Theory & Execution

Sep 30th 2021

Today's Plan

- Reading Discussion
- Executing Design Process Steps
- Design Crit *(Responsify Continued)*
- Mid-Class Break
- Responsify! Part 2 *(Assignment Review)*
- Follow along Figma Exercise *(Recreating the Bon Appetit site)*
- Industry Story

Reading Discussion

“Asking questions
can aid a crit”

Design Crit

“Return to concept
with a new lens”

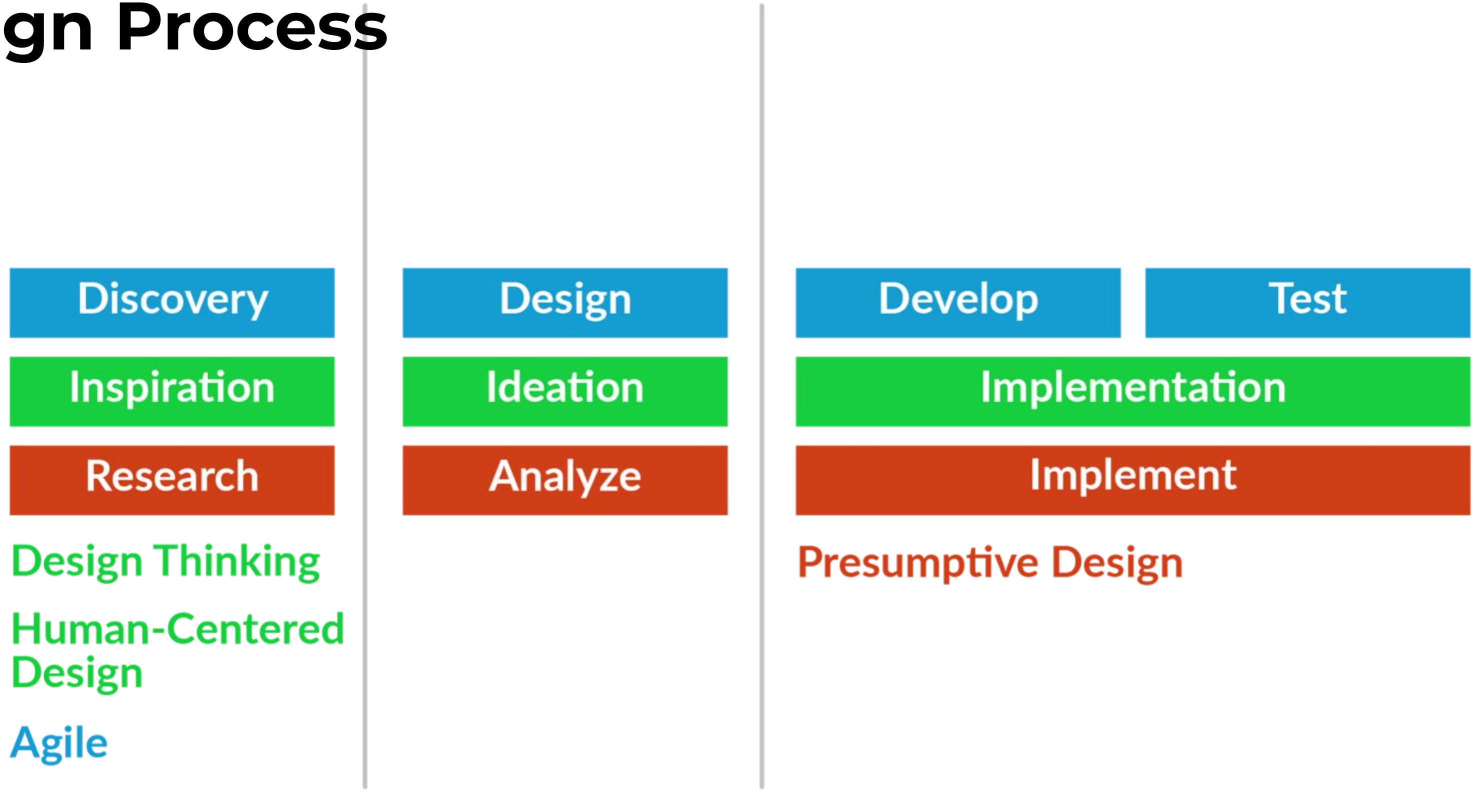
Iteration

“Balance pushing boundary
and shipping what works”

