Producing Video Tutorials With Open Source Tools

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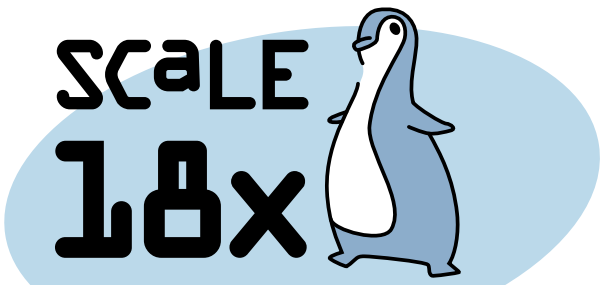

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Outline

Motivation

- I've been teaching about 1.5 years
  - University of St. Thomas (St. Paul) Grad Programs in Software
- Before that, software industry here in Southern California
- I needed to learn how to record my lectures
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- Share experiences about making video tutorials and lectures
- Two-way sharing of experiences is ideal: please share your experiences as well

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Overview

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Recording a Lecture

- A normal classroom experience but it's recorded
  - Students can consume lectures remotely if they are sick or travelling
  - Students can rewatch difficult material
  - Beneficial for English-as-a-Second-Language (ESL) students
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Video Tutorial

- Video tutorials illustrate a skill using video instead of text
  - Our scenario: the tutorial is about using some software so the base case is screen capture + voice
  - I'll be using this case as an example:
    - Example video posted on YouTube, how to make Prezi animation
    - Sort is a way to make animated presentation, part of the overview of my presentation

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Inspiration: Citizen Journalism

- Public citizens play the roll of traditional, professional journalists
  - E.g. Arab Spring, Japan Tsunami, Ferguson unrest, Occupy Wall Street, Haiti Earthquake, etc.
  - Often relies on open source tools, new media platforms, and mobile phones
  - USC Annenberg project: a smart phone app that guides the user to record specific shots, in order to foster the creation of higher quality video content

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- Video screen capture is a recording of the screen and usually includes audio narration
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  - Especially useful for teaching software that has GUIs (graphical user interfaces)
  - Also useful for filing bug reports
- By default, screencasts are real-time, but after-the-fact editing can be useful

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  - Adding other footage to make it more interesting
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Video Editing

- Video editing involves cutting, arranging, and other transformations of video shots
- Editing is a big aspect of storytelling using video
  - Difference between plot and story
- Editing video tutorials can make your videos shorter

Open Question

How much value is added from editing and adding other footage besides screen+audio?

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B-Roll

- "B-Roll" refers to supplementary or alternative footage
  - The main footage is called "A-Roll"
  - Our case: the screen recording is the A-Roll
- B-Roll can be other video or still images

- Helps establish context and adds dramatic support
- Helps prevent jump cuts, i.e. two shots that are very similar that are edited to be temporally adjacent

Tip

Collect B-roll footage. B-roll footage can give context and depth to the video and it can break up jump cuts.

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  - Like software design patterns for cinema and television
- The "5-Shot Sequence" is a formulaic sequence in journalism composed of the following 5 shots
  1. A close-up of the hands
  2. A close-up of the face
  3. A wide shot of the environment with the subject in it
  4. An over-the-shoulder shot showing the action from the subject's perspective
  5. A creative shot to capture an unusual perspective or something else the viewer should know
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- It's easier to synchronize video using audio
  - Audio sampling rate >> video sampling rate, so there is more resolution to work with
- A clap (impulse noise) can be used to mark the synchronization point

Tip

Two claps can be used to mark an error that you want to edit out

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Room Tone

- If you record in different acoustic settings, the difference background noise creates noticeable changes when editing
  - E.g., heating/ventilation, traffic, lights/eletrical
  - This gives the video an unpleasant, amateurish feel
  - Especially noticeable when going from ambient recording to complete silence

Tip:

Record 30 seconds of "room tone" to smooth out audio during silences.

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Effort Estimation

- Effort estimation for video production seems to be similar to software engineering, i.e., it's difficult to estimate

Tip:

Though it is difficult to estimate the time required to edit video, the effort required roughly increases with the ratio of input footage to output footage.

