non-slip floor/ tiles
- Automatic soap/toothpaste dispenser
- Universal quad cuff (tooth bush/ hair brush)
- Anti-fog mirror
- Grab bars
- Talking scales
- Lightening
- Shower chair

- Moveable shower head
- Chair (sit to do hair/ makeup)
- Heated floors
- Heated towel rack
- Floss Aide
- Automatic dryer
- Raised toilets
- Night lights
- Grippers for faucets
More Bathroom

AMAC
Accessibility for All

- Hair clipper
- Toothbrush holder
- Bathroom scale
- Shower with grab bars
- Wall-mounted towel warmer
- Toothpaste dispenser
- "160.2 pounds!" sticker
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
Future

• Evening out the playing field

• 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.
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.
RERC TechSAGE: 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
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.
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, Rogers 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.
VGo Telepresence Robot

- Enables a person to replicate themself 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
Introducing Beam
The premier remote presence solution.

Get Beam
“Exploring New Ideas with Advanced Social Robotics”

—an extension of humankind. RoboKind.
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.
Products / New Products

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....
TFL Environmental Control Lab

VeraLite
Smart Home Controller

YOUR NEW ASSISTANT

Your control device does not have to be complicated or expensive. To realize the potential for the VeraLite Smart Controller, which is a simple and inexpensive. It can be small, but it can be of big things.

- Easily manages up to 50 devices
- Plug and play with your internet connection
- Control over 70 smart products of all kinds
- Customize text and email alerts for any situation

VeraLite gives you easy control over lights, cameras, thermostats, door locks, alarm systems, and more.

ONLY $179.95

AMAZING AMOUNT OF SMART TECHNOLOGY THAT FITS IN THE PALM OF YOUR HAND

VeraLite gives you easy control over lights, cameras, thermostats, door locks, alarm systems, and more.
Google Glass

- Wearable Technology
- Bluetooth Connection
- Navigate
- Make a Call
- Send a Message
- Take a Picture or Video
- Get the News
- Search
- Google Play Music
- Google Now
- Be Social
- Internal Compass
- $1500
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
MyMedSchedule

- Keep track of medication
- Reminders
- Refill Reminders
- Healthcare Provider Profiles
- Insurance Information
- Allergies
- Works across Platforms
- Free
- www.mymedschedule.com
Key Ring

• One Place to store all reward cards
• Organized
• Android & Apple version
• www.keyringapp.com
• Free!
Grocery IQ

- Pictorial shopping list
- Customize different lists for different users using pictures on camera roll
- Add your own items and categories
- Assign item prices
- Assign item locations (for example, aisle numbers)
- Several accessibility options
  - text-to-speech
  - uses large easy-to-see images
  - item prices automatically totaled
- $4.99
USA Today

- Current Events in order
- Breaking News Alerts
- Videos
- Photos and Text
- Pick Favorite Interests
- Free
Tango

• Make video and phone calls across mobile platforms
• Group chats
• Works on tablets & PCs
• http://www.tango.me
• Free
Sleep Cycle

- Tracks your sleep patterns
- Uses iPhone accelerometer to track how often you move at night
- Set an alarm range
- Woken up gradually when you are in like sleep
- Feel refreshed and energized
- $2.99
Fooducate

- Track calories
- Provides healthier options
- Educates on food ingredients
- Save favorites
- Create lists
- App for allergies and gluten-free
- App for diabetes nutrition
- Free
- [www.fooducate.com](http://www.fooducate.com)
• Scan documents or handwritten notes
• Email the scans as JPEG or PDF
• Free
• Genius Scan Plus ($2.99) allows upload to Dropbox, Skydrive or Evernote
Bump

• Use Bump™ to share contact information and photos by simply bumping two phones together.

• Just open Bump, hold your phones, and gently bump your hands together

• Free!