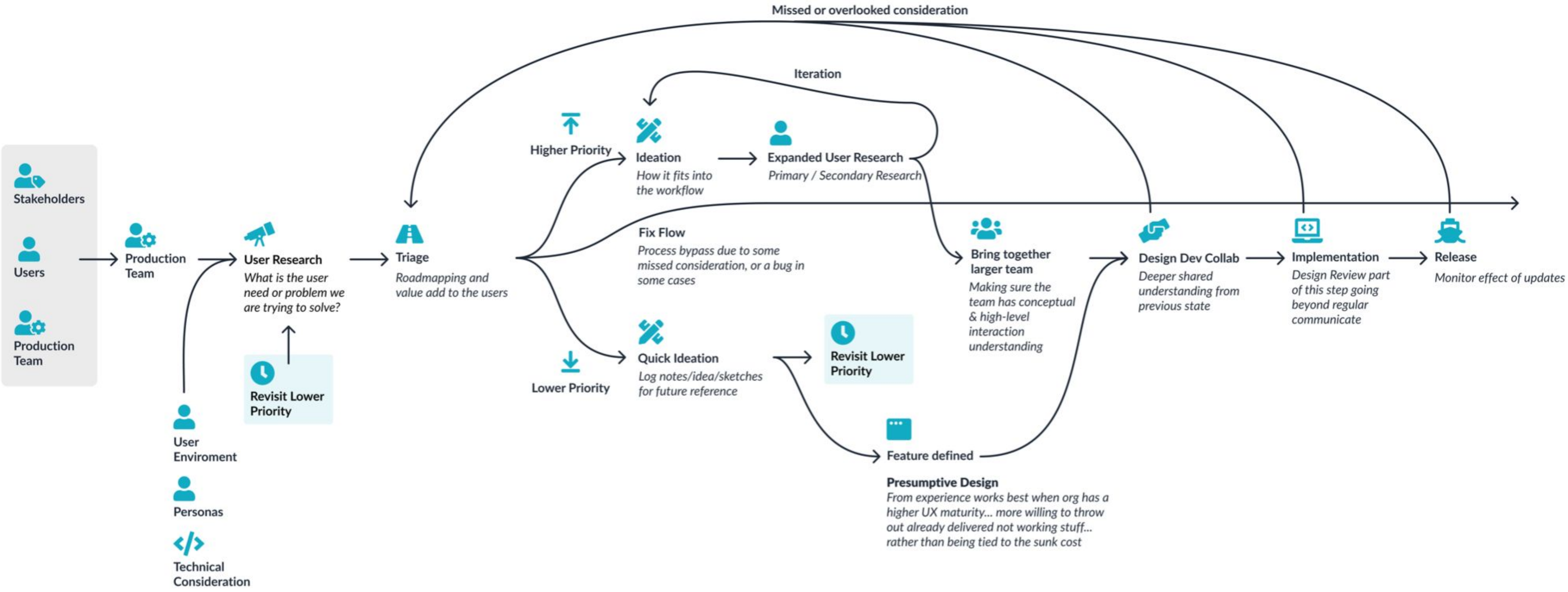
Divergent &
Convergent Thinking

Executing Design Process Steps

Design Process



Design Process



My “Regular” Design Process

Research

Interviews / Shadowing

Workflow Diagrams

Analogous Inspiration

Ideation

Sketches

Brainstorming

“100 Ways To”

