Physical Computing

http://itp.nyu.edu/physcomp/

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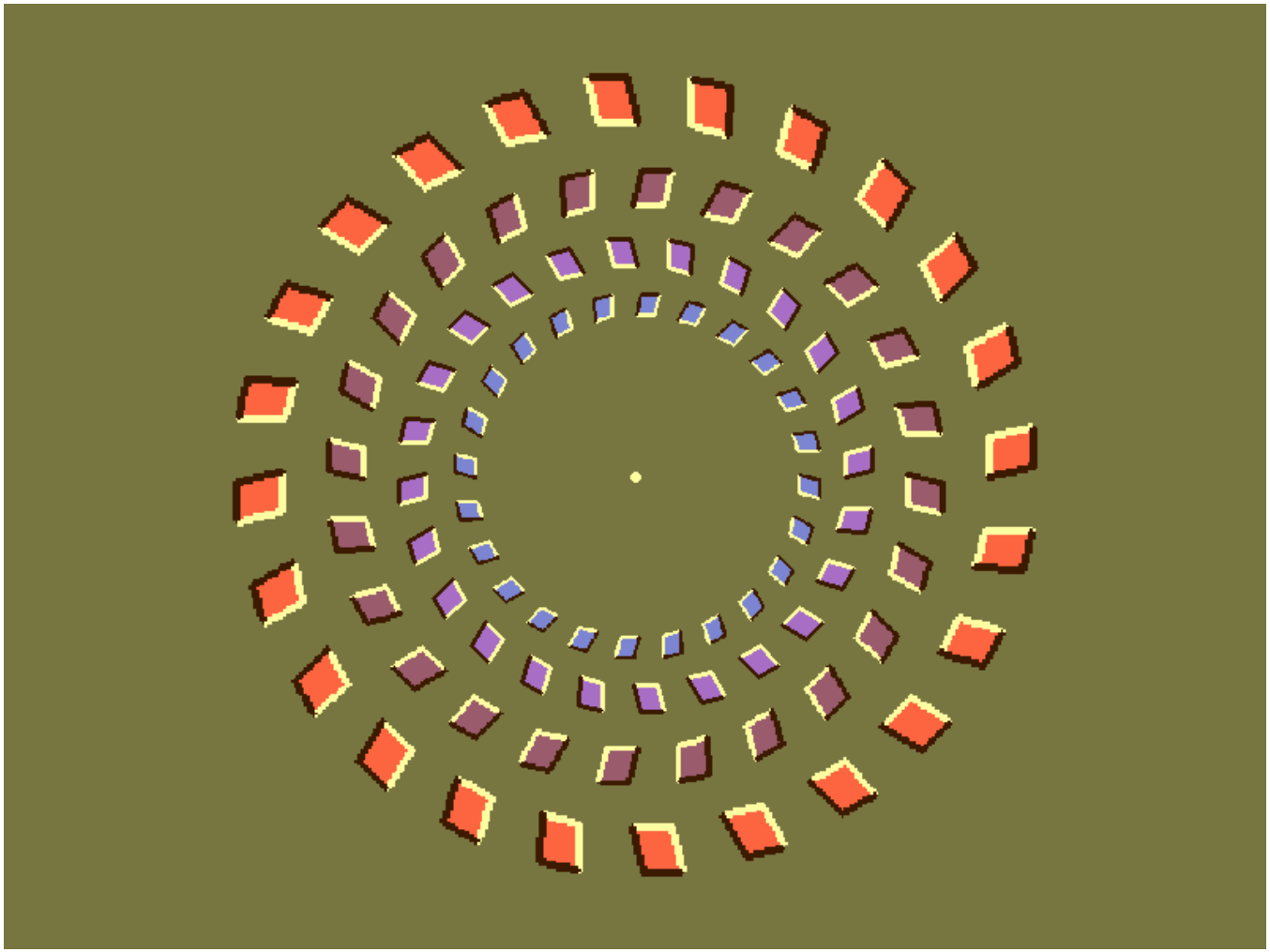
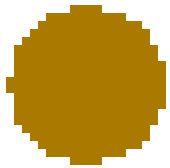
Questions?

