Best Practices for MOOC Video

Michael Ball, Aatash Parikh, Eric Arvai, Lauren Mock, Dan Garcia

bit.ly/moocvideo

Motivation

- Recorded UC Berkeley's CS10 "Beauty and Joy of Computing" in lecture ala the weatherman

  - Green screen, live recording, lovingly post

  - YouTube: http://tinyurl.com/BJCvideos

- Also have "TA does the lab" Khan-style videos

Detail Removal (in CS10)

- You'll want to write a project to **simulate a real-world situation**, or play a game, or ...
- Abstraction is the idea that yo[focus **on the essence**]he cleanest [w]ay to [m]ap the [r]eal world to you can build
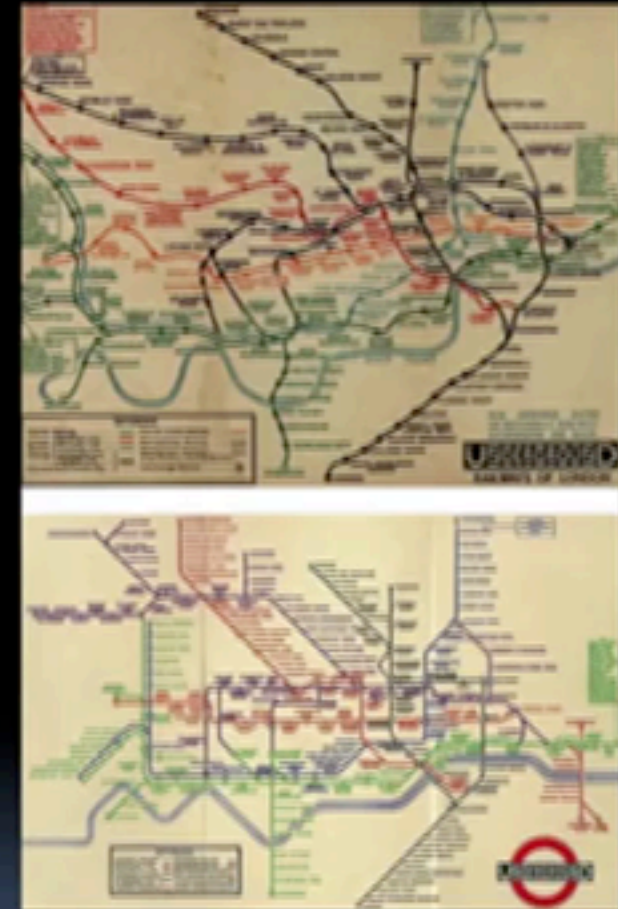
The London Underground 1928 Map & the 1933 map by Harry Beck.