Demo
Dragon Dictation

- Voice Recognition
- Free
- Dictate notes, emails, Twitter, and Facebook
- Supports many languages
- Cut, Copy, Paste
- Android
  - Dragon Go!
  - Dragon Hands Free Assistant
Reading Apps

• Free Books
  – Free
  – Over 23,000 titles
  – Audiobooks

• Newspaper
  – Free
  – Newspapers from 150+ countries
  – Over 20,000 newspapers

• Overdrive Media Console
  – Free
  – Must have library card
  – Download ebooks and audiobooks on the go
Perfect OCR

• $3.99
• Uses the built in camera to scan documents
• Edit, copy, store, email documents
• Upload to online storage is as Evernote
• Does take practice for picture
WebReader

- Text to speech technology for reading web page content
- Web pages can be read as soon as they are loaded or use Cut, Copy, & Paste to read only sections of webpage
- Highlights as it reads text
- Speaking rate control available
- $1.99
Say it & Mail it Pro

- Email voice memos
- Attach pictures
- Set preference to start recording as soon as app opens
- Add location
Reminders

- Built-in App
- Works with VoiceOver
- Organize your reminders
- Siri if have iPhone 4s or 5
- The new iPad
Cozi

- Free
- You can access from a computer, smartphone or tablet
- Manage a family calendar and set reminders.
  - Add an appointment and it uploads to your Cozi account so everyone can see it.
- Get your grocery shopping lists when you're at the store, even when offline.
- Add a to do list item right when you think of it and have it right there in your pocket to remind yourself.
- Jot down a memory as it happens in the journal.
  - Add a photo from your library to capture the moment.
- Add and edit non-repeating calendar appointments, shopping lists, and to do lists while offline.
Speak it!

- Copy emails, documents, web pages, PDF files, and more; paste them into Speak it!, and have the text spoken back to you.
- Email text to speech files
- Make announcements over PA system
- Endless phrases and possible uses
- $1.99
TouchChat

- Designed for individuals with Autism, Down Syndrome, ALS, apraxia, stroke, or other conditions that affect a person's ability to use natural speech
- Able to import your own pictures or take pictures
- Works on Apple and Android systems
- Over 10,000 symbols included
- Create videos
- $149
EyeNote

- Uses built in camera to scan dollar bills
- Speaks out loud
  - Distinguished btw front and back of bill
- Free
- Supports English and Spanish
- Privacy mode
  - Pulses or beeps
BrailleTouch

• Prototype app for touchscreen mobile devices
• FREE Open Source app
• 32 words per minute with 92% accuracy with the prototype app for the iPhone
• Use of the six-key configuration so that the keyboard fits on the screen and users keep their fingers in a relatively fixed position while texting
• GA Tech Researchers

• Type with screen facing away
• Braille like typing
HearPlanet (Lite): Audio Guide to the World

- Speaks aloud what is around out you
- Learn about monuments. Historic sites, etc.
- FREE
- Upgrade to a paid version
ICE  
In Case of Emergency

- Emergency contact list
- Central place for you to record any medications
- List allergies or medical conditions
- Pre-loaded medical information to choose from
- Free
- [www.ice-app.net](http://www.ice-app.net)
Medimate

• Medical prescription organizer
  – Both you and family
• Customize your medicine catalog
• Understand your usage
Favorite Navigation Apps

- **Around Me**
  - Identifies where you are
  - Lists what is around you
  - View route to place from where you are
  - Add information to contact list

- **Talk and Drive Waze**
  - Operate your map applications simply by talking
  - Launch the application, say your destination
iZen Garden

- Choose from 100s of objects, plants and creatures to place in your garden
- Rake the sand and share your creations
- Helps you to center your mind, relax your psyche and relieve your stress
Breathe2Relax

- Portable stress management tool
- Detailed information on the effects of stress on the body
- Instructions and practice exercises to learn the stress management skill called diaphragmatic breathing
Our Question to You:
What have You Learned today?
Contact

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Disclaimer
This presentation is produced by Tools for Life which is a result of the Assistive Technology Act of 1998, as amended in 2004. It is a program of the Georgia Institute of Technology, College of Architecture, AMAC Accessibility Solutions and is funded by grant #H224C030009 of the Rehabilitation Services Administration (RSA), Department of Education. The contents of this presentation were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, Georgia Tech, COA or AMAC and you should not assume endorsement by the Federal government.