motion is constructed

http://itp.nyu.edu/~hs420/constructedmotion.png



movement

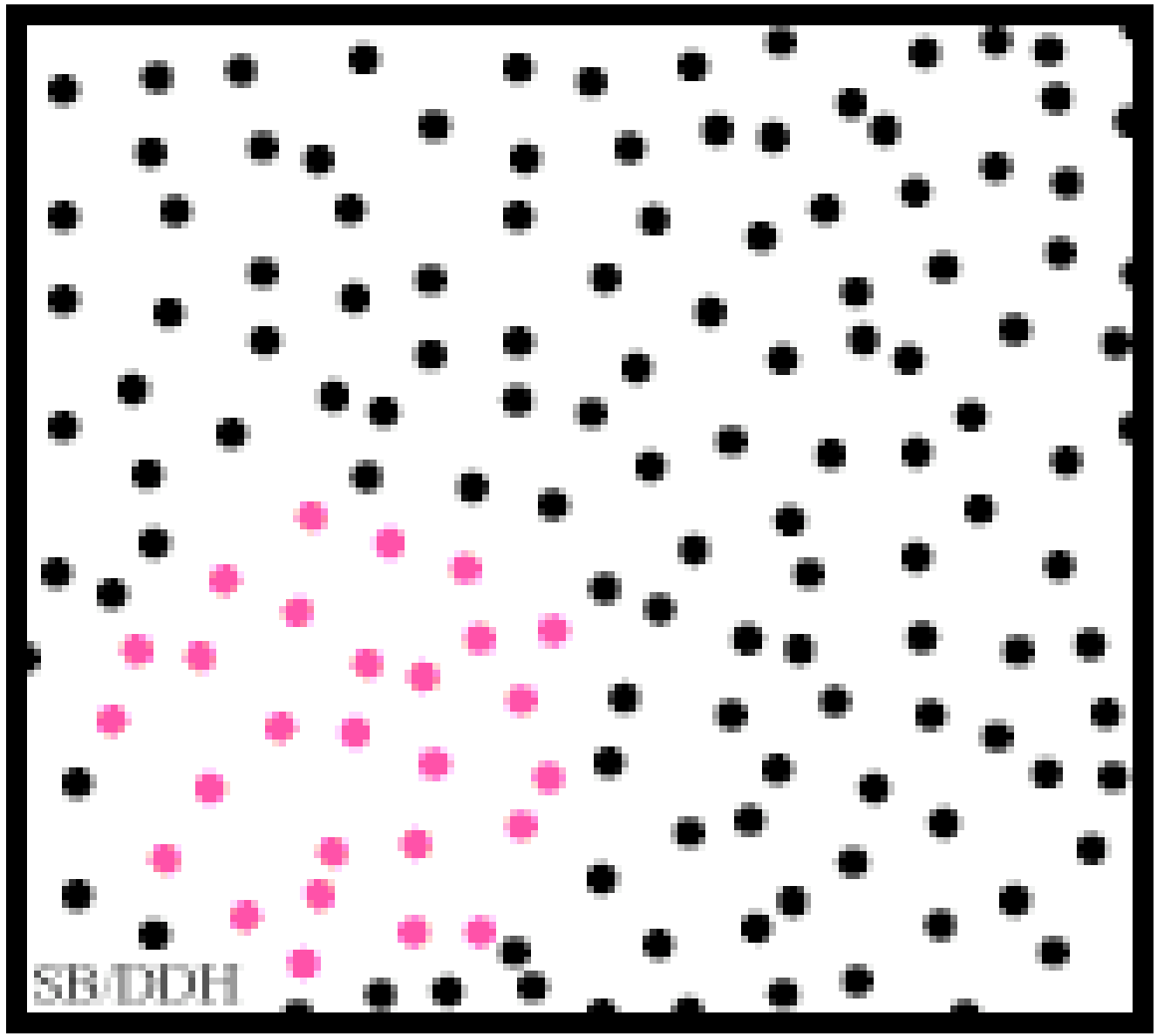


http://www.cogsci.uci.edu/%7Eddhoff/phi2.gif