Garcia
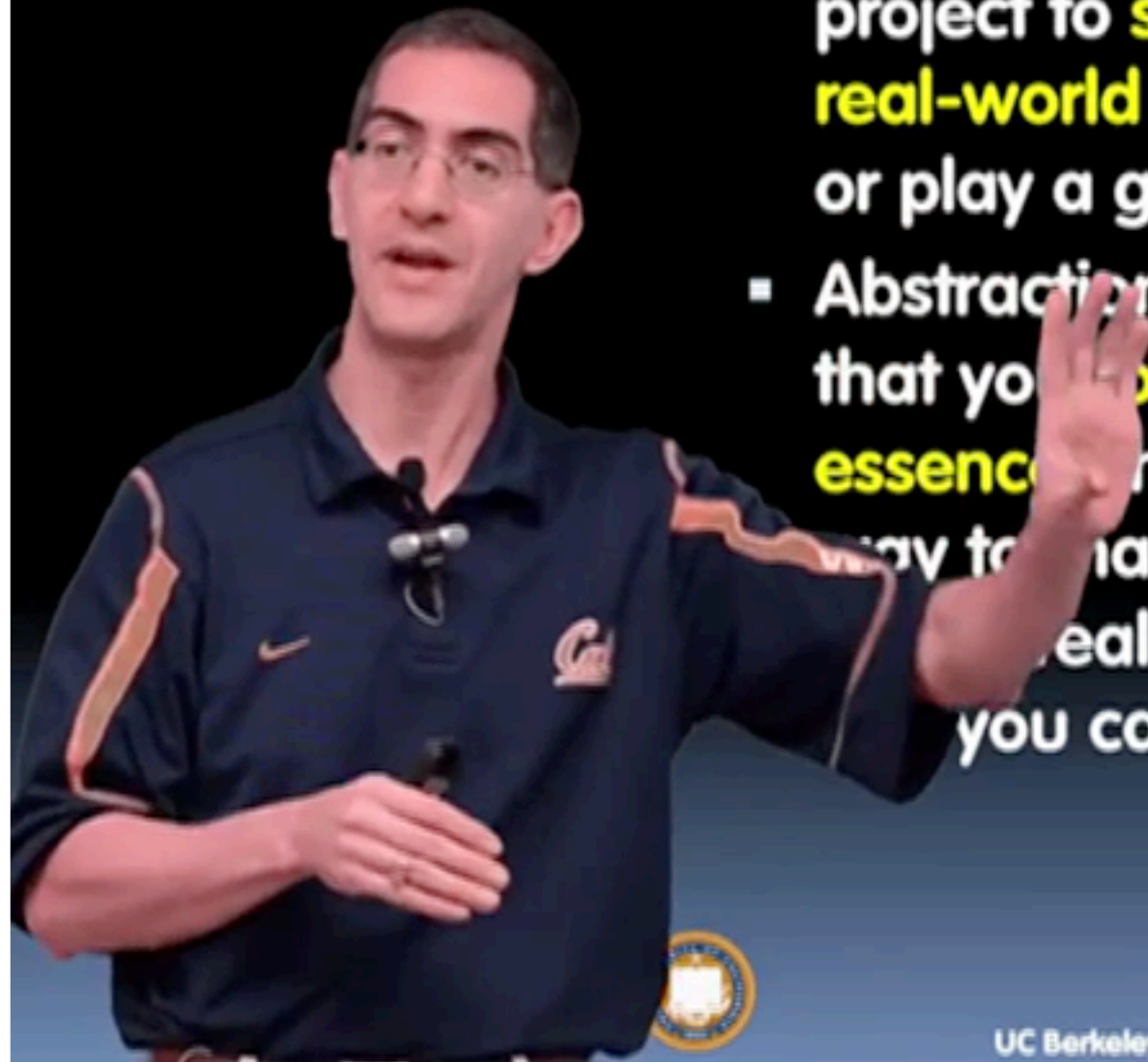
Instructor viewpoint

- Lectures already broken up using clickers into segments, but could have done more "pre"

  - In-class had to wait until gaps to answer Qs

- Couldn't move feet, that was hard for many

- Helped that I had a team of undergrads to help with the shlepping and setup

- Helped that I had an amazing undergrad to do post-production to remove green screen

What we've learned…

- Live model as opposed to studio model preserves classroom energy

- Green screen gives a larger view of presenter and utilizes the whole frame

- Lack of pre-production multiplied post production time by 10

- Today's setup

Best Practices

Pre-Production

- Work with instructional designers or video producer to segment course content

- PLAN AND TEST YOUR SETUP

- … Then test again!

- Make sure EVERYONE (including the presenter) is aware of the setup

Production

- Have a channel of communication (hand signals!) between presenter and videographer

- Ensure redundant recording of video / screen where possible

- *Example: Berkeley's Tricaster system*

DEMO: Best Practices for MOOC Video

Michael Ball, Aatash Parikh, Eric Arvai and Dan Garcia

Electrical Engineering & Computer Sciences
University of California, Berkeley

Option 1: Live Lecture

+ Time saver for lecturer (they don't have to record twice)
+ Ability to capture energy of lecture
+ Lecturer receives feedback from live students
+ Doesn't require additional recording location (like a studio)
− Online students aren't being directly engaged by lecturer
− Generally requires lecture hall to be well lit, and be adequately equipped for live lecture recording
− Puts additional pressure on lecturer to not make any "mistakes"
− Student questions, which generally enhance the live lecture experience, require additional strain on production crew to record, subtitle video, or requires the lecturer to re-state the question for the recording

UC Berkeley 540 CORY HALL - A/V Signal Flow Diagram

$$$$$

Hardware: NewTek Tricaster, Canon C300 (x2), SDI cables, XLR cables, Countryman Lav Mic, Zoom H4N, Ikan Teleprompter

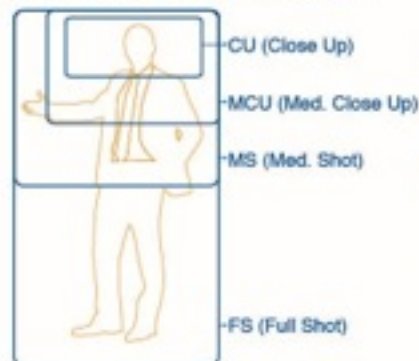**Software:** Adobe Premiere, Adobe Media Encoder, Final Cut Pro, Avid Media Composer

$

Hardware: Laptop, HD Video Camera or Built in Cam, HDMI Cables, XLR cables, Sennheiser Lav Mic

Software: Camtasia, Quicktime Screen Capture

Video / Audio Best Practices

CAMERA BASICS

- CU (Close Up)
- MCU (Med. Close Up)
- MS (Med. Shot)
- FS (Full Shot)

Composition
. MS to CU is preferred depending on setup

Focus
· Simple Focus Technique:
  Zoom in to Subject, Focus, Zoom out

Exposure
· Controlled by aperture or iris, measured in f-stop's (f1.4 - f11)
· Zebra stripes set to 70% indicate highlights (or 70% white pixels)
· They should cover ~10-30% of the frame

LIGHTING: "Quality vs. Quantity"

· Quality of shadow edges is either hard or soft
· Soft edges are generally preferred for non-dramatic material
· Diffuse or bounce light to soften shadow edges using a bounce card, flexfill, diffusion gel, or silk
· Quantity of light can be changed by changing the distance of the light to the subject or changing the output (or Luma) of the light
· Adjusting exposure can also affect the amount of light hitting the sensor

SOUND: "Microphones"

Shotgun Mic's are directional, can be placed further from subject, and are commonly found on a movie set. Shotgun is a condenser type which requires phantom power (+48v). A boom or stand is highly recommended.