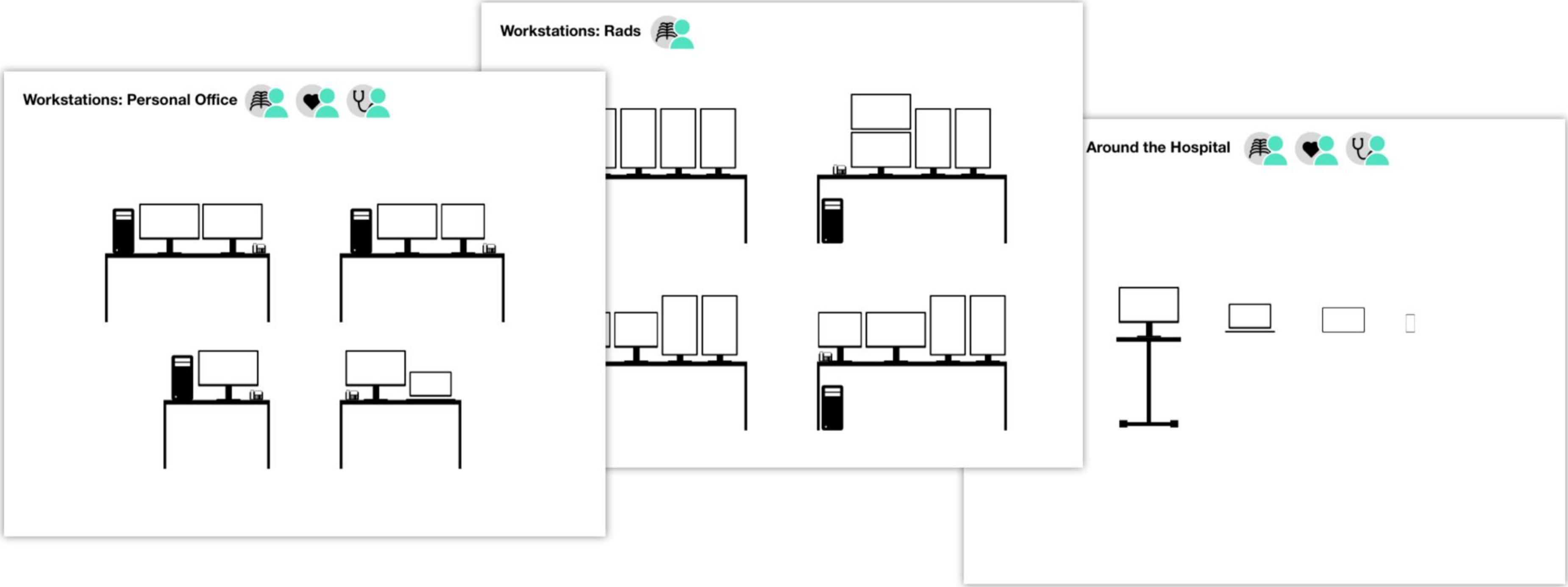
Implementation

“Swiss Cheese Method”