grouping

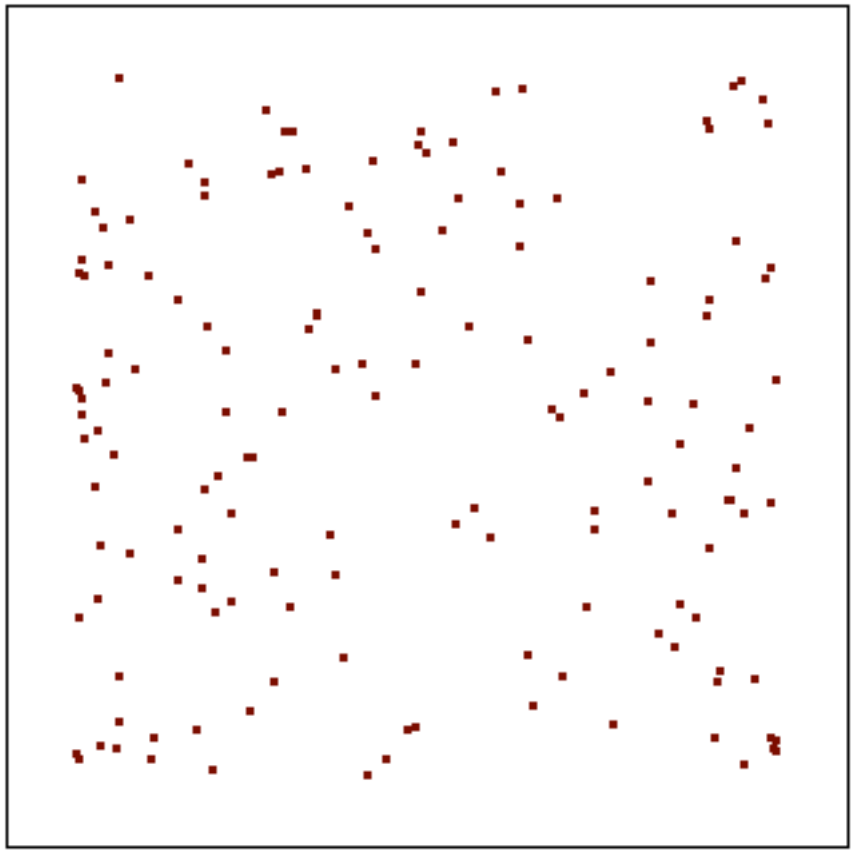
http://www.cogsci.uci.edu/personnel/hoffman/ternus-group.gif

something in the woods...

