IEOR 170: Week 4 - Alex Reben
Note-takers: Addison Clarke, Ryan Corley, Ethan Chiou, Christopher Chuang, Matthew Chiang
Class date: February 11th, 2015

M-Café ideas:
- Goldberg’s & GSIs own work: will present on their projects
- want more examples/case studies
- concerns about being a ‘good’ designer – there will always be levels, way to compensate is to spend a little more time on the assignments, thinking about the design process
  - just keep trying, it’s a skill – don’t be intimidated!
  - asked for more hands-on experience – we will be doing that!

Guest speaker tonight, robotics
Monday night (Feb. 23rd – 7:30pm)
  - lecture on Art, Tech, & Culture
  - atc.berkeley.edu
  - Why the Natural Frequencies exhibit was relevant
    - expand students’ horizons & experiences

Tonight, Part 1: assignments, reading, design process

READING:
-Ulrich textbook
  - design is multidisciplinary, you can design almost anything!
  - similarities come into play: design process
  - etymology of ‘design
    - Latin root: signum – “mark out” “to make a sign”
  - nice and broad à design is not just two dimensional
  - ‘design’ in other languages: Chinese, Persian (subwords, different categories)
    - English root comes from draw
    - Chinese (设计): lay down a plan
  - German has many different words for design – so do we! Ex: architecture, construction, etc.
    - thinking about what is design
    - definition of design: conceiving and giving form to an artifact that solves problems
      - BUT not necessarily an artifact (Valentine’s Day, etc), not necessarily solving problems
    - imperfect definition maybe let’s not box it in
    - ‘user’ as a ugly, awkward word, but it is used – shorthand
      - relates to discussion of personas
      - talking about recipient using the design aka customer, stakeholder, consumer
- Ulrich CHAPTER 3: DESIGN PROCESS
  - design process as ten steps (think about in relation to your team project)
    [teams can start doing research]
    [note: ‘Ten Steps in the Design Process’ online]
  - aside: team assignment – personas 3-5 well rounded
  - candy aside: researching online, you can track these things
    - within RESEARCH
      - using platforms like Pinterest
    - within BRAINSTORMING
      - you can do HW w/ a group, but tell them
    - within FOCUS
      - use the love triangle à think about it in all of life, for ex. w/ M-Café
    - within TEST USABILITY
      - remember to survey a more broad population
      - for toy project, don’t just ask college students!
  - another design visualization: spiral around grid model, Boehm, Implement-Design-Test-Analysis à iterative process
    - four quadrants (I, II, III, IV) - Design, Implement, Test, Analysis
    - spiral outwards from center

Double Diamond thinking:

The Design process (the one Professor Goldberg uses):
1: Define the problem
   - double diamond model of design (side by side)
   - < Discovery phase | Define> < Develop | Deliver >
   - <Divergent thinking | Convergent thinking> < Divergent | Convergent >
   - ex) Design an alarm clock: How will this be interpreted more broadly? New way to wake up? Getting people on time?
2: Research
   - gather resources, research and information online, or interviews with people similar to
     persona types
   - watch Willa Wonka, go to a candy store, look online

3: Brainstorm
   - don’t pass judgement, BS with anyone
   - patents, objects, pictures, Pinterest (brainstorming w/ pictures)

4: Focus
   - Love Sandwich: one good thing, one criticism, one good thing (apply to everything in
     life!)
     - ex) “I like this aspect of this idea, but
     - Conservative, intermediate, and Radical ways of achieving the goal

5: Re-Evaluate

6: Delegate

7: Prototype
   - paper prototype is fine for this class

8: Test Usability

9: Refine
   - go back to previous steps to reevaluate

10: Present

Homework assignments:
   - Optional Extra Credit assignment: Sound Making Software, make an “on” and “off” sound
   - Could be worth as much as one whole homework
   - For partial extra credit: give advice on how the software could be improved, remember
     the love sandwich!
   - two people shared
     -strumming guitar, going down and up – opening up and shutting down
     -first cell phone, entering the ‘digital world’ when turning on, Jurassic Park
     inspired—lots of digital sounds, and dying down when turning off, railroad inspired
     -can still get extra credit: give Ed some feedback (remember the love sandwich!)
   -from last week: complexity of sound & changing sounds over the years

