Week 3, Spring 2015
Note taking Team: Qinqiu Chen, Amy Chiang, Zisong Chen, Melar Chen (coordinator)

Outline:
Logistics
Candy Design Homework Review
Guest Speaker Edmund Campion: Intro to sound and Human Auditory Perception

Natural Frequency
- The performance is a unique composition of bells (both recorded and real-time)
- Should do them again during Halloween - The light was actually a bit scary.
- They were modulated real-time by the data from UC-Berkeley seismometer near the Hayward fault (close to the stadium I believe), which is fairly close to where we locate.

Name Plate Review
- Used sky as a reference to his name
- Logos added to the plate
- Readability is an issue to one of the name plates that is hollow - User experience is very important in design.

M-Cafe Review
- Class usefulness increases, self-confidence increases
- Comments: get to move around every half-hour or so; Move to another lecture hall-can’t; Team discussion - split up big groups into small discussion size; More examples and case-study;

Design notebook
- Online is okay. Make sure to add pictures.
- Every week, add 1 thing that you liked or didn’t like design-wise (doesn’t have to be in the same category as the good design). Couple sentences of comments will be sufficient.
- design is broadly defined. Entries can be many different things (art, ideas, notes, bad design)
- Notebook design examples: chair design - How harmful chairs are to human body? Inflation balls are actually the best design for human’s spike.

Candy design homework review
- Ice cream candy with cross section picture
- electronic candy dispensing based on stats
• do tasks or answer questions to earn candy
• diagnoses after eating candy- fever/flu. Good because idea is creative, with side benefits
• brainy educational candy - gummy so kids don’t choke; teaches kids about planets
• Send in image/words and machine will give out candy custom to you
• kiss mint
• me&u mints for 2 - kiss to combine flavors
• candy crush - put thumb on it and it senses what you are craving. Then you get the candy that satisfies your craving
• Design candy based on your own identity(customize)
• Submit through Bcourses, but hang on for now.

Try to attend special monday night lectures http://atc.berkeley.edu/

Edmund Campion
• professor at music department, runs center for music and audio technology
• PhD in composition at Columbia, worked at Paris conservatory, has been making major world class music since 90s
• won a very impressive list of honors
• perceptual attachment to sound - music is very personal, also a form of design
  • a lot of us are very deeply attached to the music we listen to, and therefore it is a sensitive and personal subject
• artists have been using sound for decades to propel their work
• music is commonly engine-based music. grid beat pattern
• commercial constrain vs brain constraints (why is music 3 minutes long) impacts design
• sound in current moment is going to be a constant. we will alway be dealing with sound
• general predictability/pattern with some variability → we perceive as “musical”
  • shows data from seismograph as an example; data is consistent and stays in a certain range, oscillates at a non-regular set of frequencies
  • things that are within a field of predictability is what Ed calls musical
  • if it’s too wildly varying it’s too difficult to work with
• Seismic performance - bells make prediction of where it thinks the data is going; there is no score
• western notation is still flexible. its all relative
• notation increases readability
  • In Western sheet music, note = frequency
• what do you get from writing music?
  • readability
  • communication
  • interested in tuning and harmonic aspects
  • it is a very powerful tool
- Tonal pitch space in Western music assume all sounds and instruments have harmonic
  - opera voice vs. bells demonstration
  - when a singer does vibrato, she’s still harmonic, she’s just altering the fundamental frequencies a little bit
- musical space is an invention of the western world
  - in Western music you see a favor for constraint for harmonic space to allow for people to coordinate. It’s Pythagorean and very mathematical and a very different aesthetic from those that use inharmonic spectra (bells, gongs, etc.)
  - total different music practices and design principles
  - if you apply one to another it goes badly
    - Such as playing Western music at campanile. Sounds terrible
    - Inharmonic material
- string instruments produce a harmonic spectra (made of complex frequencies)
  - a lot of it is about physics
- resonance and impulse
  - bells clash because resonances rings through because of the shape of the bell (for example, vs. a flute)
  - Bells aren’t used so much in Western culture because it sounds terrible (inharmonic)
- Songs are an engineered feat! Loudspeaker culture
  - Stereo field, placement of sound, simulation of space
- space and the Beatles
- Pink Floyd – Dark Side of the Moon. Can’t reflect in classic Western music notation
  - spectral space
  - noise
  - inharmonic spectra
  - strings are perfectly harmonic → more structure
- phones – high salience
  - → ringtones need to grab attention and be short
  - looking at the design of these sounds, you start finding that you can classify the morphology:
    - certain durational quality
    - certain repetition
    - high auditory salience
- impulse resonance model
  - what we see/hear is a closed system
  - consists of a very identifiable entity
  - clear quality, pitch, resonance
  - systems that generate musical space
  - connection between simple systems can produce interesting results
  - dealing with all of sound at the same time can also result in disaster if there’s too much data/ can’t organize
- Organizes around human body and human connections with sound ("I like it")
- Video of someone creating his own score, and realizing it physically with oranges, forks, shoes, etc.
  - Music more about the noise than the notes
- Chemical Brother’s Music Video
- Pacman’s “wacka wacka” sound - features rapidly changing frequency
  - Ensembling effect
- Natural frequencies - uncoordinated elements in an ensemble (like pacman)
- Harley Davidson patented the “potato” sound
- Video: impulse resonant
- Video: sound introductions are modified to catch people’s attention (TED talk)
  - Morphology of opening of TED talk:
    - Sound design
    - It’s iconic now
    - Broken down: first brought to attention (salience), then resonance space (openness), then harmonic pitch (focus), fading out, silence, dissipation
  - In 6 seconds we read all the semantics of the sound
- Sound mixer software tutorial
  - Try to make events that have complexity
  - Need to make a body of types that makes a unified body that works. Example: a car is made up of a bunch of parts but it works

Extra Credit
- Create an “On” sound and “off” sound, using the software. In addition to the audio file, add the rationale and what type of device will generate such sounds.

Design the perfect date - 1 piece of paper
- Include the date persona and activity

berkeleybox.com/s/brnlratg5y099ik3rwtle

Videos
Michel Gondry, The Making of Star Guitar: https://www.youtube.com/watch?v=GF0-wGbRqEs
Chemical Brothers Star Guitar: https://www.youtube.com/watch?v=0S43lwBF0uM
Pacman sounds
Sonar—the cool video
Ted Talk Intro: https://www.youtube.com/watch?v=UMMxvmGlkyM