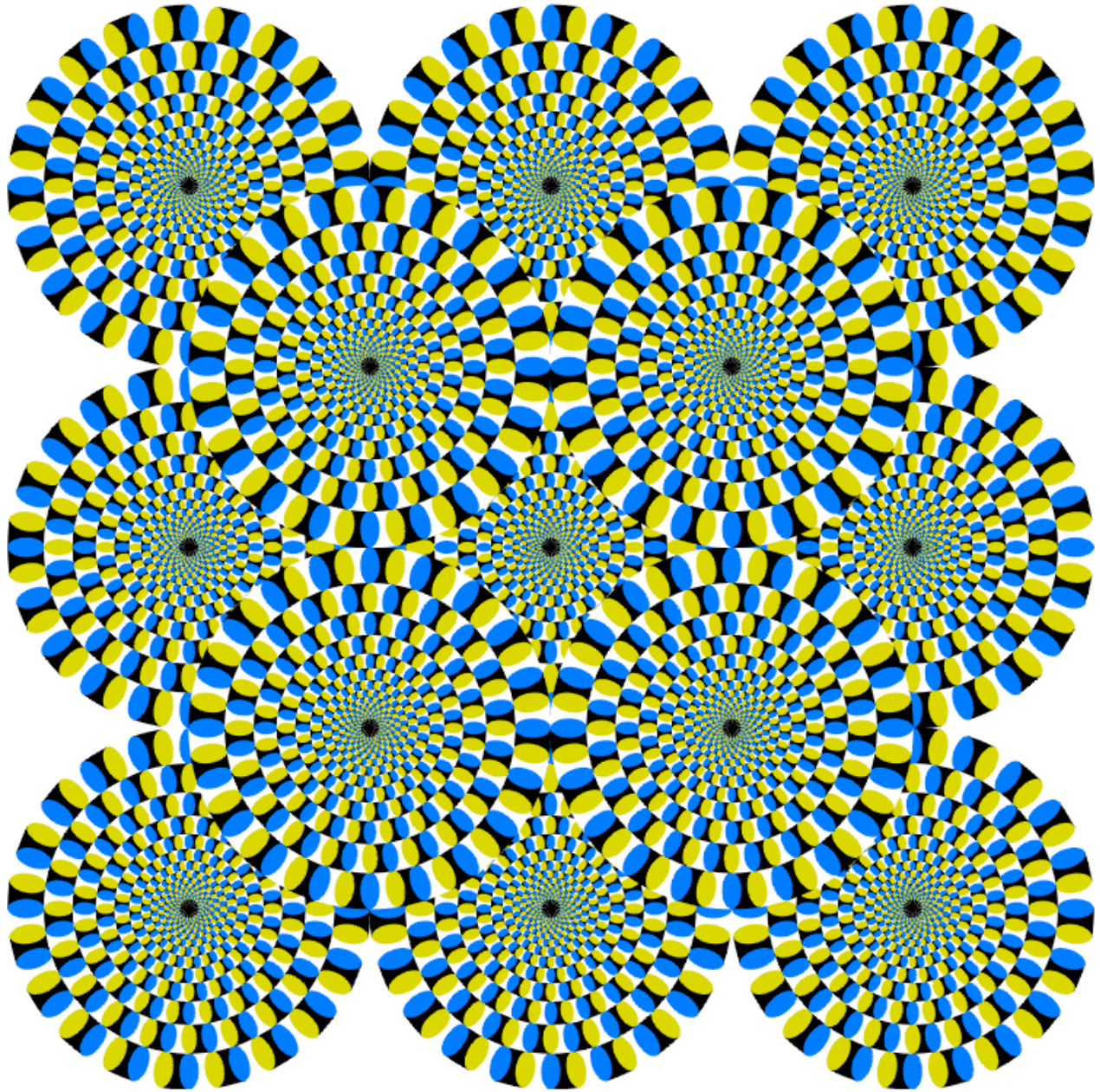


http://www.cogsci.uci.edu/personnel/hoffman/COLORDISK.gif

grouping into shapes



http://www.cogsci.uci.edu/personnel/hoffman/sfm.gif



phantom limbs

Radio Lab: Where Am I?

http://www.wnyc.org/shows/radiolab/episodes/2006/05/05

phantom limbs

Radio Lab: Where Am I?