Valentine’s Day Experience Homework - Discussion
   -Jason: created personas: (1) wheelchair bound woman – the Flash could take her
     around the world, then Spiderman swings her across the city (2) Girl w/o sight – making her
     date that emphasizes all sorts of other sensory things (3) Widowed woman – relive her love
     story with her husband, read a book/watch a movie that chronicles her love story, & spends
     time w/ her children
   -not one correct solution, but looking at the creativity and cleverness
- Sahar: crazy adventures (not ordinary), cheesy tween magazine, absolutely out there adventure
- Akhil: questions that you need to ask about how to design a date à decision tree, an algorithm! Branching idea, not just designing for one persona
- Qian: mini-experience, for little kids w/ crushes, w/ no money
  interesting constraints: kids, finance
- what about personas that are inclusive? YES. BE INCLUSIVE. Valentine’s Experience: can be just one person
- Kenny: dining experience for singles! Get food and wine when you find your Valentine
- Opaque: restaurant in San Francisco, waiters are sight-impaired, pitch black. Cool experience!
  - Goldberg’s comment: when designing personas, be open-minded. Gay personas, alien personas, etc.”

PART II – 6:17 (Speaker: Alexander Reben)
- teams! Hands on!
- Alex – guest lecturer, runs an art design space on Oxford street
- today: make a trustworthy, friendly robot, you would do what it tells you to do how will people have that kind of relationship with technology

Groups had: nanny bots, service dog bots, protective dog robots (Push notifications, companion “Mocha”, “Dogbot”), baby crib robots (“Momo”), alarm clock robot, modular robot to have many personas.

Alex’s Presentation:
- blab droids make their own documentaries
- human-robot symbiosis, how to get people & robots to work together
- problems like stairs, mapping,
- Boxy: cute robot, got people to help it by being adorable (wide set child eyes)
  - based on Baymax (Big Hero 6)
- cardboard as a familiar, trustworthy material, not dangerous
- it would get stuck, flipped over and asked for help
- how far will people go to help the robot? Dance for it, talk to it.
- learning about voice, how to be not creepy
- camera on it, buttons on side of head, boxy, being very cute, big round eyes, child like looks like a seal?
  - had to have an attitude of needing help, asked for people to help it - like freeing it from being stuck in a corner
  - edge detection, hand following, $10
  - brought robots to film festivals, asking questions like
    - if there no laws what would you do?
    - what is the worst thing you ever done anyone?
    - tell me something you’ve never told a stranger before
    - what is the worst thing you have done
- what created the moon?
- if you could give someone any gift, what would it be?
- what do people want children?
- elicits a lot very honest responses, sometimes emotional responses

- So why did people talk to this robot?
Ex. Computer psychologist (Elijah)
-how do we assign agency to things that are artificial?
-shapes moving, why did we make a story for it?
- 1944 study, An Experimental Study in Apparent Behavior, Fritz Heider… Why do we assign agency to the artificial
- shapes moving in a movie

Solar absurdities, by alexander reben
#1 you are my sunshine, powered by sunshine
#2 training the ocean —> pumping the oceans out, metaphorical, people would compare it to their lives
#3 60 Clocks start at the same time —> people would go up and point out different clocks (lazy, rushing, broken/dead)

Game of Life
a live cell which has fewer than two live neighbors dies
A live cell with either two or three live neighbors lives on a life cell…
(a few simple rules give rise to “beings”)

-1944 study “An Experimental Study in Apparent Behavior” – Smith College? People would assign shapes personalities.

