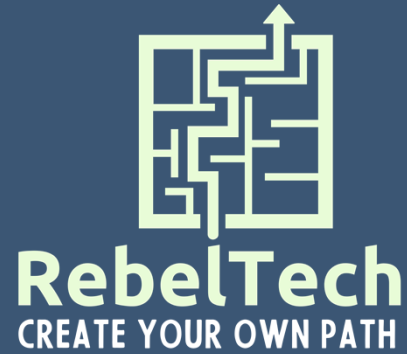


# Adaptive Gaming

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I have no Relevant  
Financial  
Relationships or  
Relevant Non-  
Financial Relationship  
to disclose.

## Disclosure

## Agenda

- ◇ [Introduction](#)
- ◇ [Gaming Myths](#)
- ◇ [My Accessible Gaming Philosophy](#)
- ◇ [Built in Console Accessibility](#)
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## Summary

|              |                                 |  |                            |  |                                 |  |                                  |
|--------------|---------------------------------|--|----------------------------|--|---------------------------------|--|----------------------------------|
| Introduction |                                 |  | Gaming Myths               |  | My Accessible Gaming Philosophy |  | Built-in Console Accessibility   |
|              | Console Accessibility Solutions |  | PC Accessibility Solutions |  | Mobile Accessibility Solutions  |  | Tabletop Accessibility Solutions |
|              | Virtual/Augmented Reality       |  | Other Resources            |  | Wrap Up                         |  |                                  |

# Introduction



## Who I Am

- ◇ Maine
- ◇ Air Force
- ◇ Georgia Tech

## RebelTech Consulting

- ◆ Services for Individuals
  - ◆ Consultation
  - ◆ Installation
  - ◆ Setup
  - ◆ Customization
  - ◆ Continued Support
- ◆ Services for Organizations
  - ◆ Trainings
  - ◆ Presentations
  - ◆ Access to Expertise



## Quotes About Play

"We do not stop playing because we grow old, we grow old because we stop playing"

~Benjamin Franklin

"Life is more fun if you play games."

~ Roald Dahl



# Gaming Myths



## Myth #1

- ❖ Playing video games is a wasteful pastime with no real benefits and is detrimental to one's health and mental well being.

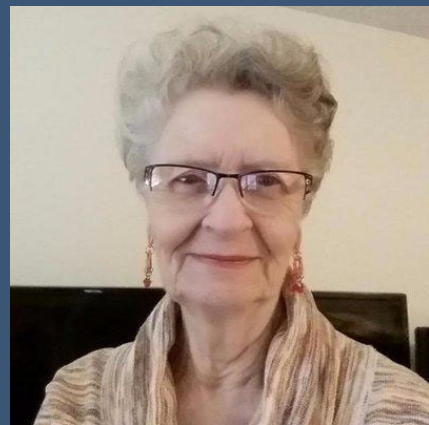
## Why is Gaming Important?

- ◆ Developmental Benefits
  - ◆ Learning
  - ◆ Social Connectedness
- ◆ Physical benefits
  - ◆ Pain Management
  - ◆ Hand-eye coordination
- ◆ Mental benefits
  - ◆ Increased Cognitive Function
  - ◆ Mood
  - ◆ Decision Making



## Shirley Curry

- ◆ Shirley is an 82-year-old grandmother who loves to play a role playing video game called Elder Scrolls: Skyrim.
- ◆ She operates a YouTube channel where she uploads her gameplay and commentary to share with the world
- ◆ Her videos have over 5 million views and she has 250k subscribers.



## Myth #2

- ◆ Games are an invention of the modern age; our ancestors didn't play games. They were always productive and found better ways to spend their time.



## Gaming Throughout History

- ◆ Senet (Game of Passing)
  - ◆ 3500 BC
- ◆ Chess
  - ◆ 280-550 AD (Modernized in 15<sup>th</sup> Century)
  - ◆ Miniature Wargaming
    - ◆ Dungeons & Dragons



## Myth #3

- ◆ People with disabilities should focus on playing less complex games like [Elf Bowling](#). Playing mainstream games is impossible for someone with a disability.