  - Setting things up and rehearsing or having a script is much easier than trying to edit multiple takes

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Outline

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Clapper


PROD.
ROLL
A
SCENE
2
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1
DIRECTOR:
Abe
CAMERA:
DATE:
Day.Night Int Ext Mos
Filter
Sync

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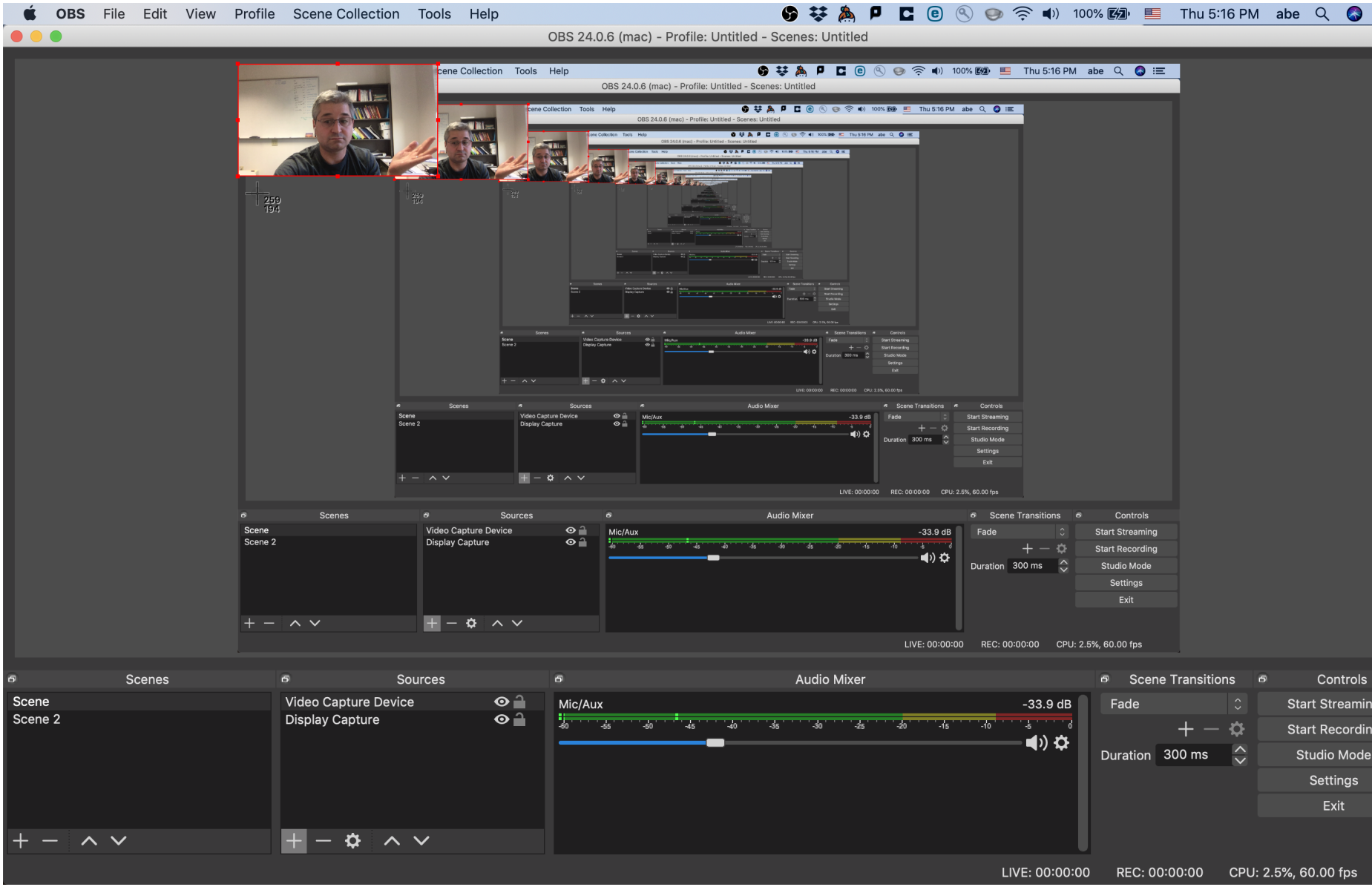
OBS File Edit View Profile Scene Collection Tools Help
Thu 5:16 PM abe
OBS 24.0.6 (mac) - Profile: Untitled - Scenes: Untitled
Scenes
Scene
Scene 2
Sources
Video Capture Device
Display Capture
Audio Mixer
Mic/Aux
-33.9 dB
Scene Transitions
Fade
Duration 300 ms
Controls
Start Streaming
Start Recording
Studio Mode
Settings
Exit
LIVE: 00:00:00
REC: 00:00:00
CPU: 2.5%, 60.00 fps

OBS Studio

- Open Broadcaster Software (OBS) Studio is an open source screen capture software
  - Has options for both screen capture and streaming (live screencast)
  - Sponsored by Twitch, among others
- Outputs a video file (mkv-format) or streams to a server
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To record mouse movements, use whole screen capture instead of individual window capture.