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learning from strokes

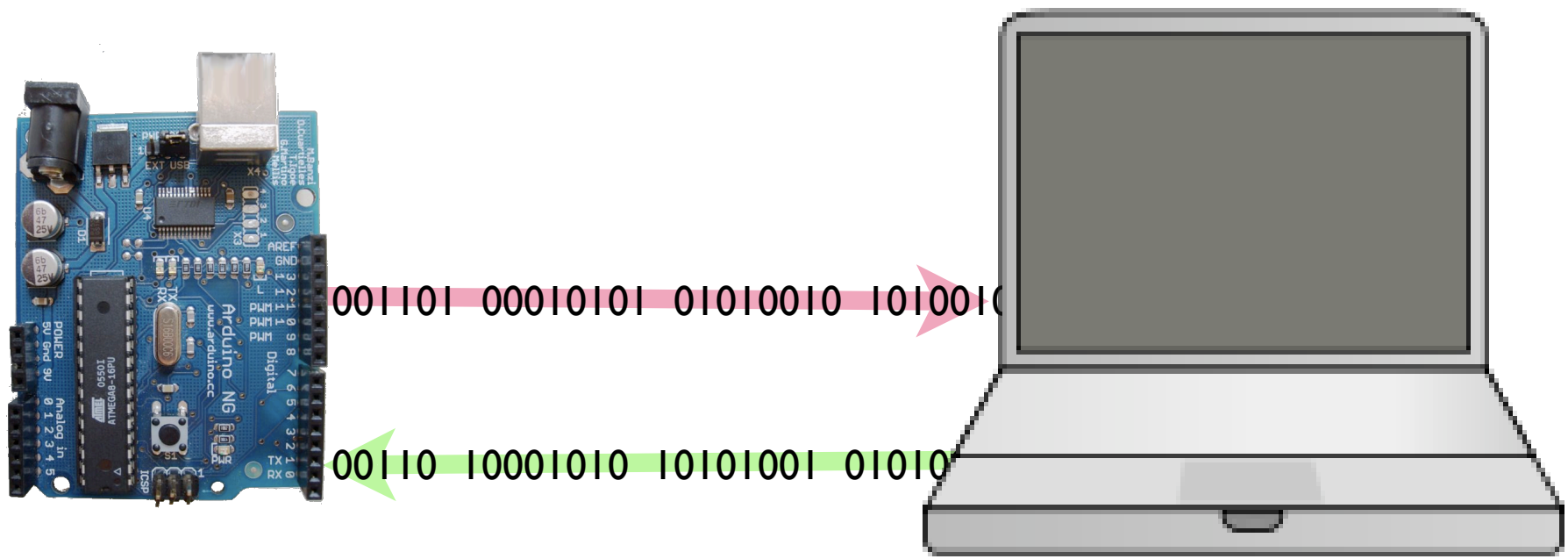
- facial perception
- perception of motion
- proprioception
- many other examples

continuum of cognitive load

sensory → perceptual → cognitive → symbolic → linguistic → semantic

- sensory: color, loudness, touch
- perceptual: motion, loudness, inertia
- cognitive: presence, a voice
- symbolic: letter, icon, earcon, braille
- linguistic: words, intonation of words, music
- semantic: sentences, phrases
- (thanks to Brad Paley)

