Intra-cortical Visual Prosthesis (ICVP) project

An NIH-sponsored clinical trial involving 4 universities, 1 non-profit & 2 companies

Lions Vision Center
Ultra-Low vision Lab:
Gislin Dagnelie
Liancheng Yang
Arathy Kartha
Roksana Sadeghi
Soo Hyun Lee
Anatomy of a Wireless Floating Micro Array (WFMA)

- Chip is 1/3 the size, and 1/3 the thickness, of a dime
- “Floats” on the surface of the brain
- 16 needle electrodes penetrate into the visual cortex
- Electrode tips stimulate cells that used to receive signals from the eye
- Up to 20 WFMAs can be implanted
Compared to retinal implants:

- More people can benefit from cortical implants:
  - Glaucoma
  - Damaged Optic nerve
  - Damaged eye
- Larger area
  - Larger number of electrodes can be implanted
Phosphene Mapping

• We can’t predict where the phosphenes will appear
• Pointing, eye & head tracking help us make a map
What we think they’ll see

• Using the phosphene map to place checkers, or to find your way in a maze
ICVP in action, in a few months?

• The first implantation is planned for February 2021
• Stay tuned!