## Simple Games

- ◆ The Good
  - ◆ Easily operated
  - ◆ Easily Understood
  - ◆ Fun
- ◆ The Bad
  - ◆ Little to no depth
  - ◆ No social aspect
  - ◆ Becomes a passive activity



# My Accessible Gaming Philosophy

- ◊ Living and working independently is not a whole fulfilling life
- ◊ Recreation and social interaction are a necessity
- ◊ For many this comes in the form of playing games
  - ◊ Console
  - ◊ PC
  - ◊ Mobile
  - ◊ Tabletop
  - ◊ Other

My Accessible  
Gaming  
Philosophy:

Productivity is  
not enough.



# CHOOSE YOUR OWN ADVENTURE®

My Accessible Gaming Philosophy:  
No Game Matching

Built-in  
Console  
Accessibility

## Built in Accessibility: Xbox One

- ◆ Narrator
- ◆ Magnifier
- ◆ High Contrast
- ◆ Closed Captions and Game Chat Transcription
- ◆ Button Mapping
- ◆ Co Pilot



## Built in Accessibility: Playstation 4

- ◆ Text to Speech
  - ◆ Speed and Volume Adjustments
- ◆ Zoom
  - ◆ PS Button and Square zoom in
  - ◆ Move enlarged area using d-pad or thumbsticks
  - ◆ Cancel by pressing circle
- ◆ Invert Colors
- ◆ Large/Bold Text (System Menu)
- ◆ Closed Captions
- ◆ Button Mapping
- ◆ Voice Commands



## Built in Accessibility: Nintendo Switch

- ◆ While Nintendo opened up the world of gaming to many people through the addition of simple motion controlled games, accessibility options have largely been missing from the systems.
- ◆ Touchscreen
- ◆ Joycons



## Console Accessibility Solutions





## Xbox One Elite Wireless Controller

- ◆ First party controller with accessibility features.
- ◆ Modular construction includes multiple thumbsticks, directional pads, and paddle buttons.
- ◆ Remap any input to any button.
- ◆ Highly customizable.
- ◆ \$150

## Xbox Adaptive Controller

- ◆ Two large buttons
- ◆ 3.5 mm ports for each controller input
- ◆ USB port
- ◆ Ergonomic Design
- ◆ 2 years development
- ◆ 1-year development of packaging
- ◆ Available now
- ◆ \$100





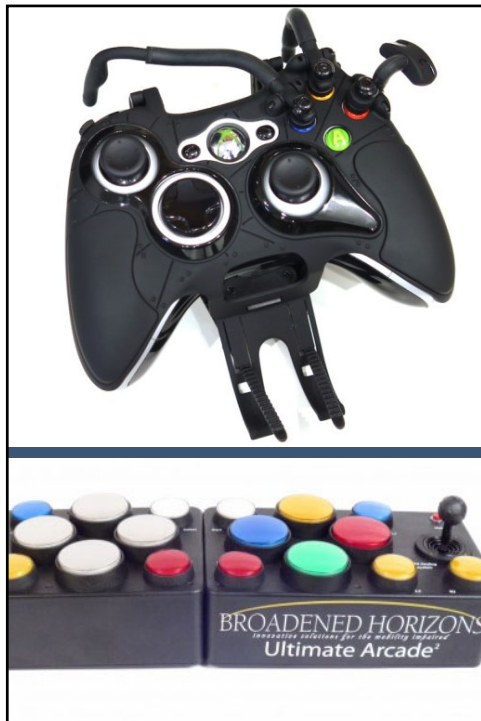
## Logitech G Adaptive Gaming Kit

- ◆ Four light touch button
- ◆ Two variable triggers
- ◆ Three small buttons
- ◆ Three large buttons
- ◆ Rigid and Flexible hook and loop boards
- ◆ Label Stickers
- ◆ Hook and loop stickers and ties
- ◆ \$99.99

## CronusMax Plus

- ◆ Cross Over Gaming
  - ◆ Xbox 360, One, One S
  - ◆ PS3, PS4, PS4 Pro, PSTV
  - ◆ Android
  - ◆ Windows PCs
  - ◆ Wii and Wii U, Controllers only
- ◆ Mouse and Keyboard Control
- ◆ Controller Modifications
- ◆ Macros and Scripts





