Notes for IEOR 170 2/18/15
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● If absent email Professor Goldberg

● M-Cafe
  ○ Some Feedback
    ■ better organization of assignments
    ■ more project guidance
    ■ more case studies
      ● consider Boxie!
      ● look up case studies online
    ■ confused about the use of Bcourses vs email
      ● emails that are sent out will now be duplicated on Bcourses
    ■ qualified, insightful lecturers
      ● Hopefully you have liked the ones so far?
    ■ more feedback on the homework (will get feed on homework soon, just a busy time for GSIs and professor)
    ■ more hands-on activities
    ■ What’s on the Final??
      ● we will get a practice final from last semester
      ● more of a focus on qualitative questions based on topics discussed in class rather than quantitative ones
      ● “there isn’t a fixed process for doing design”
      ● test from notes/discussions in class
    ■ exciting lecturers like Alex Ruben

● Lego Design Challenge in groups
  ○ Each group given a color coded set of lego pieces with various shapes and types of legos
○ “The Green Hand”

○ “The Lego Pickup Machine”
● “The Destroyer”

Zoob

- Michael Joaquin Grey (friend of Professor Goldberg)
- [https://www.youtube.com/watch?v=TEX8A6mwvAw](https://www.youtube.com/watch?v=TEX8A6mwvAw)

Key Topics

- Simple pieces join together to form complex structures
- Similar to DNA, very simple yet capable of very complex systems
- Basic patterns create behaviors and these behaviors have social consequences
- Zoob helps to extend our consciousness by interacting with new forms and having empathy of these forms
- Small formal iterations can lead to questioning our responsibility

- Michael’s research on artificial life inspired him
  - Thought of empathy, consequences, responsibility, and social sculpture

Zoob vs Lego

- More movement with Zoob
○ Zoob has 40 joints total, started with 5 joints based on anatomy (plane joints, elbow joints, etc.)
○ Zoob has a very textured audio component
○ Zoob has 5 very simple pieces in comparison to Lego’s large amount (colors, pieces, vowels, etc.)
○ Zoob is based off of biological structures and are very curved (no sharp edges)

● Final Project Discussion
○ Teams are going to design a learning experience
  ■ Start with research
    ● What are your users learning?
    ● What are the elementary school standards?
    ● History of elementary curriculum design
    ● Competitive Survey (i.e. what are companies doing?)
  ■ Start with meeting your team
    ● What are your educational objectives? (Pick 1 or 2 skills/topics)
    ● Begin work on personas

○ Ultimate deliverables
  ■ Make a kickstarter video
  ■ Final project writeup
  ■ More information on the way via emails

● Nicholas de Monchaux: On Spacesuits & Cities
  ○ Yale and Princeton alum
  ○ been teaching since 2006
  ○ writer, historian, and architect
  ○ “Rome Prize” winner
  ○ The New Yorker & Jonathan Ive
    ■ Architects are at the whims of the people vs designing products for people
For better or for worse architecture is SO DIFFERENT than product design

- says space is interesting place to understand how we occupy space (humans require technology to exist in space)
- Bernard Shriver (look him up - link)
- first rockets were modularly designed; components interfered with each other
- systems engineering: set of interacting systems
  - allows for upgrading any individual subsystem with understanding of affect on whole system
  - "system" (for systems engineering) is a difficult word for some to understand
  - "first time multiple systems were interacting with one another and failed"
- Military-Industrial-(Academic) complex farewell address by President Dwight Eisenhower
- Platex company developed first suit design by hand
  - many layers added together
  - given in sizes small, medium, and large
- space suit cross-section shows many layers (Nylon, Teflon, aluminized mylar, beta cloth, etc.)
  - Like a map -> only captures the broader ideology of the suit
- look up operation breakthrough (link)
  - Urban development with NASA technology
  - While the ideology was popular it failed completely in implementation
- design of spacecraft/spacesuit is much simpler than the design of the city
  - Urban situations have so many permutations of problems that we will never be able to fully "solve" urban design
- there will be more urban construction and planning in the next 35 years than in last 10,000 years
no “smart system” will ever be able to match the complexity of the city

“robustness”: to be strong, grow, adapt, comes from work “oak”

Nicholas de Monchaux has the class do a group assignment:
- with our groups, we had to design a city based on a particular description of Venice (from *Invisible Cities*)
- we could only use the front page of the Daily Cal, scissors, glue, newspaper can only be cut in rectangles
- Lesson to learn:
  - cities are a form of life
  - should not make cities more controllable & domestic (this will not work)
  - people who pay for cities are not the ones using them