-“Art as an Experiment”
-you don’t need anthropomorphisms to create personalities or characteristics in people’s minds

Life & Death (when machines die)
creating a machine that has a life and death
Pulse Machine 2012, has a life span of 78, will die when the timer runs out, has a bass drum that imitates a heart and beats at 60 bps, has an internal battery to tell how much time has passed when not plugged in, “born” in Nashville Tennessee
Alicia Eggert & Alexander Reben
1 of 2 reactions —> negative (life is almost ending), positive (go out and do something
   - reminds people of mortality
   - people going up to inspecting the machine,

-clocks: stopped clocks are “dead”
-simple machines can convey big emotions – anything that interfaces with people will have
emotions projected on to them
-if you want a machine to appear alive, you need to make it appear to have its own thoughts
(even if it doesn’t)
-life and death with machines: making people confront the fact of life and death
-electromechanical structure 'born' in 2012, counting down number of heartbeats until it dies
(w/ average human life of 78 years)
-it didn’t have a face, but it certainly affects people greatly
-even very similar interfaces and design choices and elicit very big connections w/ people
-you don’t need it to be fancy pants
-technology as a lens to study humanity

-sending these robots to hospice care, or to PTSD/autism, or into war zones
-process for coming up with these designs: emotions tend to be pretty universal, using
audience responses as an iterative process
-not wanting the robot to know what the person is saying, because it keeps it childlike and
innocent – found through testing that robot doesn’t need to respond necessarily, the people
kind of hear what they want to hear
-questions of consent and letting people know that they’re being filmed
-logistics: do people steal them? Almost stolen by a child. But normally people don’t just walk
away with them, but there’s always a chance they will taken away.
-uncanny valley?
   -the gray zone, not too humanlike
-material choice: cardboard – nonthreatening, easily crushed
-filmmaking & consumer products àdeveloped for commercial things?
-questions: scripted easy at first, then the last questions become like “what’s the worst thing you’ve ever done to someone?”

**Question & Answer time with Alex**

**Boxy**
- goal for documentary robots is to make them into a cloud system and pre-edit those videos and send them to people of 3 audiences
  1. people who are dying and want to send out their messages
  2. people who are autistic and can’t communicate with people
  3. people out in war-torn countries to document their stories
- in regards to consent: sometimes people wanted to sign forms, but other times the robot just asks and the person will press a green button to proceed = agreement
- all questions are scripted (start simple and comfortable, and then builds to something more intrusive)
- maybe thinking about the robot to be more snarky, etc.
- cloud robots, large scale, in progress
- the magic = non judgmental, childlike
- didn’t want the robot to understand, it doesn’t need to
- the person will hear what they wanted to hear
- production cost: biggest cost is camera sensors
- people knew that they are being filmed
- people really buy into the reaction
- they’ll go around and find people
- people buy into the game that it’s a living thing even though it’s very simple. Some people take it into a corner to talk even if they know it’s being recorded.
- Boxy was almost stolen by a child from the lab, original one had wifi that said “take me back home” when it lost wifi connection
- Design aspect of the cuteness: “the uncanny valley”
  - uncanny valley: more humanlike, more likeable, then goes down before going back up
    (classic example: polar express, eyes were too realistic, creeped people out)
  (disney: makes eyes really huge)
  (can’t make it too human-like — sigmund freud & renaissance roots)
- seem like a baby robot, fulfills those expectations
- wide head, squat body, slightly happy mouth
- small size: you’re in control of the situation (can crush it if you want)
- who do you love most in the world: (NY answers: parents, Amsterdam: self)
  - four women in NY: give sisters more confidence
- one company looking to commercialize it, not sure what application yet though
- 1st voice for boxy = labmate
- 2nd voice for boxy = second year old boy
- has a speech impediment, not perfect, makes the robot endearing
- people make it sound like Elmo
- Programming  be clever: length of question, accelerometer (rough or not)

**Next Week’s ASSIGNMENT:** Design an urban park space (no larger than our classroom), on one page w/ persona.