## Accessible Controller Modifications

- ◆ A few different companies have been specializing in providing controllers modified to be accessible for people with disabilities.
- ◆ Some of these companies include
  - ◆ [www.broadenedhorizons.com](http://www.broadenedhorizons.com)
  - ◆ [www.evilcontrollers.com](http://www.evilcontrollers.com)
  - ◆ [www.thecontrollerproject.com](http://www.thecontrollerproject.com)
  - ◆ [www.scufgaming.com](http://www.scufgaming.com)
- ◆ There are also many controller modification solutions available online that can be 3d printed
  - ◆ [www.thingiverse.com](http://www.thingiverse.com)

## PC Accessibility Solutions



## 3dRudder

- ◇ Foot controller
- ◇ Joystick emulation
- ◇ Keyboard Emulation
- ◇ Control movement
- ◇ Browse the web
- ◇ Access Microsoft Windows programs

## QuadStick

- ◇ Mouth operated game controller for Quadriplegics.
- ◇ Joystick, four sip and puff sensors and a lip position sensor.
- ◇ Compatible with PS3, Android, and PC.
- ◇ USB adapter allows control of Xbox 360, Xbox One and PS4.



## TrackIR

- ◆ TrackIR is an optical motion tracking game controller for Microsoft Windows
- ◆ Tracks head motion with up to 6 degrees of freedom.
  - ◆ Forward/Backward
  - ◆ Left/Right
  - ◆ Up/Down
  - ◆ Roll
  - ◆ Pitch
  - ◆ Yaw



## Eye Tracking

- ◆ Tobii Eye Tracker 4C
  - ◆ Tracks movement of pupils
  - ◆ Enhances gameplay
  - ◆ Great for point and click/browser games
- ◆ EyeMine
  - ◆ Minecraft completely playable with eyetracking





# Mobile Accessibility Solutions



## Open Sesame

- ◆ Best Accessibility App Google I/O 2018/2019
- ◆ Control your phone using minor head movements
- ◆ Tap, swipe, drag and drop
- ◆ Easy to configure
- ◆ Available on Windows, Android
  - ◆ Talking Keyboard on Apple IOS
- ◆ ~~7 day trial, \$19.99/mo~~ Now Free!
- ◆ <https://sesame-enable.com/>

## Tecla E

- ◊ Wireless device that controls smartphones and tablets using your external switches or the driver controls of your power wheelchair
- ◊ Can interface wirelessly with head array
- ◊ The only switch interface that works with both iOS® and Android mobile devices.



## Android OTG Adapter

- ◊ Android devices support mouse and keyboard as well as most other USB devices through a USB OTG (On the Go) Cable
- ◊ Other supported devices include
  - ◊ Printers
  - ◊ Controllers
  - ◊ Hard drives and thumbsticks
  - ◊ Microphones and Cameras
  - ◊ Midi Controllers



# Tabletop Accessibility Solutions



## Playing Card Solutions

- ◆ Scrabble Rack
- ◆ Playing Card Holder
- ◆ Dungeon Master Screen





## More Tabletop Solutions

- ◆ Roll20
  - ◆ Virtual Dice
  - ◆ Character Sheets
- ◆ <http://www.64ouncegames.com/>
  - ◆ Low/No Vision Accessibility Kits
- ◆ Digital Assistants
  - ◆ “Hey Google...”, “Hey Siri...”, “Alexa...”

