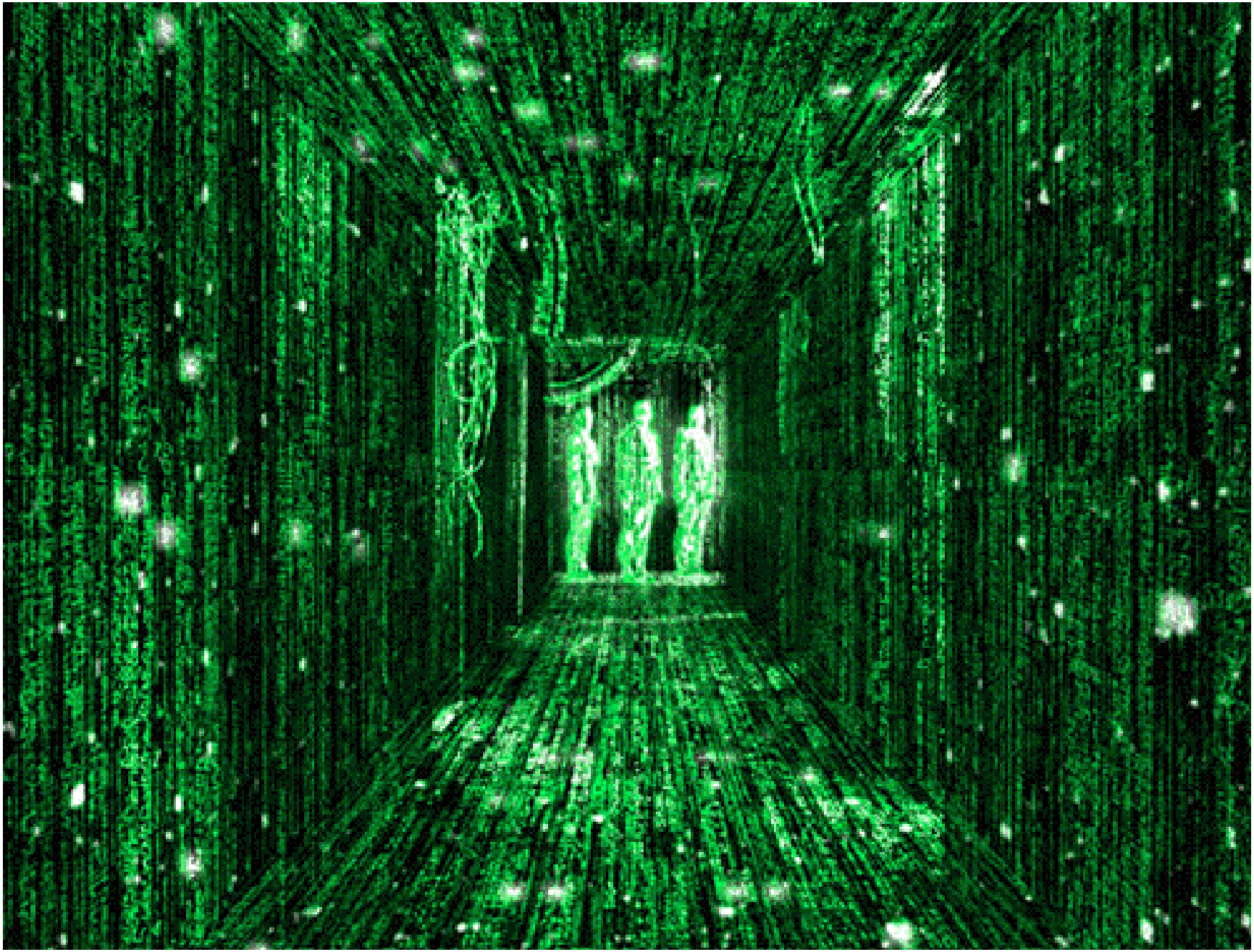
SENG2260 Human-Computer Interaction

Workshop 10

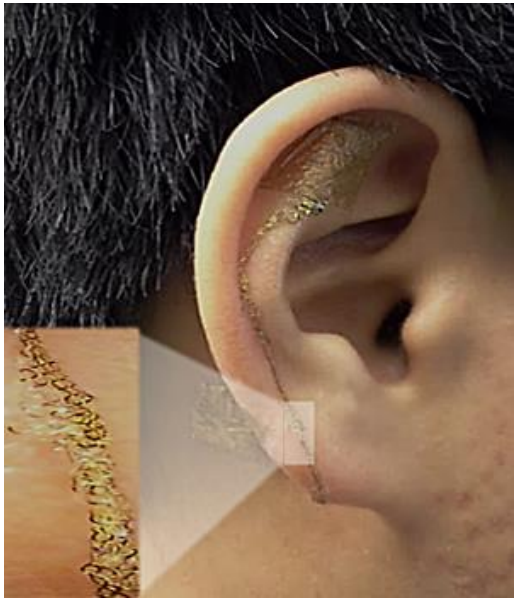
Week 10

SPS



Today

- BCI: Brain Computer Interaction



http://bit.ly/1EuzoYS
Photo: John Rogers/University of Illinois

- Brainwaves. Not Thoughts

- Example COTS tech with the NeuroSky Mindwave interface
  - The NeuroSky platform provides a powerful foundation for developing applications that promote improved focus, concentration, working memory, and mind acuity

NeuroSky MindWave (http://neurosky.com)

- NeuroSky's EEG (Electroencephalogram) biosensor digitizes and amplifies raw analog brain signals

- Video: https://vimeo.com/282886384#t=1m36

- EEG Biosensor
  - Direct connect to dry electrode
  - One EEG channel + Reference + Ground
  - Extremely low-level signal detection
  - Advanced filter with high noise immunity