Wireless Mic's (also condenser type) give close proximity to subject without use of a stand or boom. They require batteries and syncing transmitter to receiver.

Dynamic Mic's are durable, generally cheaper, require no additional power, can handle high sound pressure levels, are commonly found on a music stage. These mic's generate low voltages relative to other mic's and generally require a pre-amplifier to boost the signal prior to reaching the recording destination. A mic stand is highly recommended.

XLR cables are commonly used to connect Mic's to Recording destinations: camera input, portable recorder, or directly to computer (requires conversion)

Option 2: In Studio

+ Online Students are being directly engaged
+ More controllable production environment
  Ability to isolate unwanted sound / noise
  Ability to light appropriately
  Ability to compose an unobstructed shot
+ Relieves pressure of live performance because any mistakes can be edited in post production
− Requires lecturer to invest additional time performing the material twice
− Requires the lecturer to "act" as the camera doesn't emote like a room full of engaged students

$$$$

Hardware: Computer, Green Screen, Canon 5D Mark iii, SDI & XLR cables, Schoepps CMIT 5U Mic, Ikan Teleprompter

Software: Adobe Premiere, Adobe Media Encoder, Final Cut Pro, Camtasia

$$

Hardware: Laptop, HD Video Camera or Built in Cam, HDMI Cables, XLR cables, Sennheiser Lav Mic, iPad Teleprompter

Software: Camtasia, Quicktime Screen Capture

http://bit.ly/moocvideo

Thank You!
Questions?

Bonus Slides

Things we didn't have time to present, but are probably useful.

Caution: These may be a bit disorganized.

Video Matters

- First major interaction with course content

- Main method of content delivery

- Must be clear, understandable

- Quality important, but they don't expect Hollywood

- Know when something is "Good Enough"

Post-Production

- Live editing vs Post Editing

- Video post production

  - Concise segments <10min

  - Color correction

- Audio post production

  - Noise reduction

  - Dialog replacement

Questions (to Answer)

- What type of materials are you presenting?

- Do you know how this video will be used?

- What's your budget?

- How many hours of video do you need?

- Is there time for setup? Editing?

Lecture Capture

- <u>Uncontrolled Environment</u>

- Lighting & Sound Considerations

  - Low-light scenario

  - Wireless lav mic scenario

- Record & project the screen simultaneously

- Record lecturer

- Redundant recording systems

Studio Capture

- <u>Controlled Environment</u>

- Record screen and lecturer

- Lighting & Sound Considerations

  - Studio Lighting

  - Shotgun mic scenario

Basic Hardware

Simple 1-shot setup:

- 1 Camera (Could be DSLR)

- 1 Microphone (Wireless Lav's recommended)

- Tripod

- Extra Memory Cards and batteries

Software

- iMovie is perfectly fine for rough cuts. (Free)

- Adobe Premier (Elements $99 or Pro, $50/mo)

- Final Cut Pro X ($299)

- Apple Motion 5 (for templates, graphics, $49)

- Adobe AfterEffects (Green Screen, etc, $50/mo).

- PixelConduit (Live Production, $0, $120 add-ons)

Green Screen

- Allows "better" Picture-in-Picture style presentations with a larger talking-head (or full body)

- Add-on to traditional capture

- Start by simply placing a green screen behind the presenter and edit in post-production as necessary.

- Live Solutions Exist (like for our demo)

Budget Differences

- Money increases quality marginally in most cases.

- The big savings come from time

  - Save time editing, have redundancy with backups, and ways of recovering from errors

- Build systems which are modular — that allow you to upgrade as necessary

- Money is better spent on audio than video

- Two cameras can be used for different angles

  - Clean way to cover-up / fix mistakes in live recording

Low Budget (~ $2k)

- Compact Video Camera (Canon HF G10)

- Rode Shotgun Microphone

- Shure Lav Microphone

- Zoom H4n or Tascam DR-40 recorder

  - Can also be used to directly record laptop sound

- Tripod (hopefully with Fluid Head)

- QuickTime for screen recording and iMovie for editing

High Budget (~ $6k+)

- Canon 5D Mark III (Blackmagic Cinema Camera) + 200mm F/2.8 Lens

  - Optionally, a 2nd camera for cutting to a different view

- Shure Wireless Lav Microphone

- Zoom H4n (or H6, or Sound Devices 722)

- Larger / Sturdier Tripod and Fluid Head

- Blackmagic Recorder for live capture

  - Can be Thunderbolt/USB3 or a separate SSD recorder

- Additional Lights, Green Screen, or mobile cart setup for flexibility

- BIG Budget: NewTek Tricaster to do everything for you live! ($8K - $25K alone)

- Final Cut Pro X or Adobe Premier Pro