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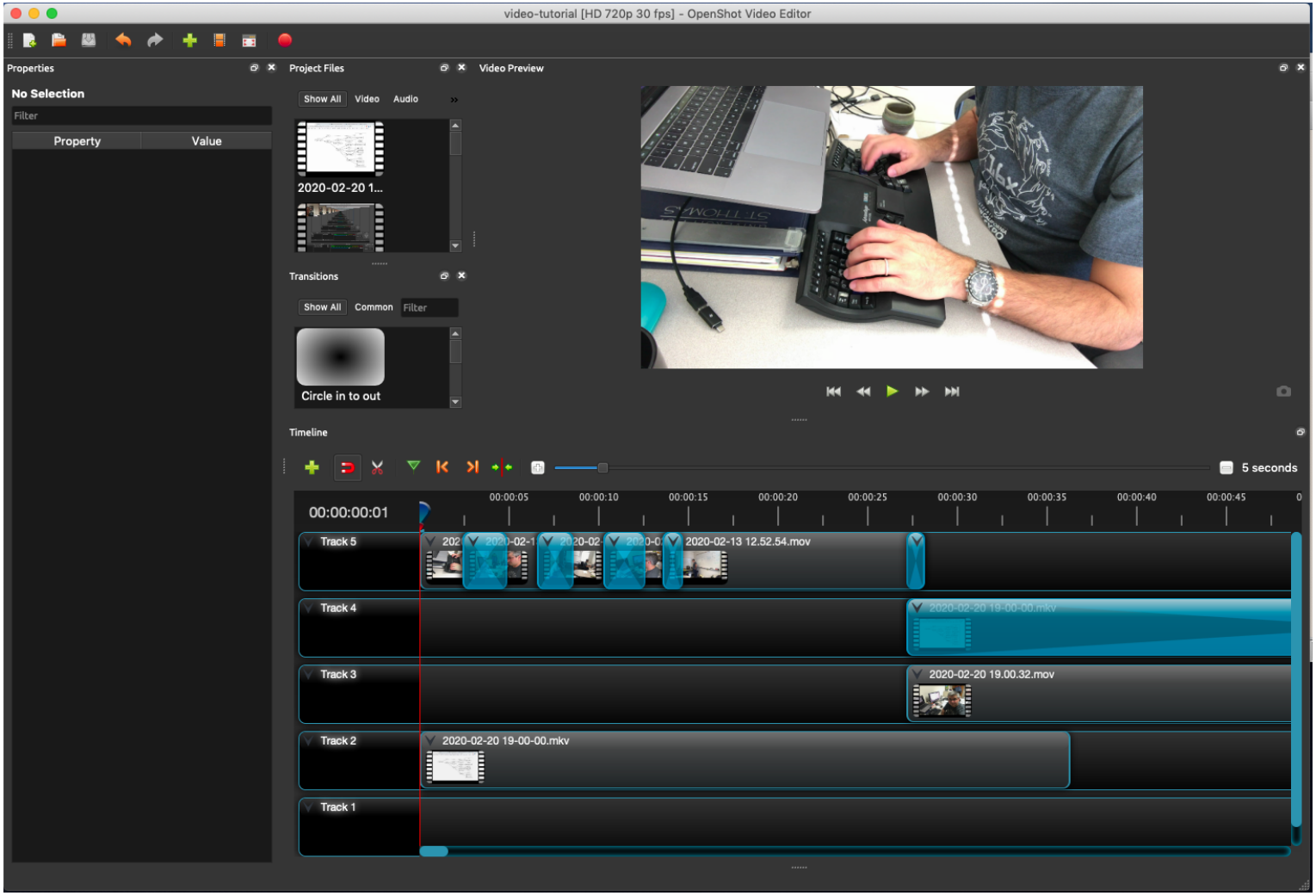
video-tutorial [HD 720p 30 fps] - OpenShot Video Editor
Properties
No Selection
Filter
Property
Value
Project Files
Show All
Video
Audio
2020-02-20 1...
Transitions
Show All
Common
Filter
Circle in to out
Video Preview
Timeline
5 seconds
00:00:00:01
00:00:05
00:00:10
00:00:15
00:00:20
00:00:25
00:00:30
00:00:35
00:00:40
00:00:45
Track 5
2020-02-13 12.52.54.mov
Track 4
2020-02-20 19-00-00.mkv
Track 3
2020-02-20 19.00.32.mov
Track 2
2020-02-20 19-00-00.mkv
Track 1

