

Vision-to-Speech Technology for Posterior Cortical Atrophy

David Lewerenz, OD, FAAO

University of Colorado School of Medicine

Department of Ophthalmology

Converting Visual Images to Speech

- In PCA, vision and/or visual processing can be affected and auditory sense is usually left intact
- The technologies I'll discuss were developed for people blinded by an eye disease, but could have application for people with PCA
- In all cases an image, and sometimes other information, is gathered by a smart phone or smart glasses and that information is converted to speech
- Two categories for how the products work
 - Smart glasses or smart phone
 - Interpretation by computer algorithm or by a human assistant

OrCam

- Consists of camera and bone conduction speaker near your ear that attach to your glasses, and a processor/battery that fits in your pocket
- Hold your finger under what you want identified or read, and you will hear what the item is or OrCam will read the text to you
- Can be taught to identify faces, so when you encounter someone you know, it will identify the person to you
- Works by computer algorithm, but can be customized
- Two versions, \$2500 and \$3500



Aira

- Uses smart glasses (Google Glass or Vuzix) or a smart phone to stream audio, video and GPS coordinates to a human assistant
- The assistant, who is notified by the patient when needed, provides audio to the patient, explaining the surroundings
- \$2,500 per year (10,000 minutes or 167 hours of use)
- <https://www.engadget.com/2017/01/04/aira-blind-smart-glasses-phone-see-real-time/>
- <https://aira.io>



Be My Eyes

- Patient uses a smart phone and relays live video to a human assistant
- Currently iOS only ("coming soon to Android")
- The volunteer assistant provides advice about the image via speech to the patient
- The app is free (assistants are volunteers), the company accepts donations
- <https://vimeo.com/113872517>



Be My Eyes

TapTapSee

- Smart phone app that identifies objects or reads text and identifies what it finds via speech
- Available on iOS or Android
- Uses VoiceOver
- Double tapping on the phone screen initiates identification
- Access is free, again, for now



Aipoly

- Smart phone or iPad app that identifies objects or reads text and identifies what it finds via speech
- Identification is made by a computer algorithm, not a human
- Available on iOS or Android
- Limited access is free, full access is \$4.99 per month
 - Full access offers interpretation of text, money, food, plants and animals, and packaged products
- <http://www.businessinsider.com/aipoly-app-tells-blind-people-surroundings-visually-impaired-languages-identify-objects2017-1>
- www.aipoly.com