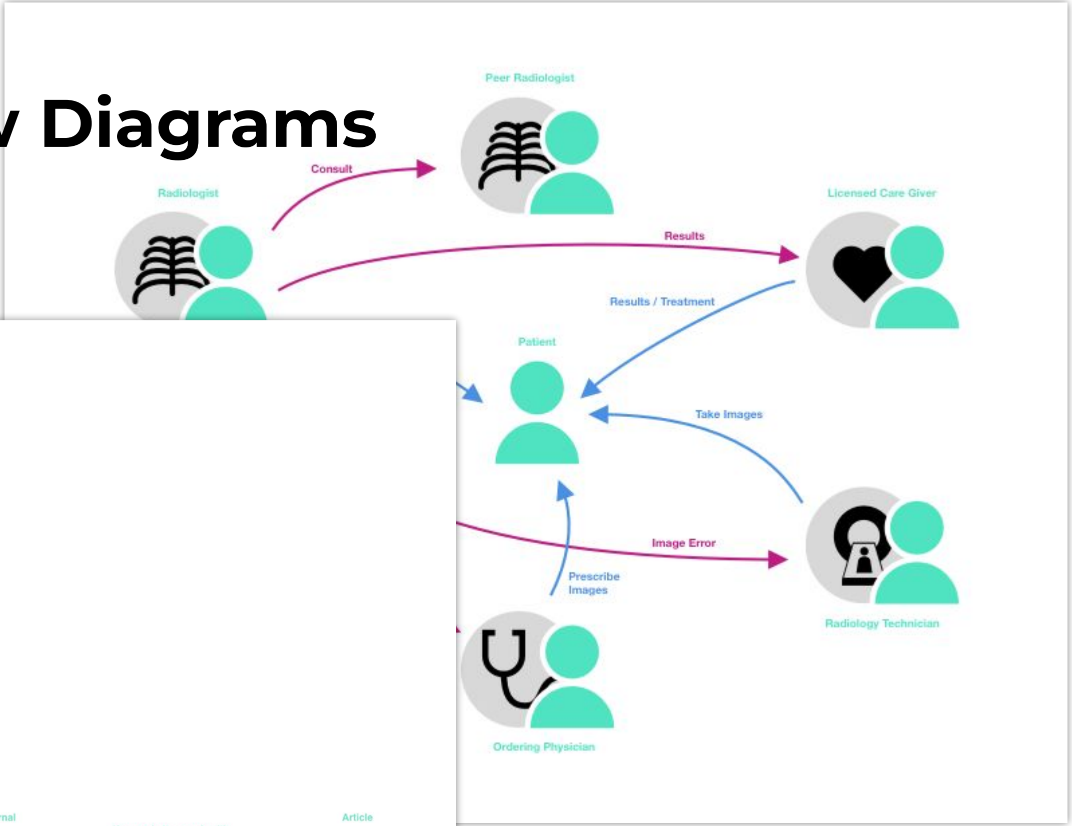
User Testing

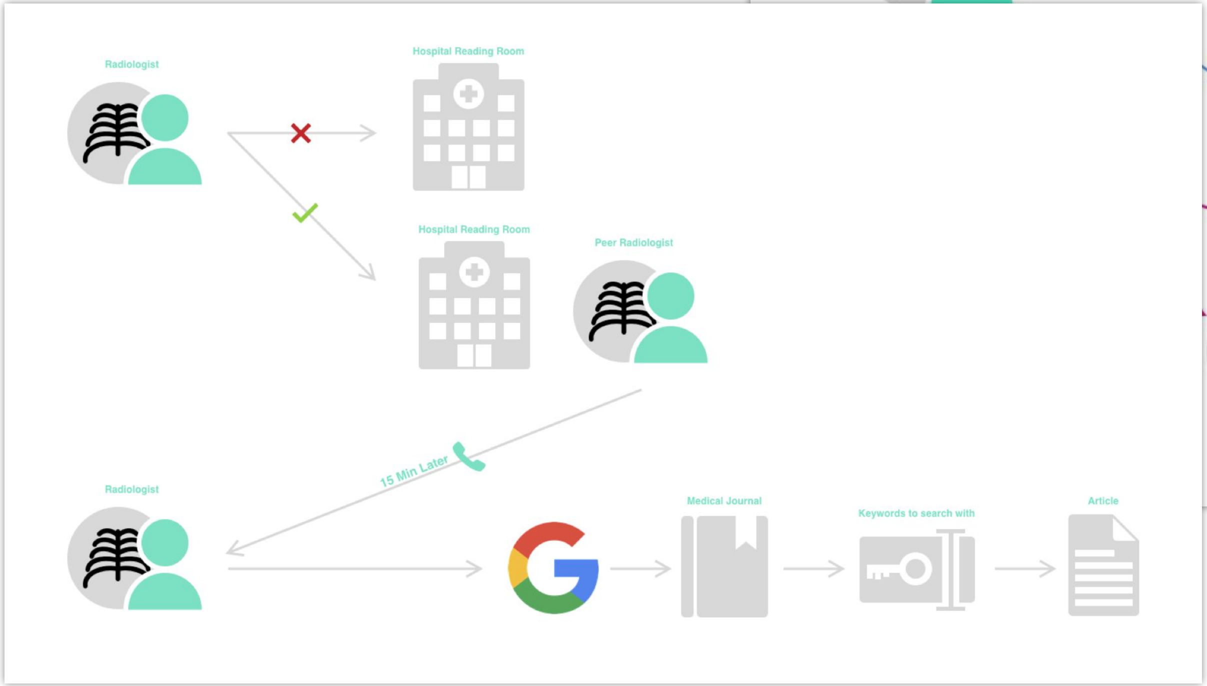
Ship It!

Landscape of User Workstations



Generating Workflow Diagrams





Secondary Research: Medical Journals

RG ■ Volume 25 • Number 5

RadioGraphics

a.

b.

deleted. With this in mind, routine sc
data reconstruction may be perform
categories of examinations. Increasi
storage capacity of the scanner can
sibility to the data, decreasing the
tration that may occur when addi
reconstruction is desired after the
are no longer available.

Data Reconstr

Data or image reconstruction

infoRAD

1409

RadioGraphics

Informatics in Radiology (infoRAD)

Introduction to the Language of Three-dimensional Imaging with Multidetector CT[1]

Neal C. Dalrymple, MD • Srinivasa R. Prasad, MD • Michael W. Freckleton, MD • Kedar N. Chintapalli, MD

The recent proliferation of multi–detector row computed tomography (CT) has led to an increase in the creation and interpretation of images in planes other than the traditional axial plane. Powerful three-dimensional (3D) applications improve the utility of detailed CT data but also create confusion among radiologists, technologists, and referring clinicians when trying to describe a particular method or type of image. Designing examination protocols that optimize data quality and radiation dose to the patient requires familiarity with the concepts of beam collimation and section collimation as they apply to multi–detector row CT. A basic understanding of the time-limited nature of projection data and the need for thin-section axial reconstruction for 3D applications is necessary to use the available data effectively in clinical practice. The axial reconstruction data can be used to create nonaxial two-dimensional images by means of multiplanar reformation. Multiplanar images can be thickened into slabs with projectional techniques such as average, maximum, and minimum intensity projection; ray sum; and volume rendering. By assigning a full spectrum of opacity values and applying color to the tissue classification system, volume rendering provides a robust and versatile data set for advanced imaging applications.

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NEW ENGLAND JOURNAL of MEDICINE

Perspective

DECEMBER 12, 2019

Machine Learning and the Cancer-Diagnosis Problem — No Gold Standard

Adewole S. Adamson, M.D., M.P.P., and H. Gilbert Welch, M.D., M.P.H.

Artificial intelligence is a branch of computer science devoted to the performance of tasks that normally require human intelligence. A major subbranch of this field is machine learning, in which computers learn to perform tasks by analyzing data rather than requiring specific programming instructions from humans — that is, they generate their own decision-making algorithms. The power of this technology lies in its ability to independently identify patterns in millions of data points in order to make classifications and predictions.

