

# Hear the Turtle...electrically!!!

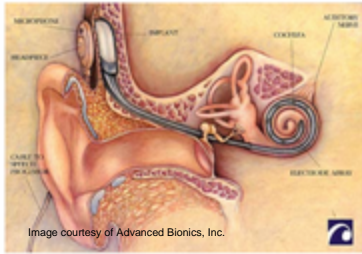
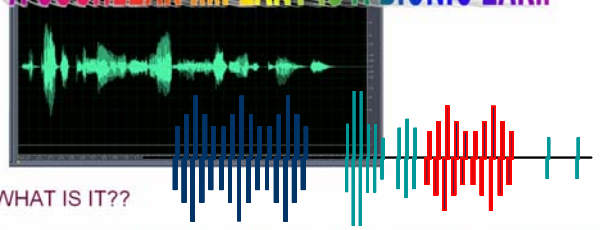


Image courtesy of Advanced Bionics, Inc.

## A COCHLEAR IMPLANT IS A BIONIC EAR!!



WHAT IS IT??

A cochlear implant is a prosthesis which converts sound waves into trains of tiny electrical pulses that stimulate neurons in the inner ear.

## COCHLEAR IMPLANTS AND PSYCHOPHYSICS LAB



Photo Courtesy of Cochlear Limited

DEPARTMENT OF HEARING AND SPEECH SCIENCES  
UNIVERSITY OF MARYLAND, COLLEGE PARK

### Our Goal:

Research in the Cochlear Implants and Psychophysics Lab seeks to understand how the brain processes the signals transmitted by the cochlear implant, and how we can improve on the device.

These devices have been very successful in restoring hearing to hearing-impaired individuals worldwide.

However, they do not restore *normal* hearing. Listening through a cochlear implant can be a little like looking at a degraded visual image:

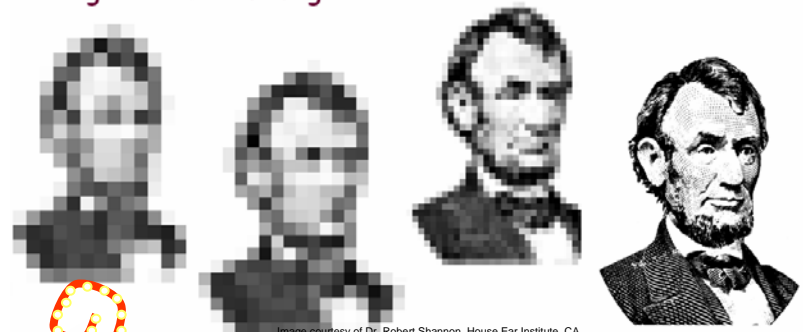
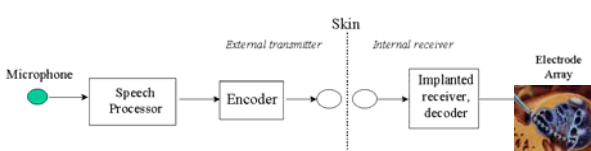


Image courtesy of Dr. Robert Shannon, House Ear Institute, CA.

### PROJECTS ONGOING AT THE CIPLAB:

1. Complex auditory perception and speech perception with cochlear implants
2. The processing of prosody in electric hearing
3. Effects of aging on the perception of frequency-degraded speech
4. What children hear through their cochlear implant



Adapted from "Mimicking the Human Ear" Philip Loizou, *IEEE Signal Processing Magazine*, pages 101-130, September 1998.

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Support our research!! If interested, please contact Dr. Nan Ratner at (301) 405-4217 or at [nratner@hesp.umd.edu](mailto:nratner@hesp.umd.edu)

Participate!! If you have good hearing or use a cochlear implant and would like to help us by participating in our listening experiments, please contact Monita Chatterjee at [mchatterjee@hesp.umd.edu](mailto:mchatterjee@hesp.umd.edu)