  - RAW EEG at 512Hz

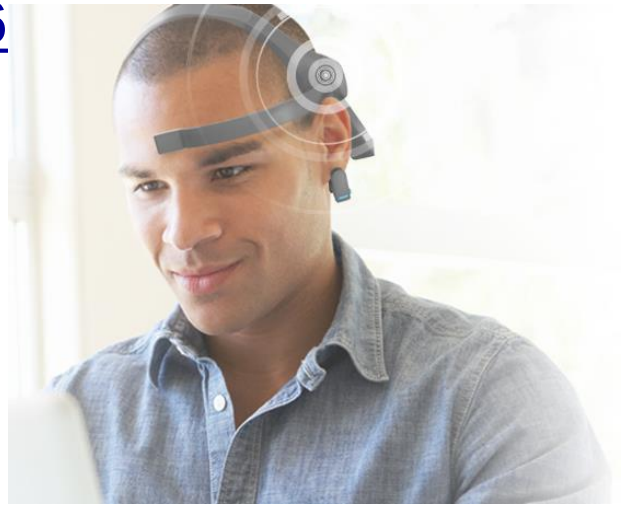


Photo: www.neurosky.com

- eSense Brainwave Patterns
  - RAW EEG Signal
  - Attention & meditation
  - Eye Blink
  - Delta, Theta, low alpha, high alpha, low beta, high beta and gamma waves

Brain-Computer Interaction

- How will BCI change the nature of HCI interaction
- What are BCI issues?
  - Ethical issues?
- Does BCI impact the Gulf of Execution?
- Does BCI impact the Gulf of Evaluation?
- How does BCI impact user interface design?
- How does BCI impact evaluation?

Next workshop

- Week 11 : Ethics and HCI

- You will have reviewed the ACS Code of Ethics
  - https://www.acs.org.au/content/dam/acs/rules-and-regulations/Code-of-Ethics.pdf

- You will have reviewed the IEEE Code of Ethics
  - https://www.ieee.org/about/corporate/governance/p7-8.html