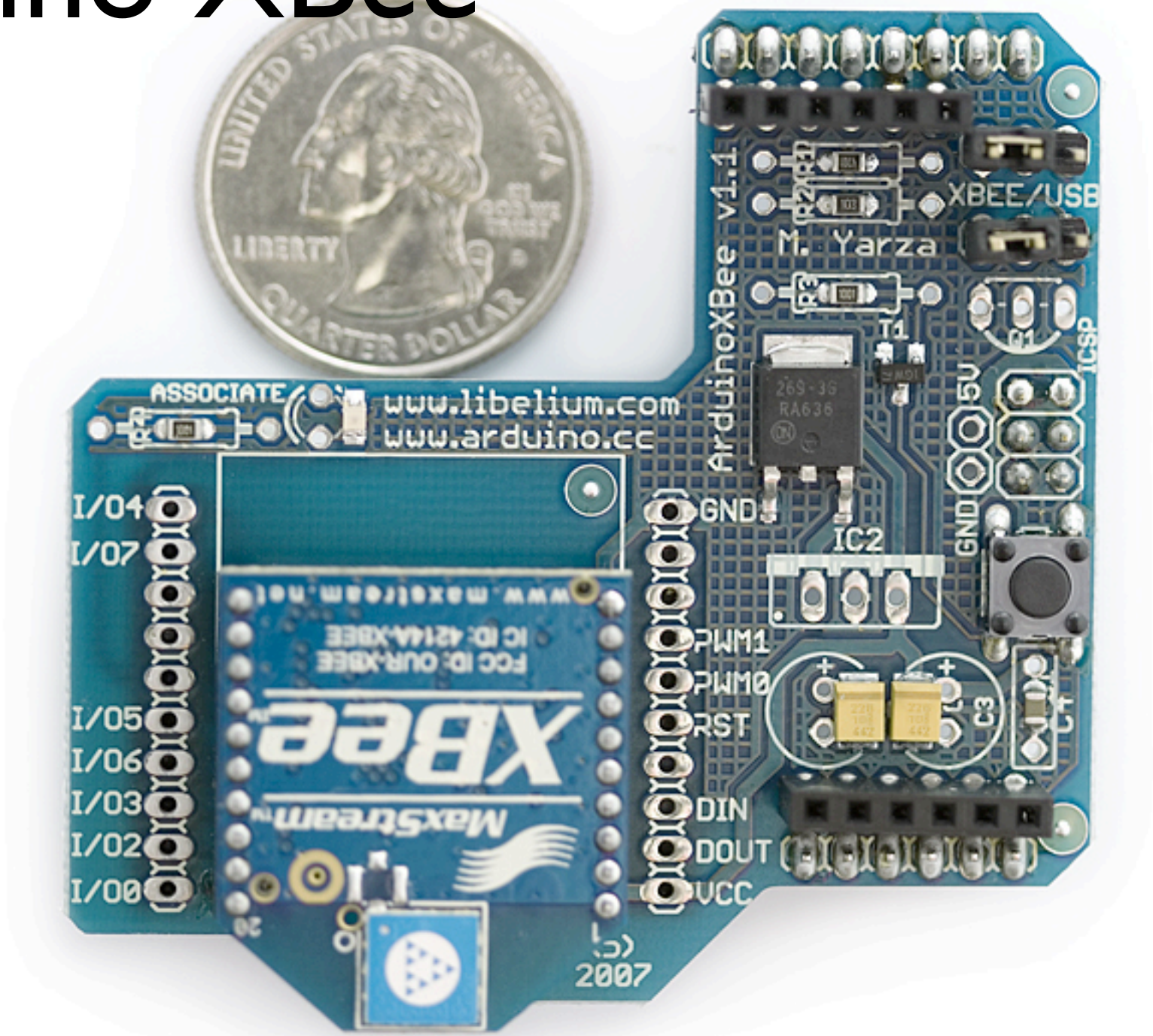
serial communication



http://commons.wikimedia.org/wiki/Image:Arduino_nobg.png

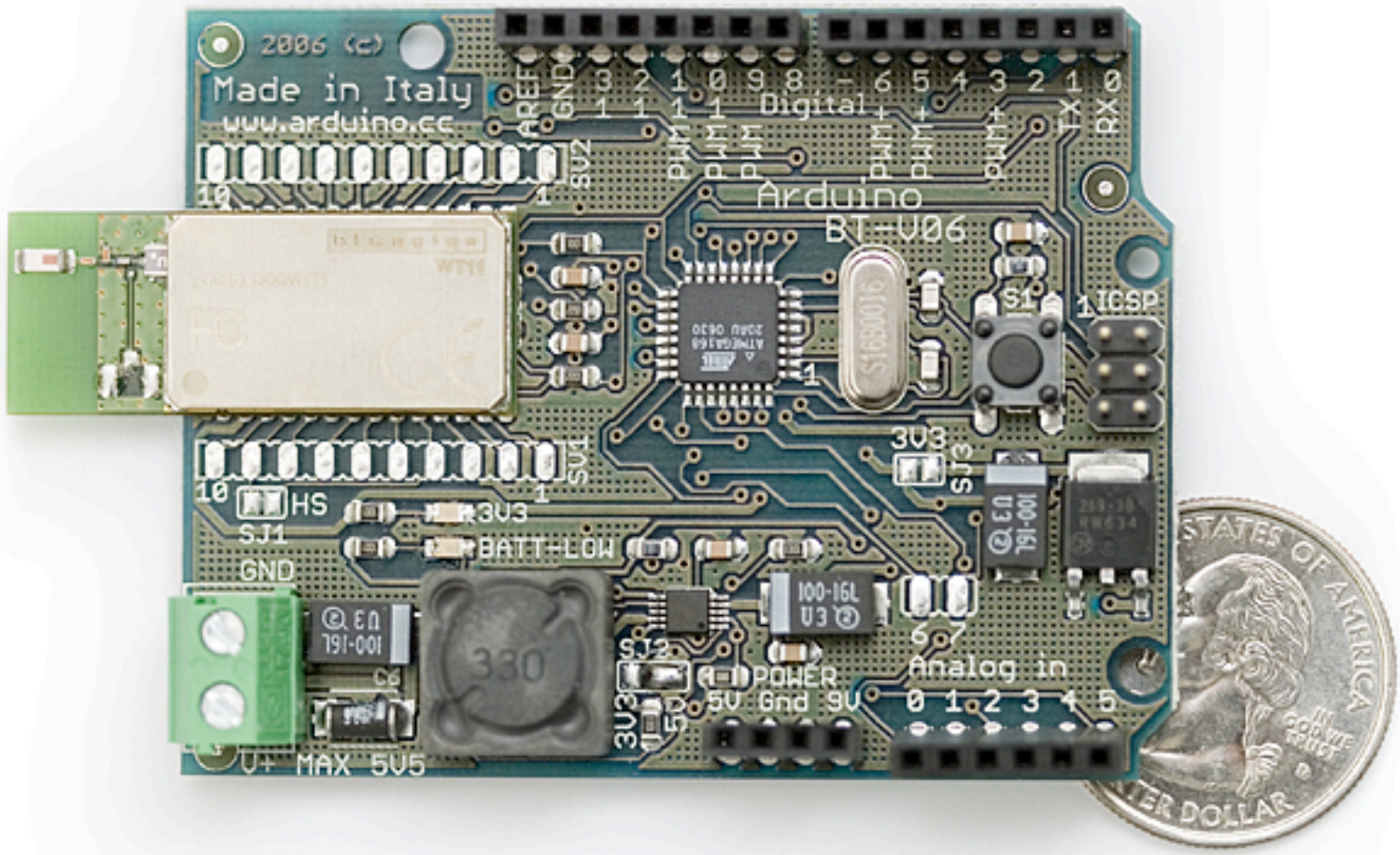
http://commons.wikimedia.org/wiki/Image:Laptop_icon.svg

Arduino XBee



http://www.sparkfun.com/commerce/images/ArduinaXbee-02-L.jpg

Arduino Bluetooth



http://www.sparkfun.com/commerce/images/Arduino-BT-01-L.jpg

MIDI

Musical Instrument Digital Interface

- note on/noteoff
- note numbers (0-127)
- velocity, pitch bend, aftertouch
- byte-based (0-255) serial at 31250 baud
- data: 0-127 commands: 128-255
- two byte and three byte messages

Firmata

- Pd, Processing, Max/MSP, Flash, python, vvvv
- use Arduino in the language of the host
- standard protocol to support many languages

final project

http://itp.nyu.edu/physcomp/Intro/FinalProject

- the same idea as the midterm project
- you can work alone or in groups of up to three
- document each step as you go
- make sketches, prototypes, user tests, etc.
- emphasis on clear interaction and sensing actions
- should generate timely and appropriate responses
- present progress in alternating classes until the end

assignment for next week

- present your observations for final project
- no lab
- no reading
- keep writing in your journals, document your work