Machine learning has the potential to be extremely useful in medicine, particularly in the interpretation of medical images. Speed is an important asset: machine-learning algorithms can interpret CT scans after acute neurologic events much faster than humans, thereby reducing delays in diagnosis.[1] Automation of tedious and repetitive tasks, such as the examination of multiple lymph nodes for histologic evidence of metastatic disease, is another benefit.[1] Implementation of machine learning could also expand access to certain services that usually require clinical expertise, such as the screening of retina scans for diabetic retinopathy.[1] Machine-learning algorithms promise to deliver faster and more consistent diagnoses than humans and to ultimately improve patient care.

Although machine learning has a great deal of promise, it also has inherent limitations, particularly when it comes to diagnosing early-stage cancer. To understand why, it's important to appreciate how the technology works. Most machine-learning algorithms used in medicine are trained by means of a process called supervised learning, in which the computer is presented with images that have been labeled using an external standard that serves as the "ground truth."

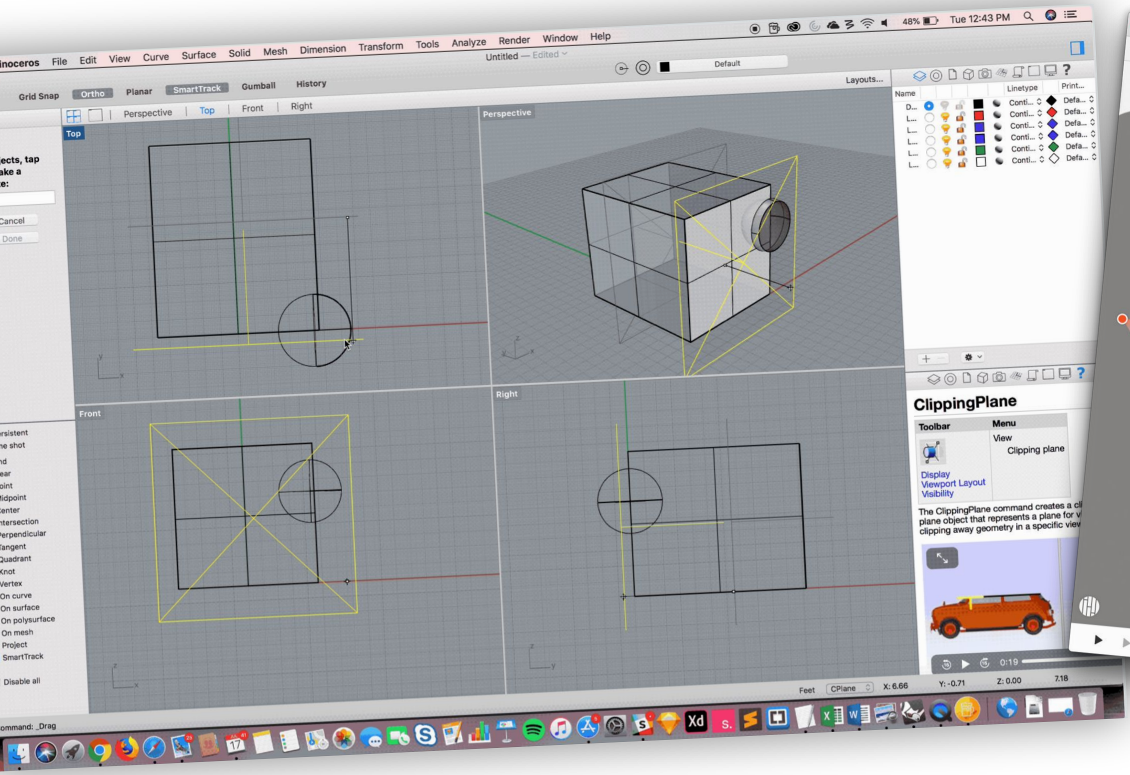
A simplified version of the supervised-learning process for cancer diagnosis using histopathology slides is shown in the figure. The process begins with a set of digital pathology images marked by pathologists as either "cancer" or "not cancer," which is subsequently split into a training set and a test set. Using the training set, the computer develops an algorithm that best discriminates "cancer" from "not cancer" on the basis of patterns (e.g., color, shape, and edges) and without explicit instruction or programming. The algorithm's per-