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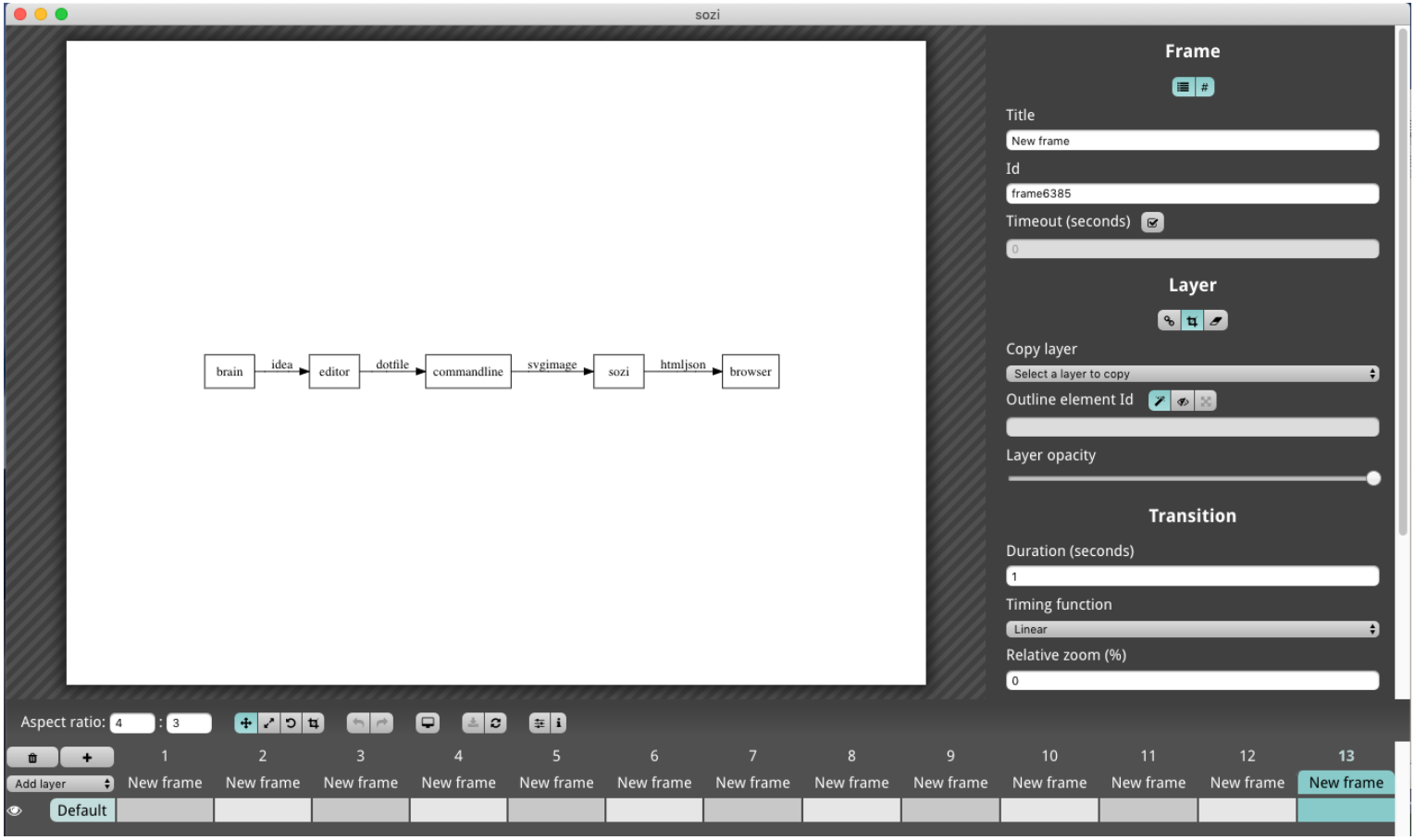
sozi
brain
idea
editor
dotfile
commandline
svgimage
sozi
htmljson
browser
Frame
Title
New frame
Id
frame6385
Timeout (seconds)
0
Layer
Copy layer
Select a layer to copy
Outline element Id
Layer opacity
Transition
Duration (seconds)
1
Timing function
Linear
Relative zoom (%)
0
Aspect ratio: 4 : 3
1 2 3 4 5 6 7 8 9 10 11 12 13
Add layer
New frame
Default