## Virtual/Augmented Reality

## What's the Difference?

- ◆ Virtual Reality
  - ◆ Fully Immersive
  - ◆ Simulated Reality
- ◆ Augmented Reality
  - ◆ Informative overlay
  - ◆ Enhanced Reality



## Limitations of Virtual Reality

- ◆ Controls
  - ◆ Head movement
  - ◆ Motion controls
- ◆ Cut off from real world
  - ◆ Safety

## Benefits of Virtual Reality

- ◆ Immersion
  - ◆ Increased analgesic effect
- ◆ Immersion
  - ◆ Increased brain activity
- ◆ Immersion
  - ◆ New experiences



## Examples of Virtual Reality Uses

- ◆ Therapeutic
  - ◆ Painting
  - ◆ Meditation
  - ◆ Relaxation
- ◆ Experiential
  - ◆ Virtual Tourism
  - ◆ New Perspectives



## Examples of Augmented Reality Uses

- ◆ Wayfinding
  - ◆ Navigate a grocery store
- ◆ Person/Object Recognition
  - ◆ Medication
- ◆ Gaming in the real world
  - ◆ Pokemon Go



Other  
Resources

## Helpful Websites

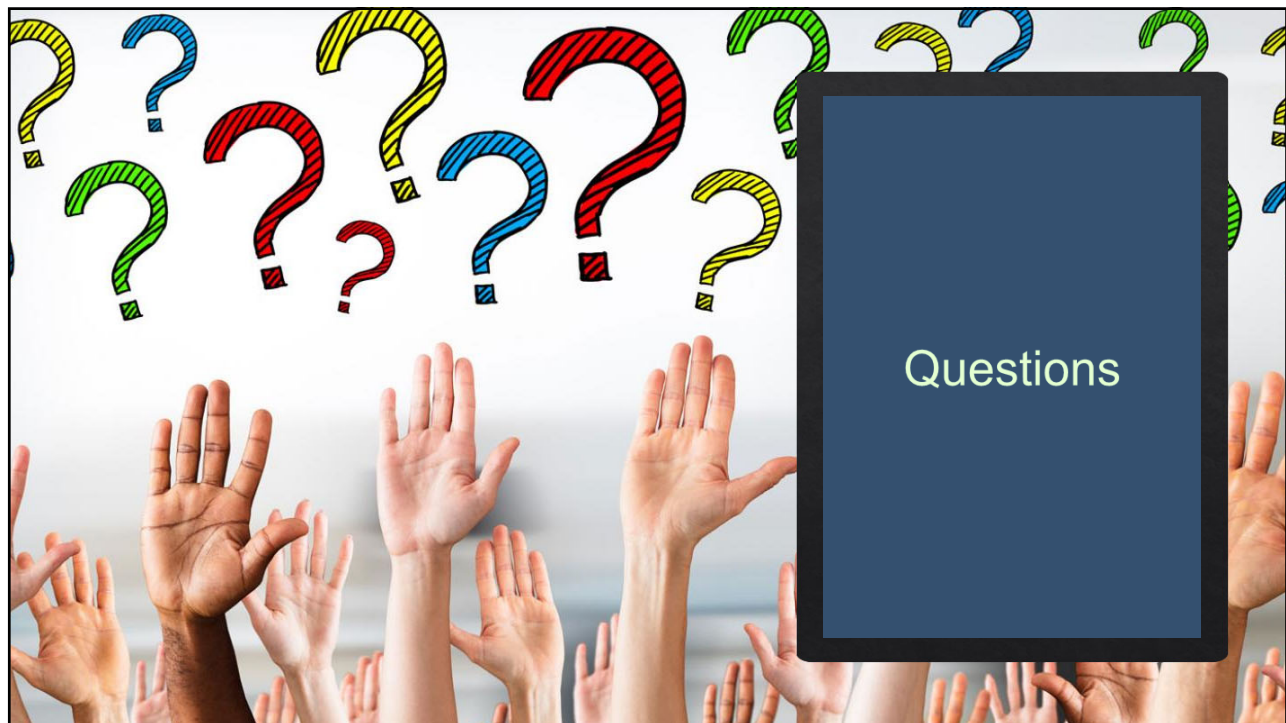
- ◆ [Dagersystem.com](http://Dagersystem.com)
- ◆ [Ablegamers.org](http://Ablegamers.org)
- ◆ [Craig Hospital](http://Craig Hospital)



## DragonCon



- ◆ Annual convention in Atlanta, GA since 1987
- ◆ Geek culture celebration
- ◆ 80k+ attendees
- ◆ In 2014 held first Disability and Gaming Panel
- ◆ Expanded to two sessions



## Contact Information



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