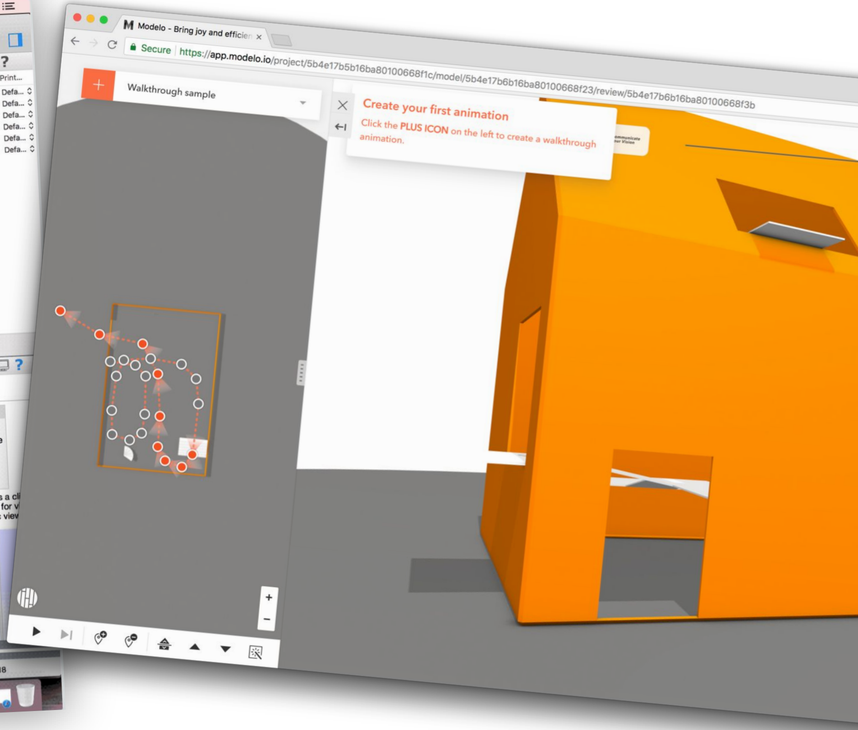
ar (MPR) imaging

Roger Hadfield, B.S., R.T.‡
Beatrice Mudge, R.T.*
Steven E. Kopits, M.D.†
Andrew F. Brooker, M.D.†
Stanley S. Siegelman, M.D.*

ability of the radiologist to de-
suggest appropriate surgery,
osis.