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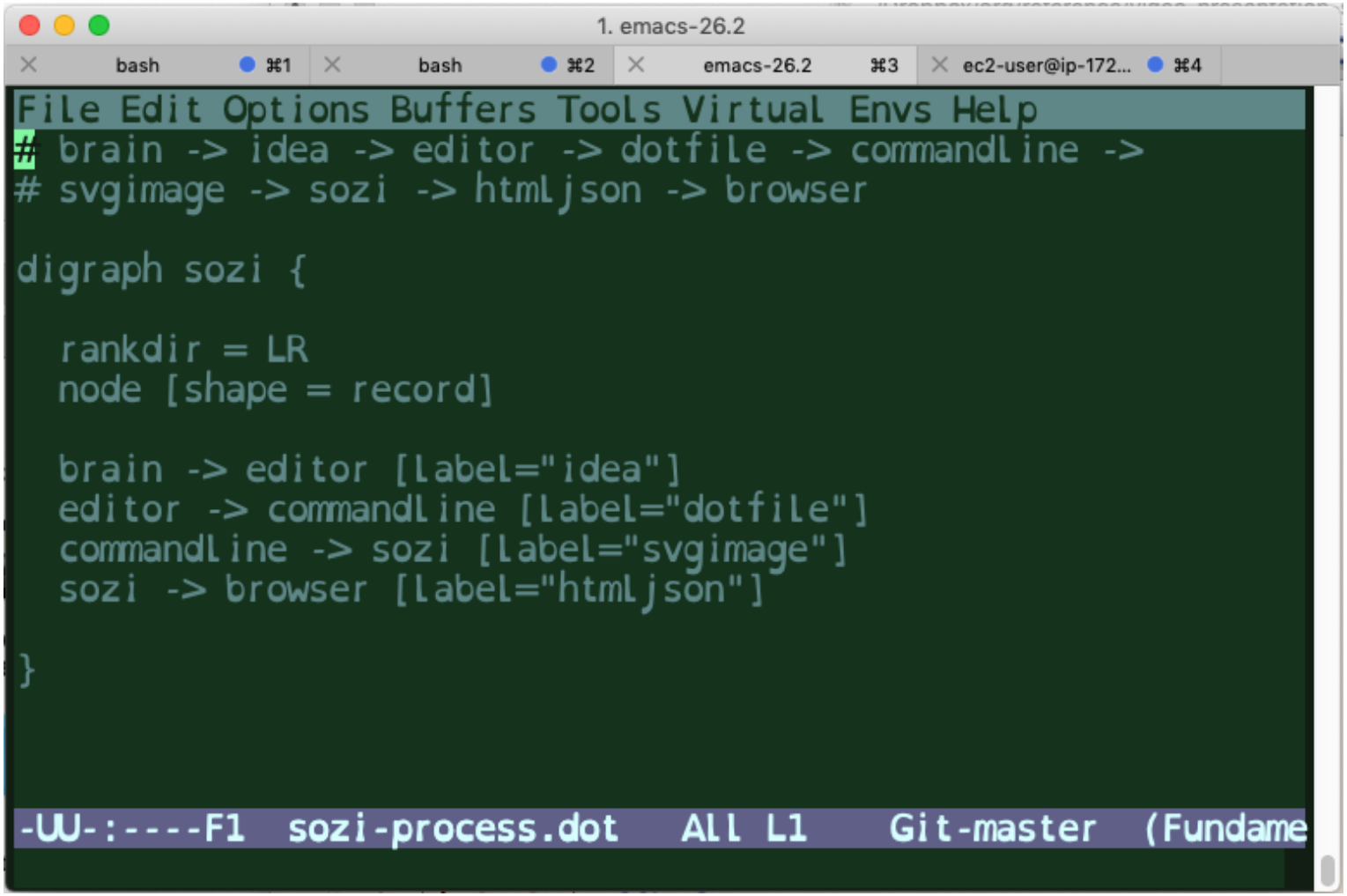
1. emacs-26.2
bash ⌘1
bash ⌘2
emacs-26.2 ⌘3
ec2-user@ip-172... ⌘4
File Edit Options Buffers Tools Virtual Envs Help
# brain -> idea -> editor -> dotfile -> commandline ->
# svgimage -> sozi -> htmljson -> browser
digraph sozi {
rankdir = LR
node [shape = record]
brain -> editor [label="idea"]
editor -> commandline [label="dotfile"]
commandline -> sozi [label="svgimage"]
sozi -> browser [label="htmljson"]
}
-UU-:----F1 sozi-process.dot All L1 Git-master (Fundame

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Acknowledgements

- Matthew Lynn: visual effects specialist
- Melissa Loudon, Andrew Li: citizen journalism inspiration
- Eric Level: teaching and classroom video
- SCaLE organizers, esp. A/V team

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Discussion Topics

- Related experiences to share
- Questions
- Opinions:
  - Is extra footage apart from screen capture useful (e.g. talking head)?
  - Video tutorials vs text/readme
- If there's time, we can watch the demo video or drill down into specific topics