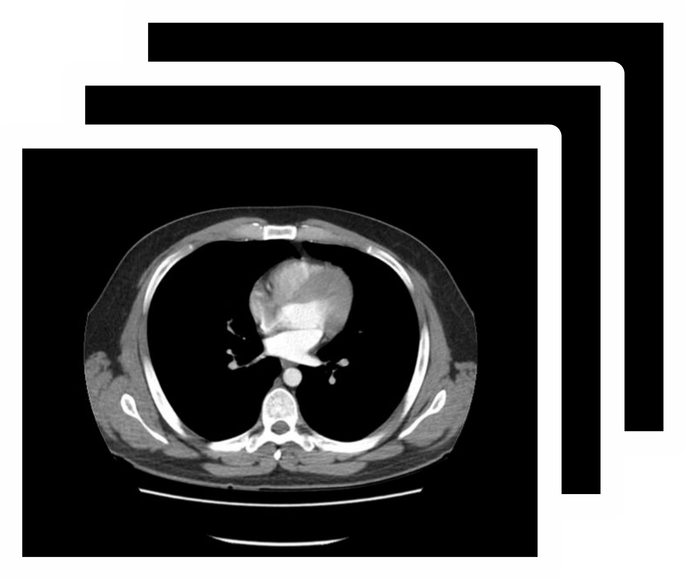
Analogous Research





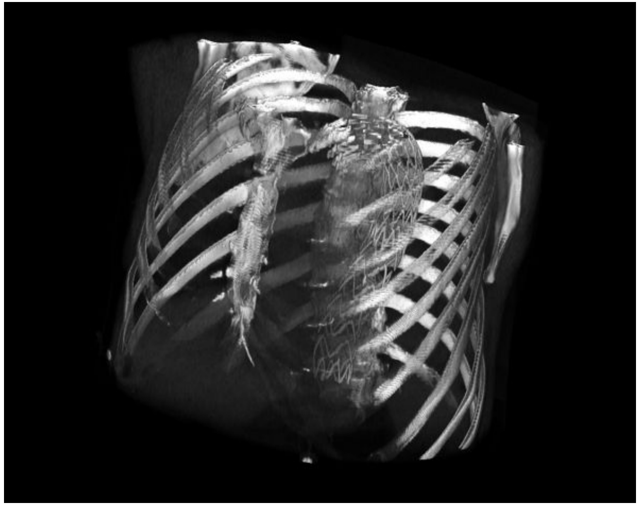
The 2D Viewport

Almost acts like a flipbook flipping through a stack of images from a CT or MRI

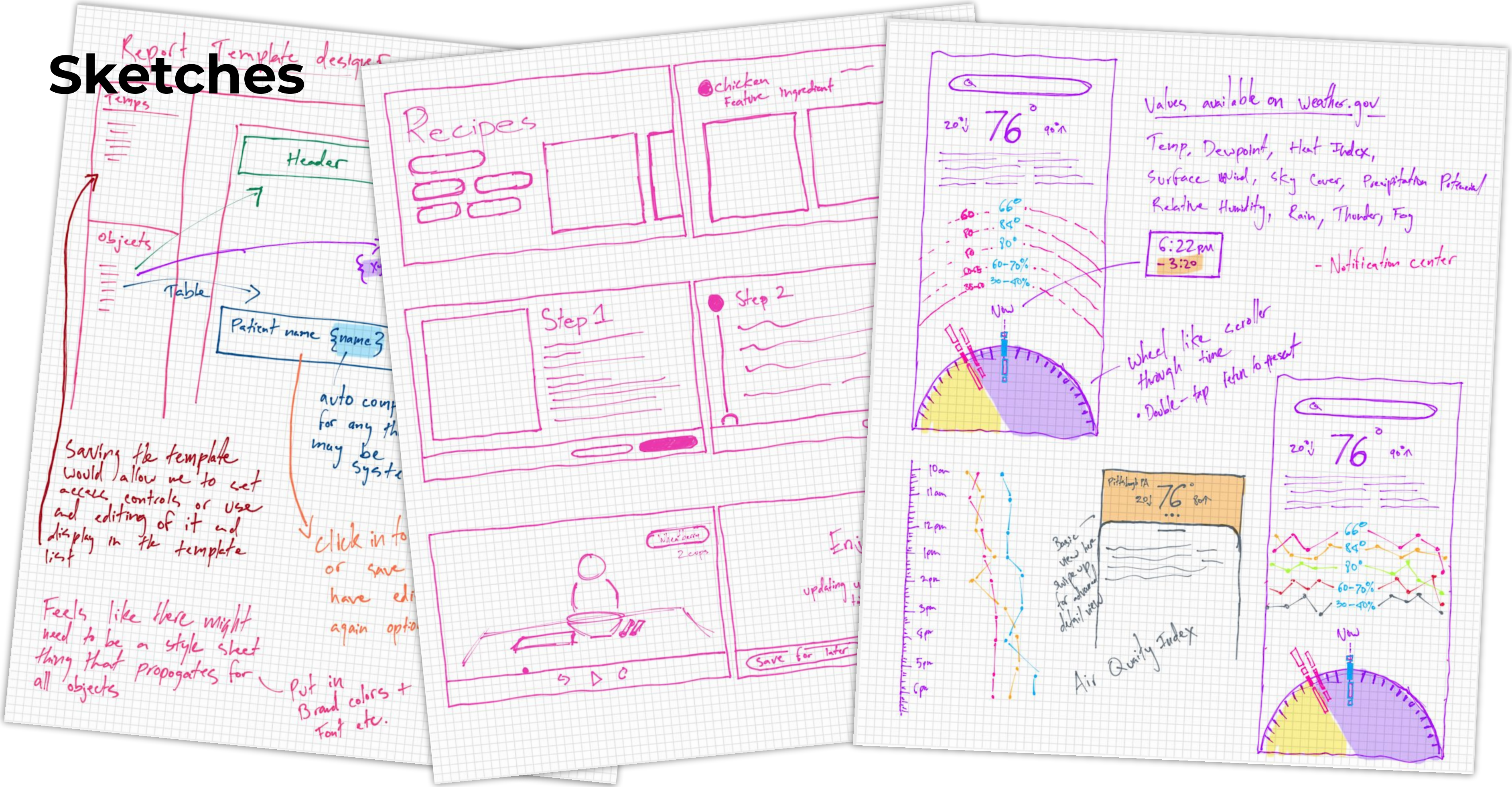


The 3D Viewport

Transform that stack of images into a volumetric view



Sketches


Report Template designer
Temps
Header
objects
Table
Patient name {name}
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Saving the template would allow me to set access controls or use and editing of it and display in the template list
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Feels like there might need to be a style sheet thing that propogates for all objects
Put in Brand colors + Font etc.
Recipes
Chicken
Feature Ingredient
Step 1
Step 2
Save for later
Values available on weather.gov
Temp, Dewpoint, Heat Index, Surface Wind, Sky Cover, Precipitation Potential
Relative Humidity, Rain, Thunder, Fog
6:22pm
- 3:20
- Notification center
Wheel like scroller through time
• Double-tap return to present
76°
Now
Pittsburgh PA
Air Quality Index

100 ways to use a paperclip

100 uses for a blender

100 Ways to ______

A brainstorming method to push you to think of more ways to solve a problem

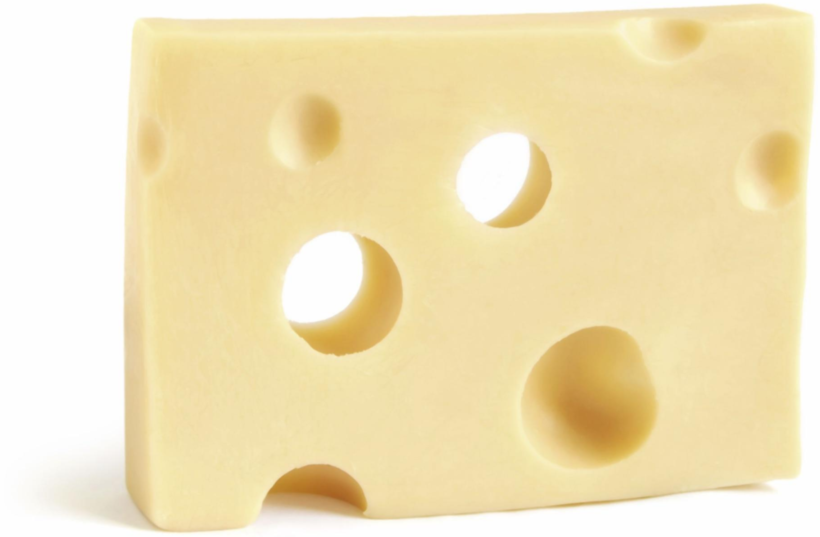
100 ways to delivery a donut

100 ways to make a paper plane

Swiss Cheese Method

Both you and your team try to break the design. Finding user conditions where the solution doesn't hold up.

Trying to turn your design proposal into a hole filled block, like swiss!



Design Crit *Responsify Continued*

Break

Responsify! Part 2

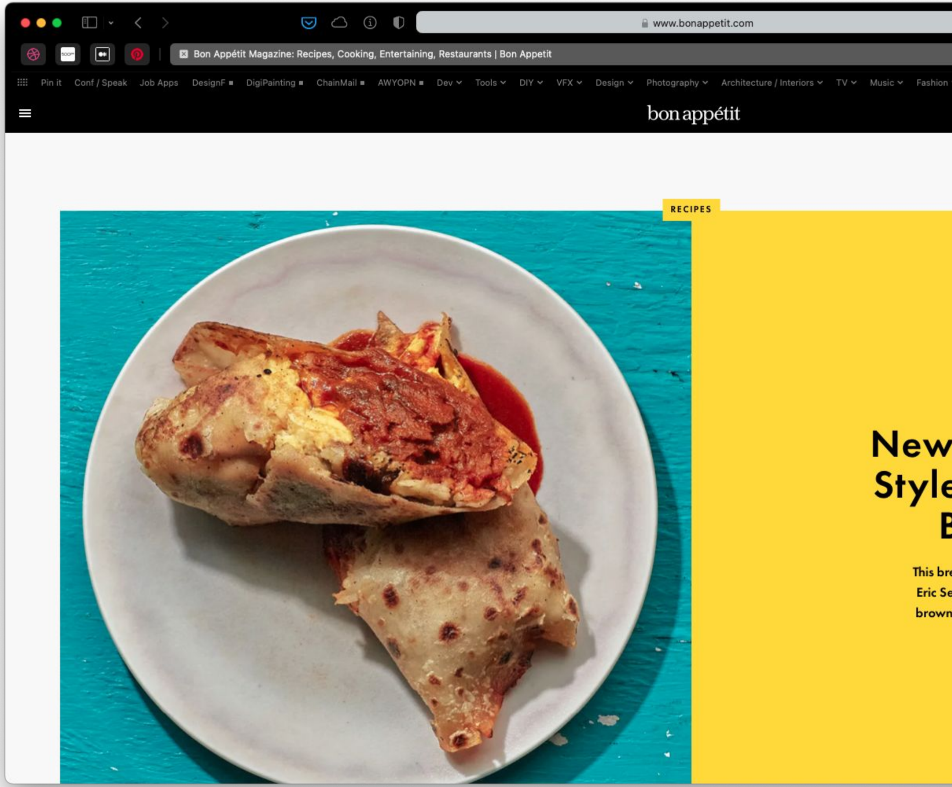
Assignment Review

Follow Along Figma Exercise

Recreating a pixel perfect version of the Bon Appetit website

Considering components & styles along the way

Reviewing the design on device (Figma Mobile App)



Next Week

Reading/writing posted in the next day or so; Will post on Slack when available

Rose Bud Thorn

This is working great!

A highlight, success, small win, or something positive that happened.

This is an opportunity!

New ideas that have blossoming or something you are looking forward to knowing or experiencing

This is broken!

A challenge you experienced or something you can use more support with

At least 2 of each in reflection of today's class